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Changing Structure of the Pork Industry

Abstract
Rapid changes are now occurring in the food system channel for livestock and livestock products. These changes (and their rapid pace) have created concern about the future structure of the livestock industry among both livestock producers and input suppliers. Much of the concern centers around trends toward contract production and vertical integration by large firms. A continuation of the present trends could result in both smallscale and larger independent producers, as we now know them, being eliminated from the channel.

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CHANGING STRUCTURE OF THE PORK INDUSTRY

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CHANGING PORK INDUSTRY STRUCTURE

Rapid changes are now occurring in the food system channel for livestock and livestock products. These changes (and their rapid pace) have created concern about the future structure of the livestock industry among both livestock producers and input suppliers. Much of the concern centers around trends toward contract production and vertical integration by large firms. A continuation of the present trends could result in both small-scale and larger independent producers, as we now know them, being eliminated from the channel.

If this were to come about, those who produce pork would serve in a much different ownership and decision-making capacity—that of contract producer. This article will attempt to identify some key factors behind these trends and some of the alternatives that independent producers may pursue in response to these trends. It will begin by examining the present producer-centered structure and identifying the conditions that support that structure.

CHARACTERISTICS OF THE CURRENT PRODUCER-CENTERED CHANNEL

The production decision making in the current market channel for pork is centered at the independent producer level (see figure 1). Producers respond to price signals through the markets for inputs and outputs. They confront these price relationships and make autonomous decisions for their farm units about how many hogs to produce, when to produce them, and what type to produce. In doing so, farmers as a group make the key production decisions for the entire pork channel. That is, collectively, producers (through their individual farm-level production decisions) determine the total supply of pork and the type of pork that is put on the market. In nearly all cases the price signals to farmers from
INDEPENDENT PRODUCER CENTERED MARKET CHANNEL FOR LIVESTOCK

PRODUCTION OF LIVESTOCK

FEED DISTRIBUTION

FEED MANUFACTURING

SOY PROCESSING

SLAUGHTER

PROCESSING

RETAIL PRODUCT

OPEN MARKET PRICING IN RESPONSE TO FARMER DECISIONS TO PRODUCE

OPEN MARKET PRICES IN RESPONSE TO FARMER PRODUCTION LEVELS

FIGURE 1
the input markets and the output markets are clear and visible to both producers and the general public.

Open market prices are generated at the soy processing, feed manufacturing, and feed distribution levels on the input side of the producer level. A similar situation exists on the output level. Slaughter livestock are priced in open markets in response to supply and demand for meat and other derivative products. Wholesale meat and meat products move through open markets to meat processors who produce retail products for sale through open markets to retailers.

The channel has thus served to communicate price signals back from consumers to farmers. Farmers have responded to these signals with production decisions. Those aggregate farmer production decisions are then communicated through price signals backward through the retail feed, wholesale feed, and feed ingredient processing levels. In this way the industry has determined the total supply of pork available. The individual farmer has been at the center of this system, and the aggregated effect of numerous independent farmer decisions has caused firms at other levels in the system to respond appropriately.

In the producer-centered channel the farmer has assumed the financial and production risks of owning and producing livestock. Farmers have been free to enter production or exit as they see fit—without interference from those who sell inputs or purchase outputs. The same has been true of the firms at the slaughter and processing levels and at the various levels in the input supply portion of the channel. Although significant cost barriers exist at some levels in the channel, no level has been dominated by
a few large firms to a sufficient degree that competitive problems developed. Nor have problems existed in transmitting reasonably accurate price signals. Farmers and consumers have had access to open market price information from the grain and soy processing level through the channel to the wholesale and retail price for final meat products.

Farmers have determined the genetics that would be used to produce pork and have made independent choices about the raw product characteristics of livestock produced on their own farms. Farmers have adjusted genetics to meet consumer demand for reduced fat levels and other characteristics. All levels and parts of the system on both the input side and the output side have responded to producers' quantity decisions, and prices have adjusted appropriately. A final and very important characteristic of the system is that consumers have accepted the available quantity and quality of product, and the price has adjusted to appropriate levels so that the quantity produced is purchased.

