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Organizational Structures for Pork Production

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ORGANIZATIONAL STRUCTURES FOR PORK PRODUCTION

The traditional pork production system in the upper midwest has been characterized by open markets for both inputs and outputs. In general, all parts of the production and marketing channel have responded to the collective effects of the individual production and marketing decisions made by hundreds of thousands of independent hog producers.

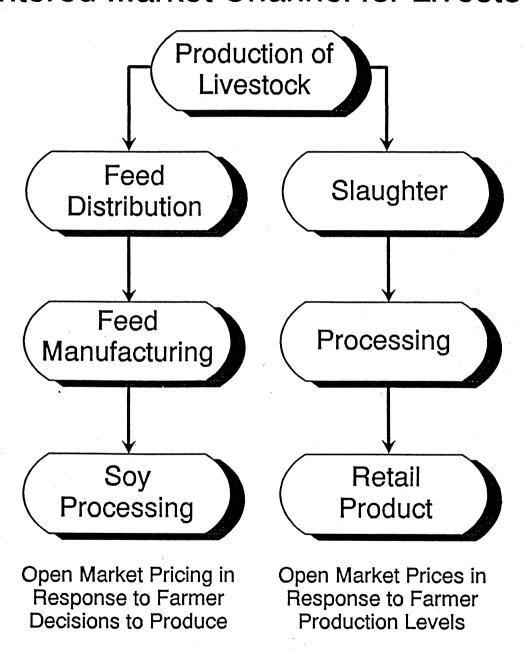
The prices on the input and the output side of the channel have responded to the uncoordinated decentralized decisions made at the production level. These open market prices acting through a broadly defined set of commodity grades have served as the primary coordination mechanism for all parts of the channel. See figure 1. This producer centered system has been the dominant means of production and marketing for hogs up to the present time. If the sheer number of hogs marketed is used as the measure, the open market price system still plays the major role in coordinating the industry, but rapid changes are now occurring.

The underpinnings for the open market system include (1) the independent farmer's position as the low cost producer (2) the independent farmer's capability to finance production (3) independent producer access to desirable genetics at competitive costs (4) access to competitive open markets for inputs and outputs (5) the absence of any viable alternative means for coordinating the channel activities (6) the willingness of consumers to accept the quantity and quality of pork placed on the market with price adjusting to clear it. See Fig. 2.

Virtually every one of these factors has been seriously challenged during the past decade. Beyond that challenges to (or weaknesses) in one of these factors may affect the others. This has created a situation where the independent producer centered (market

Figure 1

Traditional Independent Producer Centered Market Channel for Livestock



Ginder, ISU Economics, 1995

Figure 2. FACTORS SUPPORTING TRADITIONAL SYSTEM

- 1. FARMER POSITION AS LOW COST PRODUCER
- 2. INDEPENDENT FARMER CAPABILITY TO FINANCE PRODUCTION
- 3. ACCESS TO PRODUCTION TECHNOLOGY AND GENETICS BY FARMERS
- 4. ACCESS TO COMPETITIVE OPEN MARKETS BY INDEPENDENT FARMERS
- 5. LITTLE OF NO COORDINATION IN THE SYSTEM BY LARGE FIRMS
- 6. CONSUMER ACCEPTANCE OF PRODUCT AS PRODUCED

coordinated) channel is no longer assured the dominant position it has traditionally enjoyed.

This paper will examine the first three underpinnings as a means that producers can use to address the questions of (a) access to markets, (b) meeting the challenges posed now that several alternative means for coordinating channel activities and are beginning to develop (c) meeting increasingly quality, quantity and price consciousness at the consumer level.

