

## Fewer packers but more pigs

*How the hog industry is changing*

LANCASTER — Swine growers, meat packing companies, and consumers are concerned about the future of the hog business. Innovations in production technology are bringing structural changes to the industry as evidenced by changes in the number and size of hog operations.

Additional stress has been created by cyclical low prices which have brought heavy financial losses to most producers since mid-1979.

Many of the changes in the business are associated with vertical integration or coordination.

Will vertical integration take over the hog business as it did the broiler industry? This question has been constantly asked since the late 1950s but the answer is still elusive. The 1980s, however, should finally answer that question, says H. Louis Moore, professor of agricultural economics extension; and John H. Ziegler Jr., professor of food science at Penn State.

The number of hog operations in the United States has dropped dramatically.

In 1950 about one million farmers produced and marketed hogs. By the late 1970s the number had dropped to about 600,000.

More significant has been the change in size of hog production operations. The growth in the size of the average operation has offset the decline in the number of production units.

It is estimated that as recently as 1964 farms marketing over 1000 hogs per year accounted for only seven percent of total marketings. By 1979 farms marketing over 1000 hogs each per year accounted for about 40 percent of all hogs sold.

During the same period smaller producers have lost a large share of the market. In 1964 producers selling fewer than 200 hogs per year accounted for about 46 percent of all hogs sold. Today this size producer accounts for less than 18 percent of total hogs marketed.

The fast pace of technical development in the hog business has made it necessary for producers to increase production so that total costs can be averaged over more hogs sold. The efforts to achieve lower unit costs have increased the optimal farm size.

Yet large numbers of marginal producers remain in the industry, indicating that producer numbers will continue to fall during the years ahead.

Despite the growth in hog numbers in Pennsylvania, North Carolina, Georgia, and other states outside the Corn Belt, hog production remains basically a Corn Belt industry. Iowa, Illinois, Minnesota, Indiana, and Missouri accounted for 56 percent of the nation's hogs on June 1, 1980 compared to 60 percent 20 years ago. The 14 leading states account for 84 percent of total hog

production today compared to 87 percent 20 years ago.

Pennsylvania is not considered one of the leading 14 hog states.

It is interesting to note, however, that Pennsylvania farmers had 920,000 market hogs in inventory on June 1, 1980 ranking the state 15th in hog production. Though Texas is considered one of the 14 leading states, their inventory of hogs was 20,000 head less than Pennsylvania's on June 1, 1980.

In the early 1960s Pennsylvania ranked 18th in production.

A major part of Pennsylvania's growth in hog production has occurred since the mid-1970s. The number of hogs on Pennsylvania farms on June 1 was up 12 percent from a year ago while the nation's total was up in just one percent.

Despite the growth, Pennsylvania accounts for just 14 percent of the nation's hog production, up from seven tenths of one percent two decades ago. In the last two decades Pennsylvania increased its share of hog production in the Northeast from 46 percent to nearly 50 percent.

On December 31, 1979 there were 4007 federally inspected red meats plants in the United States. Of this total 514 or 12.8 percent are in Pennsylvania.

Pennsylvania ranks second among all states in number of federally inspected plants. Pennsylvania is the most important slaughter state outside the major production areas, ranking 11th in cattle slaughter and 7th in hog slaughter.

Pennsylvania plants rely heavily on shipments of livestock from the midwest to fulfill slaughter needs. While many plants slaughter hogs in Pennsylvania, most of the hogs move through three major packers. These plants encourage more local production of hogs because of their dependence on hogs shipped in from the midwest.

In 1979, for example, Pennsylvania plants slaughtered 3.3 million hogs. About 800,000 were marketed by Pennsylvania producers, leaving about 2.5 million head to be shipped in from other production areas. Rising fuel prices and other costs associated with transportation concern packers who must ship hogs great distances to their plants.

A look at the surrounding states in the northeast reveals the relative strength of the hog slaughterers in Pennsylvania. The northeast includes New England, New Jersey, New York, West Virginia, Maryland, Delaware, and Pennsylvania.