Thus independent farmers taken collectively play the role of the central decision-making group for the channel. They make their production decisions independently, and other parts of the system respond to their production behavior through adjustments in price and quantity. To date no one entity at any level in the channel has successfully challenged the independent producer in this role. That may not be the case in the near future.

INDEPENDENT FARMERS' LOW-COST PRODUCER POSITION

In the past, independent producers (as a group) have occupied the low-cost production position in the industry. This has not been true for all farmers. There has always been a group of farmers with production costs significantly higher than the low-cost industry norm. High-cost producers have been the least profitable at the top of the price
cycle and have sustained the highest losses at the bottom of the cycle. Such high-cost producers have been systematically forced out of the industry by the market forces.

However, as a group dispersed, independent producers have managed to provide the market with pork at a lower cost than any feasible competing production system. The independent producer-centered industry has continually become more efficient, and high-cost producers have been forced to exit. Farmers have rapidly adapted to larger production units and have adopted efficiency-increasing technology.

However, during the past decade this position has been challenged despite the adjustments made by the industry. A number of large firms have entered production through various types of contracting arrangements. In most of these arrangements there is little departure from a carefully established production management plan. The contracting producer must follow a strictly specified set of production practices and a detailed schedule for implementing them.¹

It should be emphasized that the large contractors are not necessarily producing huge numbers of hogs in a single location. The more successful pattern has instead been one where a number of "optimal"-sized units are replicated in different locations under the control of different contract producers. In most cases these units are similar to those used by many independent producers and are designed to produce approximately 5,000 head per year.

This has been done in a way that minimizes health and environmental problems and

¹ These contracting operations should be distinguished from the farmer to farmer contracting where individual contracts are executed between farmers with much less volume involved.
other similar problems typically thought to be limiting factors in larger sized pork production facilities. By replicating successful systems in a number of "optimal" smaller sized facilities dispersed through the production area, contractors and vertically integrated firms can achieve the objectives of large size (in terms of the number of head controlled) without serious health or environmental problems. Their ability to control large numbers of hogs has implications for both the marketing of hogs and the procurement of inputs, as will be discussed below. But unless such large-scale contractors and integrators can produce as efficiently as independent producers, market advantages may not ensure success.

Work by Kliebenstein, Hillburn et al. indicated that a number of intensively managed specialized units outside the Midwest had attained efficiency levels that meet or exceed the top one-third of Iowa producers. Figures 2 and 3 show selected efficiency comparisons between these operations and the top one-third of Iowa producers in the Iowa Farm Business Management Association record-keeping system.

Figure 2 indicates that the intensively managed operations in the South and Southeast enjoyed a $3.23 advantage in feed cost over the top one-third of Iowa producers and nearly a $5.00 advantage in total costs if an equal price of corn is assumed for both areas. This advantage drops to approximately $2.50 for feed and $4.00 for total costs if it is assumed that the southern and southeastern operations pay higher corn prices to reflect transport costs.

Although these differences may not be large enough to rapidly move the industry out of the western Corn Belt, they are a significant economic force. The differences between the intensively managed operations and the bottom one-third is much more troublesome.
INDEPENDENT IOWA PRODUCER VS. NORTH CAROLINA COMPETITION (1983-1986)

($ PER CWT.)

W/ CORN PRICE DIFF. ($21.24)

(

FIGURE 2

SOURCE: HOG FARM MANAGEMENT. 4/88 TABLE1
INDEPENDENT IOWA PRODUCER VS. NORTH CAROLINA COMPETITION (1983-1986)

FIGURE 3

SOURCE: HOG FARM MANAGEMENT, 4/88 TABLEI
The intensively managed operations enjoyed a feed cost advantage of more than $7 per hundred weight and a total cost advantage of about $15. This magnitude of difference is sufficient to move the industry at a much faster rate.