STATE-OF-THE-ART LOW COST PRODUCTION SYSTEM

There is active debate about the cost competitiveness of the traditional independent producer. First it is necessary to recognize that the traditional production system is not a

uniform or monolithic one. Hogs have been and continue to be successfully produced in a wide variety of ways by independent producers with widely varying cost structures. Some production systems are nearly (or fully) depreciated. These systems have lower unit costs of production than either newer versions of the same systems or the new large scale competing systems. The producers with these facilities can continue to operate and compete successfully for a number of years but may encounter serious difficulties in replacing or renovating. Other systems are very labor intensive and use little capital. So long as the market accepts the types of hogs produced in these systems they can also continue to operate and compete.

There are, however; new large scale production systems that appear to be as cost efficient as any existing system and capable of providing uniform high quality animals to the market. These systems incorporate several innovative production management practices and technologies. They require a large number of animals and a timed flow of animals to be practical. The facilities, the working capital, and the breeding animals required in these systems translate into a level of capital investment far beyond the levels necessary for most competing systems.

The state-of-the-art system incorporates up to five unique production practices. (See Fig. 3.) These are:

(1) THREE SITE PRODUCTION - Under this practice, the production of hogs is done in three distinct steps with the facilities geographically separated to minimize the impact of disease and the need for drugs. Typically the operation would be separated into a gestation-farrowing site, a nursery site where pigs are taken after weaning and a finishing site where pigs above nine or ten weeks of age are taken for finishing.

- (2) ALL-IN-ALL-OUT OCCUPANCY (AIAO) The practice of limiting the occupancy within a single structure to animals of the same age. There is usually (depending the specific system) no more than two weeks of age difference in animals occupying a building. This reduces disease problems and the need for either therapeutic or subtherapeutic use of antibiotics. AIAO also implies total depopulation and disinfection between groups.
- (3) LIFE CYCLE PHASED FEEDING This practice gears the diets provided to the animals to their specific age as a means of gaining more efficient use of feed. If animal lots are very homogenous up to 7 or 8 closely tailored feeding formulations may be used.
- (4) SPLIT SEX FEEDING This practice tailors the nutrition and diet specifically to the needs of either the male animals or female animals in a particular group. It is done with the recognition that male and female animals have slightly different nutritional requirements at the same age. Better feed efficiency can be obtained by segregating animals by sex and tailoring the diet to the unique needs of each sex.
- (5) STRICT SORT FINISHING This practice involves further sorting the animals of each sex by size so that groups of larger males, smaller males, larger females and smaller females are fed in the same groups. Again improvements in feed efficiency are gained by tailoring nutrition to the needs of a more homogenous group.

Taken alone, any one of these practices does not necessarily increase the minimum size of the operation. However when these practices are implemented together they require a very large capital investment and production of very large numbers of hogs compared to

practices used in the past. For example efficient combination of just the three site production practice and the AIAO practice requires a minimum of more than 1000 sows. Systems that permit substantially all of these practices to be used simultaneously can require an investment of \$2.5-6 million and the farrowing of 1250-2500 sows 2.7 times annually.

These large capital investments and the large number of animals involved imply that cooperatives, networks, and other joint operating arrangements may provide a viable means for existing producers to capture these efficiencies. By forming producer-owned organizations, the burden of large capital investments may be shared. In some types of arrangements, large investments at the farm level may be avoided altogether via contracting with a cooperative.

Figure 3. THE STATE-OF-THE-ART LOW COST SYSTEM

- THREE SITE PRODUCTION
- ALL-IN-ALL OUT OCCUPANCY
- LIFE CYCLE PHASED FEEDING
- SPLIT SEX FEEDING
- STRICT SORT FINISHING

VARIATION IN PRIORITY GOALS AMONG PRODUCERS

No one approach to collective action or no one type of organizational structure will effectively meet the needs of all producers. Individual pork producers typically have multiple goals for their pork enterprise and the primary goals vary greatly among any specific group of

producers. The organizational structures and practices employed by cooperatives, networks and joint operating arrangements among producers must be rooted in a relatively uniform set of shared goals. Several goals that producers may have as a high priority are shown in figure 4.