In 1949 the northeast accounted for 11.3 percent of the nation's hog slaughter. This percentage has declined steadily to just 4.9 percent of the total in 1979. Pennsylvania has maintained its percentage of total hog slaughter over this 30 year period. Pennsylvania

plants slaughtered 3.8 percent of the nation's hogs in 1979 compared to 4.7 percent in 1969, 3.6 percent in 1959 and four percent in 1949.

Pennsylvania has increased its share of hog slaughter in the northeast from just 35.6 percent in 1949 to 37 percent in 1959, 63.9 percent in 1969 and 76.4 percent in 1979. Pennsylvania packers, in addition to buying Pennsylvania and midwestern hogs, have been purchasing hogs from the surrounding states.

Producers throughout the region have become dependent on Pennsylvania packers as the market for their hogs. Pennsylvania's share of hog slaughter is likely to increase during the next decade when Pennsylvania plants will account for nearly all of commercial hog slaughter in the northeast.

The loss of a local slaughter base will likely bring about a decline in hog production in much of the northeast, except Pennsylvania. Once slaughter plants close in areas of marginal production, they are seldom reopened or replaced.

Pennsylvania's growth in meat processing has been exceptional in recent years. The Commonwealth ranks second only to Illinois in value of shipments with products valued at nearly \$800 million shipped annually. A decade ago Pennsylvania ranked only fifth in meat processing.

But an air of uncertainty surrounds the entire port slaughter and processing industry at this time. Many of the nation's old line packers have been unable to generate profit with antiquated plants and staggering labor costs.

At mid-year Esmark, the parent company of Swift and Company, announced plans to close three of their most inefficient plants and to sell off the remaining nine plants. The decline at Swift is a blow to the 125-year old firm which was the industry leader until the mid-1970's.

The pork industry is concerned, too, over the recent decision of Iowa Beef Processors Inc. to enter hog slaughter and pork processing with the same vigor it used in becoming the leader in the beef business in just 17 years. If they become a major force in the hog business by the mid-1980s, they will become a part of a business which will be even more concentrated than it is today.

Smaller processors continue to drop out or are absorbed by larger plants, while inefficient plants are merely phased out. The number of pork processing plants in the United States dropped 15 percent from 1974 to 1978, yet the slaughter of hogs was a record high in 1979.

There is a widespread belief that during the last 25 years continuous improvement has been made in the type of butcher hogs that are being produced and marketed. The kind and

amount of changes in carcass characteristics are constantly being measured and vary from "some" to "considerable."

Pork production increased 27 percent between 1957 and 1979. Much of the growth in pork production has been hidden by improvement in quality. The average liveweight per hog increased slightly from 234 pounds in 1957 to 242 pounds in 1979. The big difference is in what the carcass produced.

In 1957 the average carcass produced over 34 pounds of lard. In 1979 the average carcass produced only about 14 pounds of lard. So there has been a significant replacement of fat by meat as a result of both genetic and nutritional improvements in recent years.

The USDA standards for hogs carcasses were established to predict lean meat, chiefly in the form of four trimmed lean cuts including arm picnics, blade Boston, loins, and hams. The yield of these four lean cuts is important because their total weight accounts for nearly two-thirds of the value of the hog carcass.

Prior to 1968 when the current standards became official, grades for hog carcasses were based primarily on size as measured by weight or length and backfat thickness. Some slight consideration variations in muscle development but none to the quality characteristics — color, firmness, texture, dryness — of the lean meat.

The top three grades, U.S. Nos. 1, 2, and 3, which included about 98 percent of all hog carcasses graded, changed significantly between 1961 and 1968.

The leanest No. 1 grade increased 16 percent, while the fattest No. 2 and No. 3 grades decreased 3 and 14 percent, respectively. This could be interpreted as a minimum increase of one percent in the yield of four lean cuts during the seven-year period covered.

Because of the progress made in the production of lean muscular No. 1 grade hog carcasses, which accounted for one-half of all hogs marketed in 1968, the USDA promulgated and began using new grades in that year. When graded according to the new standards, hog carcasses in 1968 were 8 percent No. 1, 42 percent No. 2, 36 percent No. 3, 12 percent No. 4, and 2 percent Utility. The latter were hog carcasses so graded because they lacked sufficient lean quality to be placed in one of the numerical grade designations.