Figure 3 shows other efficiency measures and average size of operation as measured by hogs marketed per year. Once again the intensively managed southern operations exhibited efficiencies comparable to or greater than the average Iowa producer. These operations were also more than three times larger when measured by number of head producers.

Figures 4-6 show very different results when the top 10 percent and top 20 percent of Iowa producers are compared with the intensively managed southern operations. The Iowa producers exceeded the performance of the intensively managed southern operations in both feed cost and total cost. They accomplished this despite somewhat fewer pigs weaned per litter, litters per sow per year, pigs per sow per year, and much smaller average herd marketed per year. Therefore, it is not impossible for top Iowa producers to compete effectively despite the fact that some possibilities for improved efficiency exist for the majority. But it will be necessary to bring efficiency levels up for much of the industry to prevent erosion of the current western Corn Belt position in hog production.

To summarize, the position of dispersed independent farmers as low-cost producers has been seriously challenged by the entry of larger firms' more intensively managed integrators and contractors. The replication of successful intensive management techniques at a number of production sites coupled with the control of significant numbers of livestock has raised the cost-efficiency standards for the swine industry. It must be emphasized that
INDEPENDENT IOWA PRODUCER VS. NORTH CAROLINA COMPETITION (1986)
FARROW - FINISH

($) PER CWT.)

FIGURE 4

SOURCE: HOG FARM MANAGEMENT. 4/88 TABLE 2
INDEPENDENT IOWA PRODUCER VS. NORTH CAROLINA COMPETITION (1986)
FARROW - FINISH

FIGURE 5

SOURCE: HOG FARM MANAGEMENT, 4/88 TABLE 2
INDEPENDENT IOWA PRODUCER VS. NORTH CAROLINA COMPETITION (1986)
FARROW - FINISH

FIGURE 6

SOURCE: HOG FARM MANAGEMENT, 4/88 TABLE2
a significant number of independent producers currently achieve or exceed the level of cost efficiency enjoyed by the intensively managed contract operations. Although this demonstrates that it is by no means impossible for independent producers to exceed cost performance enjoyed by intensively managed operations, it will not guarantee continuation of the producer-centered system. Those who desire to maintain the current system must recognize that production-cost efficiency is not as great a barrier to entry as once was the case. In addition, it will be necessary to increase the number of producers achieving high levels of efficiency now attained by contractors and integrators.

INDEPENDENT PRODUCERS’ CAPABILITY TO FINANCE PRODUCTION

Independent producers have typically financed the production of hogs in the United States. Before specialized confinement systems were developed, the major needs for financing were limited to the cost of livestock and feed. Credit for these items was of the lower risk "short-term self-liquidating" kind, and many lenders were willing to provide it. As confinement systems have become more common in the past two decades, they have created a need for a higher risk multiyear component in financing for swine production operations. Even the livestock and feed components of the production costs have become somewhat more risky as a greater fraction of these inputs have been purchased from off-farm sources.

The movement from less capital intensive pasture production systems to confinement systems coupled with trends toward more purchased inputs have increased the need for debt financing. This is particularly true for producers who are just beginning to farm. Such financing was readily available for most producers during the 1970s and early 1980s. Land
and other farm assets continued to increase in value and provided almost automatic increases in net worth to back such credit. Producers were optimistic about the future, and lenders were more willing to extend credit based on collateral values.

Adequate risk capital (equity) and debt capital were available as a result. In some cases, the amount of risk capital available to independent farmers increased despite poor profits. Rising asset values created net worth increases that frequently exceeded the value of operating losses due to inefficient production practices.

Falling asset values during the early and mid-1980s changed the situation for many swine operations. Net worth declined (in some cases despite profitable production), and the risk-bearing capacity of these operations also declined. Lenders' perceptions of the repayment potential and growth potential in swine production also changed. In some cases, farmers themselves became less willing to assume the risk and debt in production.

Although the financial crisis of the early 1980s did not place the majority of swine producers in serious financial difficulties, falling asset values did reduce the aggregate net worth in the sector. Because falling asset values reduced the net worth of producers with little or no debt and the indebted producers alike, the net effect was to reduce aggregate risk capital available to finance pork production. Whether or not the aggregate level of risk capital is adequate may be debated, but the sector-wide decline in risk-bearing capacity cannot.