Some producers have the primary goal of earning a return on their labor. Such producers raise hogs as a means of generating a significant amount of family income from the pork enterprise to supplement their crop enterprise income. They have a significant amount of time and technical skills to devote to swine production and want to convert these resources to family income. To accomplish this goal, the cooperative as network must permit them to market their labor resources effectively rather than replacing their labor with capital or hired labor.

A second group of producers may wish to use hogs as a means of adding value to the corn produced in the cropping enterprise on their farm. Historically farmers (especially those in the western corn belt) have used hogs as a means of marketing their corn at values that are generally higher than values in the cash market. These producers may be less concerned with earning labor income than the ability to add value through hogs and share in non-labor returns from farrowing and feeding hogs.

Still other producers may have made significant investments in existing production facilities. This group may be seeking to continue to use their existing facilities and still obtain some of the economies that arise from employing the state-of-the-art practices used by the larger operations. They seek not only a labor return but also the opportunity for capturing a return from their investment in facilities.

Figure 4. ALTERNATIVE OPERATOR GOALS FOR THE SWINE OPERATION

- 1. MARKETING FAMILY AND OPERATOR LABOR
- 2. MARKETING CORN PRODUCED ON THE FARM
- 3. USING EXISTING FACILITIES ON THE FARM
- 4. ENTRY TO THE INDUSTRY WITH LIMITED CAPITAL
- 5. ORDERLY EXIT FROM THE INDUSTRY
- 6. ACCESS TO GENETICS, TECHNICAL KNOWLEDGE AND COMPETENCE

Younger beginning farmers may be searching for a means to enter pork production with limited capital. Such limited resource producers may not be able to undertake the risks of financing production facilities, an inventory of breeding animals and the operating capital required to begin production on a large scale. These producers may be seeking a means to earn a return to their labor and in some cases obtain security for loans to finance structures.

Older producers may be seeking orderly ways to exit the industry. Such producers may wish to continue operating the less demanding finishing activity but eliminate the labor intensive farrowing and nursery component. In other cases, they may want to gain an investment return from existing farrowing or nursery facilities.

Finally, most producer groups are likely to be seeking access to improved genetics, technical information, knowledge, and methods to increase their production competence.

While genetics are available to most producers, the costs and waiting time for small numbers of animals has become a barrier for smaller producers. The explosion of new information,

technology and management practices makes it desirable for producers to have assistance in scanning, evaluating and applying new knowledge and information. Cooperatives and networks can provide this needed assistance.

ALTERNATIVE APPROACHES FOR USING COOPERATIVES AND NETWORKS

Cooperatives, networks and operating agreements can be tailored to a wide variety of different producer goals and needs. There are at least five alternative cooperative or network approaches now being tried, developed or proposed. See Fig. 5. None of these approaches can effectively meet all the possible operator goals and needs outlined above, but each of the alternatives is well suited to meet one or more of them.

MARKET RISK SHARING PROGRAMS

The cooperative hog packer has designed a market risk sharing program that permits the price to fluctuate within the mid range (e.g. \$38.00 - \$48.00/cwt at the current time) but places limits on the losses or gains outside the mid range. When prices are below the \$38.00 bottom threshold of the mid range - a point near cost of production for efficient producers - the packer and the producer would share the price deficit on a 50-50 basis. For example, if the market price is \$34.00/cwt, the packer would pay the producer a \$36.00/cwt - half of the \$4.00 spread between the market price and the bottom threshold price. This places a risk cushion in the market to help protect the producer from disastrous losses when the market drops below the cost of production. Presumably packers would be experiencing above normal returns when prices are below this threshold and could afford to pay above market for those animals in the program.

Likewise, when hog prices are well above the cost of production, the producer would share the super-normal gains 50-50 with the packer. This type of cooperative risk sharing permits producers who are not in a position to accept the risk of prices below cost of production to trade off potential gains on the up side to limit their downside market risk.