From preliminary results involving research currently in progress, once again significant changes have occurred. When compared with 1968, hog carcasses are now about one-third inch longer and correspondingly one-third inch less backfat.

There has been about one

full grade upward change across the board, and now 30 percent of all hog carcasses grade No. 1 and 60 percent grade No. 2. The vast majority or 90 percent of all hog carcasses fall into the two top and leanest grades and because of this, for all practical market purposes, the USDA hog carcass grades are of little value and probably destined for another revision soon.

It appears the improvements in hog carcasses will continue in the immediate future because carcass characteristics are highly heritable and they can be improved quickly by selection programs. In a central swine test station, when carcass cutouts for barrows and gilts entered in progeny tests were compared for the years 1967 and 1977, there was a decrease of 20 percent in the average backfat, and increases of five percent in length, 25 percent in loin eye area, and 9 percent in ham and loin of the carcass.

This, coupled with the information that between 1958 and 1976 there was a 22 percent decrease in average backfat of all boards tested at central test stations in the United States, assures continued production of leaner and meatier hog carcasses as a response to modern consumer demands for more protein and fewer calories.

In addition to quality, the new pork has another factor in its favor — price. The retail price of pork has traditionally been lower than the price of beef. In 1965 a pound of pork cost 16.8 cents less than beef, in 1970 it was 24.3 cents less; and in 1975 20.2 cents less. By the 1979 the margin had widened to 82.2 cents less. By mid-1980 the average retail price of beef was about \$2.30 per pound, \$1.06 per pound higher than a pound of pork.

This wide margin has attracted inflation-weary consumers to buy more pork and has tended to keep the retail price of beef from moving higher. In May pork was 44 percent of total beef and pork products, compared with 42 percent in 1979, 38 percent in 1970, and 37 percent in 1965.

Hog production has been shifting rapidly toward larger enterprises. The larger enterprises will become increasingly important in the 1980s.

The trend toward specialized buildings and more confinement with greater control of all aspects of production will continue. Nearly 50 percent of all hogs sold are now produced in confinement housing. As producers enlarge their operations, new technologies are generally adopted. The most sophisticated technologies find their way into the largest "hog factory" type units.

Investment per unit of production generally increases when the large facilities are first added, because production takes place at less than the capacity of the facilities. As

the facilities are broken in their production costs decline.

Currently the total cost of producing hogs in Pennsylvania's largest units is probably in the range of 45 cents per pound. Medium-sized producers with 200 sows can probably beat this cost right now.

This leads many to conclude that the larger units will not be competitive and therefore will not long be a factor in the hog business.

An individual firm is efficient when it can achieve short-run profit maximization. However, to be efficient in a competitive environment in the longer run, a firm must be able to bring about organizational changes which will lower unit costs.

We haven't answered the question of which sized firm will be most dominant at the end of the 1980s because we don't know which is going to be the most efficient in terms of lowest unit costs.

The first half of 1980 demonstrated another complication to the concept that "the most efficient will survive." In the long run this is true, but in the short run the ability to survive during periods of low prices may depend more on the "battle of capital."

It is possible that the larger operator, with production costs of 45 cents per pound but with access to capital to tide the enterprise over will be more likely to survive than the slightly smaller producer, who has production costs of only 39 cents per pound but has cash-flow problems and an unsympathetic ear from the bankers. In this kind of a bind, efficient producers sometimes find they are forced out before they can demonstrate just how efficient they are.

Well-managed larger operations have done better than smaller units and provide the growth element for the future. Once capital is sunk into commercial hog production units, producers do not readily respond to changes in the price level of hogs. It would be expected, therefore, that hog production in the future will show less cyclic movement than in the past.

The larger units have more marketing leverage, too. By obtaining and holding better markets and reducing transportation costs, the better producers improve their coordination operation.

There will be fewer hog packing plants in the 1980s as well as fewer and larger producers. Pork quality will continue to improve and the family farm vs. corporate farm debate will continue. Pennsylvania has many farmers who want to stay on the farm, more bankers with a stronger commitment to agri-business, and a number of strong packing plants.

With all of these assets plus nearness to markets, Pennsylvania's future in the hog business should be one of growth.