Beyond the effects on risk capital, the flow of debt capital was also curtailed. Attitudes of both farmers and lenders toward debt changed. A significant number of farm borrowers were less willing to assume high debt burdens. Lenders became much more
cautious about the security of loans to swine producers.

The farm debt situation had more direct effects on the industry through individual producers who were highly leveraged at the beginning of the 1980s. A substantial portion of such producers either have been forced to make major adjustments in their operations or have done so voluntarily. Asset restructuring and downsizing by way of a partial liquidation of the asset base was practical for some producers. In other cases, debt restructuring and/or partial discharge of debt was required. For still other producers, total liquidation or Chapter 7 Bankruptcy was necessary. It is important to note that there were some very knowledgeable and efficient operators in each of these categories.

Those who could restructure assets and down size are in a relatively good position but may not wish to expand by using added debt. Those with downsized operations based on restructured debt are nearly always in a relatively poor position to assume additional production or market risk. The nature of debt restructuring and Chapter 12 Bankruptcy is to reschedule or write down debt to the level necessary for survival and repayment of remaining debt obligation. This generally means that the operation is highly leveraged and has little or no additional borrowing capacity. These two conditions severely limit the operation's ability to assume normal price and production risk or to invest in further expansion through ownership. Farmers involved in total liquidation or Chapter 7 Bankruptcy are also in a poor position to obtain production assets. The net effect of these changes has been the creation of a pool of producers (in many cases very knowledgeable, skillful, and efficient) with a severe capital shortage.

These segments of the industry cannot be ignored when the potential for structural
changes is considered. They represent a new subset of producers that is no longer willing or able to finance production. Many already possess the skills and knowledge to produce efficiently, and others can produce efficiently under the close supervision of a contractor. Those who wish to maintain the current independent producer centered structure must recognize that contracting provides what may be the only viable opportunity for skilled producers in financial difficulty or without adequate risk capital to use their skills. In the past such producers may have been forced from the industry by lack of capital or risk-bearing capacity. Contracting now provides the skilled producer with the option to continue producing without these elements.

ACCESS TO PRODUCTION TECHNOLOGIES AND GENETICS BY FARMERS

Independent producers traditionally have had open access to improved genetics and efficiency-increasing production technologies. To a large degree, genetics and production technology have been accessible on an equal basis to all producers. Genetics and new technical innovations could be obtained either through purchase in the marketplace or free of charge through public research institutions such as USDA and the land-grant university system.

The pork industry has a history of adopting improved genetics and new technologies and using them to respond to changing consumer tastes. Conscious selection and breeding programs to increase lean and reduce fat radically changed the type of hogs produced between 1950 and 1970. Similarly, the industry has made rapid changes in feed efficiency and prolificacy during the period 1970-89. As a rule, genetic improvements have moved, and continue to move, through the industry at a rapid pace.
Likewise, efficiency-increasing production technologies have been purchased in the open market and implemented by the industry with little lag time. Research findings on animal management and nutrition have been adopted quickly. The willingness of the industry to adapt to changing consumer preferences and adopt improved production practices and technologies promptly has helped to maintain the farmer-centered system.

A key factor in the adoption process has been the open access to any improved genetics and production technologies developed. In the past, none of the firms controlling and selling such technologies have actually used the technologies in livestock production. Instead, genetics and technology have been put on the open market for any producer to freely purchase. Control of technology by a hog producer can lead to a much different structural outcome. Where a large integrated firm controls key production technologies or genetic characteristics, the current independent producer system may be seriously threatened. By limiting the access to the production technology to the set of producers who are willing to contract or otherwise commit production, a firm can exert significant influence in the market channel.