Cooperatives without packing plants may negotiate with packers to obtain similar programs or may establish pools to offer the same benefits.

REGIONAL OR LOCAL COOPERATIVE PRODUCTION CONTRACTING

Both local and regional cooperatives offer production contracting programs which permit farmer members to earn a modest but stable return with greatly reduced risk. These programs may be either nursery, farrowing, or finishing programs but are more commonly contracts for finishing hogs to market weights.

A typical program would involve writing a long term contract with the producer to finish hogs for the contractor in a building meeting the contractor's specifications over a period of years. While contract terms may vary, the cooperative would typically provide the pigs, the feed, veterinary supplies and technical support. The contracting farmer would typically provide the labor, facilities, heat, light, power and water in return for a contract payment. Payments are usually based on some output performance factor such as number of head finished, pig space occupancy, weight gain or a combination of such factors. There are sometimes incentives provided for above average or above standard performance.

A cash flow assurance provision is often included in the agreements to assure that loans on buildings can be properly serviced. This generally improves the lenders assessment of credit quality and improves the credit terms the producer can obtain to finance buildings.

For example, a minimum number of fills may be guaranteed or provisions may be made for the contractor to assume control of the building and make arrangements to keep it operating in the event the original contract producer can no longer do so. These arrangements call for the ownership of the building to revert to the original owner when the loan is repaid.

However the lender is assured that the facility will be operated under the supervision of the contractor until sufficient cash flow had been generated to pay off the outstanding loan balance against it.

Such programs permit the contract producer to enter production with limited capital and provide assurance to lenders that their loans will be repaid. Once the building is paid off, the producer is free to continue to operate the building as a contract producer or to finish his or her own hogs in it. Technical knowledge, production techniques, and experience in production can be gained during the contract period by the contracting farmers.

While this kind of contract program is obviously attractive to some entering producers with limited capital, it may also be consistent with other kinds of operator goals. Cash grain producers who may not want to invest a large amount of time in the farrowing side of hog production can gain a supplemental income and a labor return by contract finishing hogs.

Much of the need for keeping abreast of technical innovations and virtually all the time spent in production management, procurement and marketing can be transferred to the contractor; while the labor return (and in some cases the manure rights) can be retained by the producer.

PERPETUAL - FEEDER PIG PRODUCTION COOP

Since much of the success in finishing hogs is dependent on getting low-cost high quality pigs, perpetual feeder pig cooperatives appear to be a useful vehicle for some

producers. These cooperatives would be designed to give the producer all the advantages of the state-of-the-art system from genetics through the farrowing and nursery. The producer then has access to the pigs on a schedule that will permit the proper flow to fully utilize finishing facilities.

A typical program would involve an investment of \$80,000 by the producer and would entitle the producer to fill a 1,000 head finishing facility approximately 2.7 times annually. The pigs would be delivered on a schedule consistent with AIAO occupancy and with sufficient down time for disinfection between lots.

The \$80,000 investment would purchase a share of the breeder multiplier facilities, the farrowing gestation facilities and the nursery at approximately 25% equity 75% debt. Thus the producer gains access to approximately 2500 pigs and the state-of-the-art system for less than \$100,000 - a much lower level of investment per pig than would otherwise be possible.

Pigs from this cooperative would be unit priced at the cost of production (including financing costs) with a cash cushion of \$4.50 refundable at the end of the year because pigs are transferred at cost. The cushion is necessary to cover business risks and unexpected costs. It serves to cover any unanticipated costs beyond budgeted levels and would be refunded under normal circumstances. As shown in the unit cost budget in Figure 5 below, the expected net cost per pig would be about \$41.50 during the financing period and \$32.50 after year 12.

The cooperative operates on a cost center basis with no "profit" generated. The cash cushion is returned so long there is no serious mismatch between budget current income and

^{*}It may be possible to reduce the capital required and the number of head provided proportionally. Alternative cooperative programs now under development by regional cooperatives could provide smaller scale access.