Even without the actual exclusive control of key genetic characteristics or production technologies by large firms, producers will be forced to adopt at a faster rate. The falling production cost structure and processor demand for more carcass uniformity will create a need for even more rapid adoption of new techniques and genetic characteristics. In all likelihood independent producers themselves will need to coordinate the genetics they use with other producers in order to provide the needed uniformity. Producers will be forced to do so by competition in the market if open access to genetics and technologies is
Available. Although this will represent significant change for independent producers, it will be less traumatic than the change that might occur if contractors or integrators gain exclusive control of important genetic factors.

Exclusive control of key technologies or genetics by large firms producing hogs can be expected to hasten the decline in the competitive position of independent producers who do not have access to the technology. At the same time exclusive access will be strengthening the position of the organization controlling the key factors. Open access or at least competitive markets for new technologies and favorable genetics are a necessary condition for the current production-centered structure. But open access may not be a sufficient condition to maintain that structure. Voluntary coordination among producers may also be required.

ACCESS TO OPEN COMPETITIVE MARKETS BY INDEPENDENT PRODUCERS

Competitive open markets for inputs and outputs have ensured that producers of all sizes could enter and exit production freely without severe penalties. Individual producers have been able to access slaughter markets without extremely high investment or high minimum volumes. Furthermore, the competitive markets have provided producers of all sizes with nearly equal input costs and prices for the hogs they produce. As a consequence, differences in production costs and profits have been caused by differences in efficiency at the farm level rather than by the inability of individual farmers to: (1) sell output at a price equivalent to other sellers or (2) purchase production inputs at a price similar to competing producers. Even the existence of oligopoly pricing for output has not constituted a serious
threat to the independent producer structure.\(^2\)

As contract production becomes increasingly popular, both the input and output markets can be affected. This is particularly true if much of the contracting activity is conducted by large firms marketing large numbers of hogs on a regular basis. Such firms can provide value to packing firms in terms of regular large volume shipments. The value of packers can be translated into higher market prices than those offered to producers marketing smaller quantities less frequently.

Price preferences for large volumes can blunt competitive pricing and leave the independent producer in a less desirable position in the market. The availability of internally produced supplies to vertically integrated packers has a similar effect. With a portion of the required kill assured, bids for the independent producer's volume may become less vigorous. At some point, the independent producer becomes a residual supplier in the market.

Serious consequences to independent producer structure flow from reduced access to open markets. The published market price for livestock no longer reflects total supply and demand. Smaller volume producers operate at a price disadvantage to sellers capable of making regular deliveries of larger numbers of hogs. This means that a small volume shipper with costs equal to a large volume shipper will earn less profit at the top of the price cycle and incur larger losses at the bottom of the price cycle. Over longer periods, the

\(^2\) Although high prices for inputs or low prices for output due to lack of competition may have reduced farm income and consumer welfare, it did not threaten to displace the independent producer's position in the market channel or radically change industry structure.
small volume shipper will have less capital for expansion, reinvestment, and replacement of fixed assets.

To survive and continue to operate in such a situation the residual suppliers must gain cost advantages sufficient to make up the difference in market prices. Given the increase in efficiency by some large intensively managed operations, it can become increasingly difficult for independent producers to compensate for market advantages through cost advantages alone. This is especially true where access to key production technologies may be controlled by the integrated firms that independent farmers must compete against. As a result, reductions in open access to competitive markets provide a major treat to the current independent producer-centered structure. Larger disparities in price for volume shipment and residual supplier status for independent producers are a potentially strong force for structural change.

LITTLE OR NO ATTEMPT TO COORDINATE THE SYSTEM BY LARGE FIRMS

There has been an increasing trend toward vertical integration in many of the livestock markets during the past 30-40 years. The broiler and turkey industry, the beef cattle industry, the sheep and lamb industry, and the swine industries have all seen some degree of vertical integration through ownership or contracting. In the meat and poultry sector, the broiler industry is vertically integrated to the greatest degree. Nearly all broiler production takes place under contract with fully integrated firms. Virtually no open markets of any consequence are accessible to farm level producers of live broilers.

The integrating firm typically controls the entire production process including procurement of grain, manufacture or procurement of feed ingredients, grinding and mixing
of feed, development of breeder flocks, hatching of chicks, procurement of transportation, production practices used, processing of birds, and the delivery to urban markets. Vertical integration in other species is not nearly so pronounced at this time. Some packing firms own (or are owned by) input suppliers, but viable open markets continue to exist for most species of livestock.

This condition could change quickly. The beef slaughter industry has become increasingly concentrated into the hands of a few large firms during the past decade. Similar conditions have come about in the lamb slaughter industry. There is some concern that pork production may be following a similar trend.

Concerns about an increasingly concentrated slaughter sector are compounded by the fact that some of the same firms have significant positions in the processing sector. Specifically high levels of horizontal concentration have developed in the feed ingredient industries (oilseed processing, corn refining, and corn processing). With soy processing being the possible exception, producer-controlled cooperatives have no significant market share at the feed ingredient processing level in the channel. There is less concern about the feed manufacturing level, which is somewhat less concentrated, and the feed retailing level, which is even more widely dispersed. Not only are there lower levels of concentration, but producer-owned cooperatives are more influential at these levels. This permits greater producer influence on pricing and trade practices.

Although horizontal concentration in the livestock slaughter sector has existed at various times in the past, the concentration at other levels in the channel represents a unique dimension to the current concerns. In past years, firms involved in slaughter have
not held a significant market presence at the input processing level or the production level in the vertical livestock channel. Several firms now involved in pork (and beef) slaughter have acquired or developed significant positions at levels other than slaughter or meat processing. A few have established a presence (through mergers, acquisitions, or new investment) at all levels—including the actual production of livestock (see figure 7). Cooperatives have not engaged in actual production at this time.

There is little evidence that such firms are (at present) using vertical coordination to orchestrate the activities of their subsidiary operations at various levels in the pork channel. Nevertheless, the fact that these firms now occupy positions at all levels in the channel would permit them to operate in an integrated fashion, given the proper set of conditions. Presence at each level in the channel permits critical business experience and knowledge to be accumulated at each level. This knowledge and business experience, now being gained, coupled with presence at all levels could allow these firms to move more quickly into integrated hog production than other potential competitors without knowledge and position. Given the correct set of economic conditions (output price relationships, consumer demands, and cost relationships), there would be a strong economic incentive for firms holding such channelwide positions to coordinate the channel.

Vertically integrated firms with a significant market share at key levels in the channel could benefit in two ways. Competitive advantages could flow from greater efficiencies gained by coordinating the activities in the channel. But competitive advantages could also

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3 Including the production of hogs either internally or control of the production process through production contracts with farmers.
FUNCTIONS IN THE MEAT CHANNEL CONTROLLED BY INVESTOR-OWNED FIRMS & COOPERATIVES

Grain Merchandising Processing
    ↓
  Feed Manufacturing
    ↓
Feed Wholesale
    ↓
Feed Retailing
    ↓
Livestock Production
    ↓
Slaughter
    ↓
Meat Processing
    ↓
Branded Product Supermarket Shelf

FIGURE 7
arise due to protection from normal competitive pressures gained from barriers to entry in key input and output industries.

Competitive advantages through cost savings may come from the coordination and control of genetics, input manufacturing, feeding programs, input transportation, output transportation, and the operation of processing plants. Risk management benefits might be expected to accrue from control over inputs and raw products at each successive level in the channel. Prior knowledge of the demand for inputs and raw products at each level would permit internal plant capacities to be more fully utilized and price uncertainty reduced. Specific product characteristics in the final output could be more easily controlled under a channelwide system where inputs, genetics, and output are all under the direct control of a single set of decision makers.

However, competitive advantages from entry barriers are also a distinct possibility. High (or even moderately high) levels of market concentration at two or more levels in the vertical channel are likely to provide a much greater barrier to entry when the major firms involved are vertically integrated. In order for competing vertical systems to be developed, new entrants would be required to establish presence in industries at all levels in the vertical channel--including those concentrated levels where a few powerful, well-established firms operate.