Figure 5. EXAMPLE UNIT COST PER PIG FROM A PERPETUAL FEEDER PIG PRODUCTION COOP

Production Costs:

Management & Labor, Maintenance & Depreciation, Feed, Operating Costs,

Boar Center, Training Center

Production Cost Total	\$28.00 - \$32.00
Financing Costs (1st 12 yrs)	\$7.00 - \$ 9.00
Cash Cushion (Refundable)	\$4.50 - \$ 4.50
Total Cost Per Pig	\$39.50 - \$45.50
Annual Rebate/Patronage at Year End	(\$4.50) - (\$4.50)
Net Cost Year 1-12 at Year End	\$35.50 - \$41.50
Less Finance Costs (After Year 12)	(\$7.00) - (\$9.00)
Net Cost After Year 12	\$28.50 - \$32.50

Source: Alliance Farms Cooperative

expenses and actual. Depreciation is reinvested so that the \$80,000 is a perpetual investment backed by independent real book value. However there is no cash return on the investment because no "profit" is generated. The benefit is passed in the form of a low cost pig.

Because production capacity must be closely matched with membership use, this

cooperative is a defined or "closed" membership cooperative with delivery rights (obligations).

Members are required to purchase the feeder pigs which attach to their ownership share.

Failure to do so results in a penalty the possible and erosion of the \$80,000 cash investment made initially.

The \$80,000 cash stock investment and entitlement to pigs is marketable and can be sold to others at a premium or a discount from its original value. Transfer of stock shares is limited in the bylaws such that it must be made to a member of a local cooperative.

Farmland, Inc. has right of first refusal (at market price) on shares which are transferred.

Secondary market valuation of initial shares is likely to be higher than the value of new shares issued for the purpose of expansion. Since the debt financing cost on a share more than one year old has been reduced, older shares carry a shorter period where the finance cost must be added to the price of a pig. Shares older than 12 years would have no more remaining financing costs attached and the cash cost per pig would be \$7.00 - \$9.00 lower.

This kind of cooperative is best suited to producers who wish to finish hogs they own and assume the market price risk. It also permits the producer to add value to corn and generate a return on the finishing facilities they own. Beyond that the producer shares in ownership of the breeding, farrowing and nursery assets. This permits appreciation of investment made in these assets if they retain value but it also opens possibilities for losses if the assets become obsolete or are worth less due to decline in industry demands.

DEFINED MEMBERSHIP (CLOSED) PRODUCTION COOP

Some producers are seeking to gain added value from marketing corn to livestock, but are not necessarily interested in generating a labor return from their investment. A defined

membership cooperative could be used to provide a value added payment on corn and eliminate the need to provide labor or make labor participation optional to the shareholder.

In this type of organization the breeding, gestation-farrowing, nursery and feeding-finishing activities would all be carried out by the cooperative. All facilities could be either owned or acquired under contract arrangements but would be placed under the direct control of the cooperative. The cooperative would perform the same function as a "processing plant" in adding value to the main feed input. Grain producers have used livestock production as a means of diversification against changes in corn prices for many decades. This type of arrangement would provide a similar opportunity for the farmer to commit a portion of the grain produced on the farm to be marketed through livestock. However the arrangement would not create an obligation to provide the labor needed to raise livestock -- a definite advantage to some producers who are employed off farm or are physically unable to raise hogs.