In fact, difficulty in establishing competing systems may arise from several types of entry barriers. Large quantities of capital would be necessary to establish presence at all levels in the channel. Substantial information, industry knowledge, and skill barriers exist at all levels. Entry into those industries where high (or moderately high) market
concentration exists would present an even greater challenge. This is particularly true when a great deal of industry volume is moving under internal transfer prices rather than through open market mechanisms. Finally, the development of consumer brand loyalty may present a significant entry barrier for new firms attempting to establish a consumer franchise.

Attainment of a vertically integrated system combined with a significant share of market at key levels in that system could provide market power far greater than horizontal concentration or vertical integration alone. Firms enjoying such a position can be expected to have a much greater measure of protection from competitive forces than might exist with either simple horizontal concentration or a vertically coordinated system where no levels in the channel are concentrated (e.g., poultry).

Until recently, there have been few attempts to coordinate the channel for pork. For the first time there now are firms with the proper positions in the channel and with adequate capital to make such an attempt. Significant volumes of livestock under a coordinated system would make it difficult to maintain the open market producer-centered system of production.

CONSUMER ACCEPTANCE OF THE PRODUCT AS PRODUCED

One very important factor in maintaining the independent producer-centered pork channel has been the willingness of U.S. consumers to accept the product as produced. United States per capita consumption of pork has been rather steady over the past 20 years (see figure 8). Although there has been a steady trend toward lower fat content, the types of pork products consumed have not changed a great deal. Also, pork has not shared in the fast food restaurant boom to the degree that beef and chicken have. However, the stable
Consumption Per Capita

- **Chicken**
- **Turkey**
- **Beef**
- **Pork**
consumption trends are encouraging changes in the pork industry. Basic changes in the consumer population will make such changes even more imperative in the future.

As the U.S. population ages several trends can be expected in the consumer sector, and some are already beginning to develop. Among the more important are the following:

(1) The total per capita food consumption of all food products is likely to decline as the population becomes older on average.

(2) The mix of foods consumed is also likely to change. Fruit, vegetables, and grain-based products may displace a portion of the meat, poultry, and fish products now consumed.

(3) Aging consumers become more health conscious, and this is frequently reflected in the kinds of food products selected. Foods perceived to contribute to health risk are avoided, and foods perceived as beneficial are sought.

(4) Large numbers of financially established consumers translate into demand for higher quality food products. Where quality differences are apparent, this group is much more brand conscious.

(5) Aging consumers with dietary restrictions are likely to demand more special processing and to want to know the nutritional content of the foods they purchase.

(6) An aging population of "Baby Boom" families can be expected to result in a higher fraction of the population living in smaller household units. As grown children move out and normal mortality rates act on the large number of households established between 1965 and 1985, average household size will decline.

(7) The number of meals consumed away from home and prepared by institutions will continue to increase and may accelerate as a larger fraction of the population lives in various types of care facilities.

These trends can be expected to create some fundamental changes in the types of pork products (both fresh and processed) that consumers demand. Astute food industry firms will have opportunities for profitable exploitation of the demand created by these
demographic shifts. Developing products (fresh and processed) to meet demands for older, health conscious, higher income consumers living in smaller households and eating more meals away from home will not be confined to the slaughter and processing levels in the channel. The production level will be affected, and, in some cases, the input levels will also be affected. To the extent that product development requires specialized raw product characteristics the production level will need to make adjustments. Where those specialized raw product characteristics require specialized feed, vet services, vet supplies, or production facilities the input sector will also be affected.

Meeting the changing consumer demands is likely to require that carcasses and carcass characteristics be more predictable. Efforts by processors and sellers of fresh pork to provide reliable branded products and to develop products of known nutritional content in appropriate portion sizes and, perhaps, even in flavors desired by consumers will require more uniformity in genetics, or more conformity in inputs and production practices. These same values are likely to be important in the growing institutional food markets. Attempts to meet the exacting specifications of institutional buyers will also be hampered by variable carcass characteristics.