The structure of a feeding cooperative would include an ironclad commitment to deliver grain to the cooperative and to make a contribution of capital proportional to total needs of the production unit. The committed grain and the capital provided would be geared to the precise amount needed to operate a state-of-the-art system at the scale of operation selected (e.g. 1200 sows, 2400 sows, etc.). Current organizations of this type have operated with a 325,000 - 1,250,000 bushel grain commitment and at a capital cost of \$3.00 - \$4.90 per bushel. Individual shares involve 1000-5000 bushels. Once a cooperative of this type has been organized, a share can be obtained only by purchase from an existing member or through an expansion offering from the cooperative. A multi-year (3-5 yr.) delivery commitment is required and must be honored by the member. Corn is priced using a three

tier payment system. A base pool payment is made at the USDA Posted County Price when the corn is delivered. A second advance payment is made based on the average Tuesday-Thursday close at the principal local market for corn. When the pool is closed, a final "value added" payment is made on a per bushel basis. This final payment incorporates the extra value gained from feeding the corn through livestock.

The defined membership feeding cooperative may place animals with contract growers from within (or outside) its membership. This would permit members who wish to earn a labor return for finishing in addition to the return earned on their corn to do so. Alternatively the cooperative could provide all the labor and facilities to finish the hogs or find outside contract growers to finish pigs in excess of the number members want to finish.

Prices for the transfer of the stock shares and delivery rights can increase or decrease in response to demand and the supply for them or in response to the availability of additional shares that might be placed on the market for expansion. The board may wish to maintain first right of refusal in order to make sure the cooperative qualifies for Sect. 521 exempt cooperative status.

IOWA FARROWERS NETWORK

A farrowers network can be an option where producers have as high priority goals the marketing of their labor, the use of existing facilities and obtaining the high levels of production efficiency offered in a state-of-the-art product system. A farrowers network would have as members either existing producers with farrowing facilities or other facilities which could be remodeled into farrowing facilities. The network would consist of a three site production system and would incorporate an appropriate sized sow production unit to provide common genetics to all network farrowers. A Segregated Early Wean (SEW) nursery

program is also an essential component of the program. SEW would permit the pigs from member farms to be commingled in a common nursery with minimal health risk. SEW allows decentralized farrowing in the different types of facilities that would likely exist on member's farms.

The major objective of the farrower network system are: (1) to utilize state-of-the-art technologies and management practices, (2) to permit existing (or entering) producers to participate in the more labor intensive farrowing activity, (3) to permit producers to use their existing farrowing and gestation facilities, (4) permit producers of different sizes and widely varying facilities to participate. The network is formed through a set of operating agreements among the network members to hand breed or A/I sows from a commonly owed multiplier herd and farrow them on a specified schedule. Once the pigs reach 14 days-18 days of age, the producer agrees to place them in a commonly owned SEW nursery where they will be kept until about 9 weeks of age. At nine weeks, the pigs are moved into finishing facilities. The production network board of directors maintains control over all production assets and is responsible for the scheduling of production, the movement of animals and enforcement of contractual agreements. Board control of facilities may be exercised through ownership or leasing arrangements with members or in some cases non-members when the specific types of facilities needed are not available from members.

One of the most likely structures for a minimum sized farrowers network operation would be for the network to own a grandparent multiplier herd with a minimum of 160 sows. The operation of the multiplier facility would be done to specifications set by the board.

Gestation and farrowing would be conducted in leased facilities owned by members and members would be compensated for their labor in gestation and farrowing. Breeding,

gestation, and farrowing would be done to the strict specifications of the board and would be monitored. A minimum of four 1,000 head capacity nursery units would be owned by the network or leased from its members. The operation of the nursery units would be conducted in accordance with the specifications of the board and monitored. A minimum of eight 1,000 head capacity finishing facilities would be required. These could be either owned by the network or by contract finishers if finishing the network decides to finish on a contract basis.

Members of the network would play three roles - that of owner, employee, and landlord or leaser of the facilities. Network members could then be compensated for their labor contribution, their contribution of land and facilities and their risk capital-entrepreneurial contribution. The residual claimant to net profits would be the risk capital-entreprenual claim. Several alternative forms of organization could be used including a defined membership or "closed" cooperative, a subchapter S corporation or a Limited Liability Corporation.

SUMMARY AND CONCLUSIONS

Changes in the pork industry are increasing the level of capital investment required.

New technologies and management practices in the area of feeding, health, and facilities can generate reduced cost of production per cwt., but drastically increase the number of animals required to make the production system work. While existing producers may continue to operate, entering producers and those who must replace facilities may experience difficulty. Collective action through producer owned cooperatives, networks and operating agreements may be one solution to these challenges.

Farmers may pursue a variety of goals through their hog enterprises. These include: marketing their labor, marketing their corn, using existing facilities, entry to the industry, exit

from the industry, access to technical knowledge and competence. No one type of cooperative program will fit all these conflicting goals simultaneously. Therefore five different cooperative approaches were proposed to meet differing primary goals of producers. These were (1) a market price risk sharing program, (2) a contract production program, (3) a perpetual feeding pig production coop, (4) a closed production coop and (5) a farrowers network.

The market risk sharing program provides a good option for producers who wish to market both their labor and their corn. Although it does not reduce the amount of capital required, it may provide some help to producers in obtaining credit by limiting downside potential. In the case of entry level producers with some capital back-up from (e.g. from a parent), it may also be a very useful tool if the producer has existing facilities and wishes to expand or renovate those facilities. However in cases where little or no capital is available, this kind of program may not be adequate.

Production contracts can provide a fair to good option for marketing labor. Since many contracts are for finishing, the opportunity for labor return is not as great as it would be for options where farrowing or nursery activities are involved. Contracts provide a means for backing loans for construction of finishing facilities if the contractor provides a long term fill arrangement with a plan for operating the facility during the life of the loan. Contract finishing and farrowing are probably not good options for producers who want to use existing facilities. Most contractors will want to specify the type of finishing structures used. Contracting provides an excellent option for entry, with limited capital or knowledge. However, these types of contracts are not useful if the producers' goal is marketing corn farm produced through hogs.

The perpetual feeder pig cooperative provides a very good option for marketing corn through a finishing operation. Like production contracting, feeder pig cooperatives provide only a fair to good means of marketing labor because the farrowing labor and activity is offsite and uses hired labor. Capital requirements over the cost of building new facilities for a consistent flow of high quality single source pigs are greatly reduced. It would be difficult to produce to the same number and quality of pigs on farm at the membership cost of \$80,000. However, producers with extremely low capital may have some difficulty raising the required capital for the membership share. The fact that the share is marketable may make it possible to borrow a fraction of the value from traditional lenders and improve access to credit for some producers.

The marketability of the share makes the program an excellent one for producers who want to have the ability to exit and recapture all or some of their investment at that time.

The program may not permit the use of all existing facilities, (especially existing farrowing and nursery structures) but it does allow good quality finishing facilities to continue to be used. It is ideal for producers who may want to exit farrowing but continue to finish.

The closed production cooperative is an excellent method for marketing corn through hogs. It provides for relatively easy entry and exit, with values of the share investment fluctuating in response to industry demand. It does not permit producers to participate in farrowing labor but it does have an option for finishing. For producers who do not want to provide labor or are for some reason unable to provide labor, it is an excellent choice. The relatively high capital costs may put it beyond the reach of many entry level producers. However, if the size of the share is established at low enough level (e.g., 1000 bu.), it

becomes possible for relatively small scale producers to enter. The closed cooperative is not well suited to the use of existing facilities since, but it does provide exit flexibility.

The farrowers network provides a good option for marketing labor since members provide most of the farrowing and nursery labor and could provide some of the multiplier herd and finishing labor. Existing facilities may be used for farrowing although there may be some remodeling required. Entering into the network could be relatively easy but exit could depend upon the demand for entry by other producers and obtaining the agreement of the other network participants. The amount of capital required for entry would not be quite as high since construction of expensive farrowing facilities would not be necessary. However, significant remodeling costs may be incurred in some situations before existing facilities can meet the gestation-farrowing standards.