ALTERNATIVE STRATEGIES FOR PRODUCERS

These assaults on the underpinnings of the present pork production and marketing system are certain to result in significant changes in how the system operates. Among the more likely changes is increased vertical coordination in the production and marketing of hogs. Along with greater coordination the producer influence and decision-making can be expected to decline. A high degree of tight coordination will reduce decision-making
autonomy much more than a moderate degree of loose informal coordination. The exact degree of coordination that might occur and the speed with which it will happen are both open to debate. Nevertheless, the prospect is disturbing to most producers and producer groups. Many would prefer to maintain as much of the flexibility they now enjoy in the producer centered decentralized system as possible.

If no action is taken by producers to reverse the trends, they will probably continue. There are at least three alternative strategies that producers may pursue as the new system evolves. One option is to simply adjust to the changes as they occur. This would require little or no collective action by producers. Those with good efficiency levels and the capability to finance their production could continue to produce until lack of access to open markets or genetics make contract production more profitable. As stated earlier there is no certainty about how fast these changes will occur.

A second option involves the use of collective action to change the laws that surround the industry. For example, some producer groups have suggested that farmers should pursue national level anti-trust legislation and more vigorous anti-trust enforcement to prevent (or limit) simultaneous horizontal concentration and vertical integration from occurring in large firms. They might attempt to place limits on how proprietary genetics may be used as a tool for promoting integrated production. This would be done to create a "level playing field" for independent producers and ensure access to technology on an equal basis.

Given the current trends in US antitrust actions and the potential difficulty passing legislation to limit the use of genetic and biotech discoveries a total reliance on this strategy becomes questionable. Furthermore, simply limiting the activity of large firms does not
effectively address several critical issues such as the low levels of production efficiency in a portion of the industry or consumer demand for more consistent meat products. Low productivity and failure to adapt to consumer preferences are difficult to protect in a free enterprise market economy. Although antitrust and legislative solutions may have a place they are probably not sufficient by themselves.

A third strategy could involve use of collective action by producers through farmer owned cooperatives. Cooperatives have the potential to serve producer interests in a wide variety of circumstances. Collective action through cooperatives could address most of the fundamental changes occurring in the pork industry directly. Cooperatives could assist producers in financing production. They could also help to assure that producers have access to genetics. For example, joint ventures, licensing, or outright purchase of key genetics would almost certainly be possible if the cooperative could negotiate for a large group of farmers. This would put farmers in a position to participate in efficiency gains from biotech discoveries and the profits they could bring.

They could also serve as a farmer-owned and controlled interface with the consumer side of the economy helping to coordinate product characteristics at the production level so that preferred pork product characteristics are provided at the consumer level. Finally, cooperatives could serve as a producer-owned and controlled competitor to gather profits for farmers.

Farmer-owned and controlled cooperatives are indeed capable of performing all these roles on behalf of producers and addressing the changes occurring in the system. However, developing and implementing a cooperative program for pork will not be easy. It will
require producers to make significant volume and financial commitments to their cooperatives. It will require that producers recognize the strength of the economic forces now operating on the underpinnings of the current system. Producers must recognize that these forces are capable of bringing about fundamental changes in the system.

It will require that cooperatives gain knowledge and experience in coordinated pork production -- a knowledge base that some major competitors are already rapidly developing. If cooperatives fail to act promptly to gain this knowledge and experience it could be too late. Finally, it will require that producers recognize that some of the decision-making freedom they now have may have to be given up in order to obtain a larger share of the profits and the ability to have an influence on trade practices. If the industry becomes integrated the integrator will set the trade practices and collect the largest portion of profits. Individual farmers will have a greater share of the profits and greater say in the control of the industry if cooperatives are involved. None of these conditions will be accomplished easily.
References


Pork '89, "Contracting: Not As Big As You Think ... Yet," Staff Report (In conjunction with J. Rhodes, University of Missouri), Pork '89, November 1989, pp. 27-31.

Senaur, Benjamin, "Major Trends Affecting the U.S. Food System," Staff paper (P-89-16), Institute of Ag Forestry; and Home Economics, University of Minnesota, St. Paul, Minnesota, April 1989.