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Vertical Coordination Shifts in the Hog-Pork Subsector

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Vertical coordination has been a topic of much discussion for several years. The revolutionary developments in the poultry industry as well as previous experience in the fruit and vegetable industries heightened our awareness of the effects alternative coordination systems might have. Administrative vertical coordination systems (using contracts between firms or directives within firms) have not replaced open markets for most agricultural products. In some industries contract or ownership coordination has become the rule rather than the exception. This is the case for broilers, milk, vegetables, citrus fruits, sugar beets, sugar cane, and seed crops [10 pp. 4-5]. In other industries such as fed cattle, eggs, and turkeys there have been substantial increases in the share of production involved in contract or ownership coordination [10 pp. 4-5].

The National Commission on Productivity found that improved vertical coordination in the livestock and meat industry was a potential source of productivity gains [7 p. 8]. Purcell has also recently analyzed some of the barriers to improved vertical coordination in the beef industry [6].

Many industry participants and policy makers have been concerned with the likely coordination and organization changes in the U.S. hog-pork subsector. We would like to explore some of the influential factors which have stimulated or blocked coordination changes in the hog-pork subsector and speculate on the likely future organizational arrangements which may play a major role in the hog-pork subsector.

Vertical Coordination in the Hog-Pork Subsector

While the precise cause of the hog cycle has been difficult to pin down, its existence has continued to frustrate many hog producers as well as those

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who buy from and sell to hog farmers. Within the cyclic production pattern seasonal farrowing patterns also caused production variability. The hogs and pork products produced have also responded relatively slowly to the changing consumer demands for leaner products.

While these problems have continued farm production technology has shifted. These shifts include trends toward larger volume production units and confinement feeding operations. Meat packers are more specialized, are located in hog production areas, and have shifted their purchase patterns to more direct purchases (with decreased use of terminal markets). The shifts in production technology and marketing channels have led to speculation that hog production could be vertically coordinated like broiler production.

Firms from every level of the hog-pork subsector from input suppliers through retailers have been involved in attempts to improve vertical coordination in the subsector. In recent years, major meat packers and feed manufacturers, especially, have been attempting new contract vertical coordination arrangements [5]. For meat packers, this has involved production and marketing contracts, while the major innovation by feed manufacturing firms was sow leasing [5]. These two arrangements have in common the transfer of more specific instructions about production practices, quantity, quality, and timing of delivery than was previously possible through market prices.

As a partial follow up to an initial subsector survey [5] we examined more closely the contracting efforts of a major meat packing firm which has had extensive contracting experience. We compared this firm's views and situation with those of four other meat packers who have also been involved in procurement contracting [3]. We also interviewed the three largest feed manufacturers involved in leasing sows. While these efforts are not exhaustive, the size of the firms and the tendency for firms to "follow the leader" in these industries might allow some interesting insights into the likely future organization of the subsector.

Packer Procurement Contracting

While not all the meat packers we talked to had been involved in contracting at the time of the initial survey, they were all involved in some form of contract procurement at the time we talked to them. All five of the firms were using the live hog futures market to some extent in their contract program. Marketing contracts related to the live hog futures market were the only contracting arrangements for three firms. These firms were skeptical about the size of benefits to be gained from contracting. They were concerned with several limitations they saw to these arrangements:

1. The need to coordinate product markets with supply markets to fully capture benefits of contracts.

2. Factors such as weather may effect delivery of contract supplies just as they effect other deliveries.

3. The overall increase in hog quality has limited the quality differential to be gained from contracting.

4. The ability to encourage satisfactory management at the farm level has been limited.

5. General farmers would require substantial premiums to assure delivery during certain seasonal periods.

6. There are opportunities for increased procurement efficiency without contracts.

7. Accounting costs in contracting may be substantial without automated bookkeeping methods.

8. Shifts to contracting from other procurement sources may not be easily reversible if contract renegotiations fail.

9. Contracting at levels above 20 percent of plant capacity limits the opportunity for rapid adjustment to changing market conditions.

The remaining two firms were more enthusiastic about gains to be made from contracting. Both of these firms had had substantial experience in both production and marketing contracts. They had both found production contracts less than satisfactory. The primary problem involved was the inability to get satisfactory management performance from contract producers. Both firms believed that ownership vested with the manager produced better hogs at lower costs. This has led both of these firms to shift toward marketing contracts. Major efforts of both firms center on a contracting scheme which benefits farmers at very low market prices in exchange for savings to the packer when market prices are high. In the one case the contract will be of long duration (four years) with yearly and quarterly delivery quotas. These quotas will allow some margin for error but substantial penalties will be built into strongly encourage delivery. The firm hopes to substantially affect the hog cycle and believes this longer term marketing contract can offer producers sufficient incentives to accomplish this. The other firm's length of contract and contract terms have been worked out on a situation-specific basis. In general, the contracts being offered by both these firms are coming closer to those used for turkeys. It is important to point out that both firms are using contracts for a very small proportion of their supply. Both firms agreed that contracting above a 20 percent capacity level would be doubtful due to the limits this would place on flexibility

What are the benefits that these firms are trying to capture through contract procurement? The list below summarizes the feelings of all five packers as to contract benefits:

1. Improved scheduling of slaughter plant supplies and thus increased efficiency in plant operations.

2. Stabilized returns in both meat packing and hog production.

3. Savings from efficiencies in the pricing and procurement system.

4. Improved product quality and thus increased sales volume and revenue.

5. Reductions in price and product fluctuations which have characterized United States hog production.

6. Increased satisfaction of farmers because of reduced uncertainty and thus in some cases greater availability of production capital.

Several studies have shown that there are substantial savings to be gained from improved scheduling of plant supplies [2,4, 9]. However, these savings must be related to the cost of achieving such scheduling. None of the firms had carefully estimated the cost of operating their contract programs. Two firms estimated that their contract operating and bookkeeping costs were approximately the same as those for their carcass grade purchasing systems. Only one firm had attempted a substantial retail product merchandising campaign in conjunction with their hog contracting efforts. They were pleased with the success of their campaign and believed that not only was their volume increased on these products, but profit per unit sold was also increased.

Sow Leasing

Sow lease firms interviewed were concerned with profits generated from lease fees, increased feed sales, improving their knowledge of large scale hog production, helping improve overall pork productivity, improving pork as a product, and leasing as a way to make credit available to farmers.

Sow lease firms had experienced mixed results with their programs. Two firms had had sufficient problems with leasing that they have shifted their emphasis from leasing to selling. These problems involved excessive producer demands for assistance in animal health, difficulties of lease holders in meeting payment schedules, length of time capital was tied up in leased animals, difficulties in dealer servicing, low salvage returns from leased animals, poor selection of leaseholders, expenses of accounting and record keeping and legal fees. These problems all contributed to a decline in profits for the leasing operation.

On the positive side two firms estimated that 90 percent of their leaseholders used their feed while all the firms estimated that 50 percent of their leaseholders represented new feed sales for their firms.

In the two firms which were abandoning leasing in favor of selling breeding stock, the sow leasing operation was in both cases an independent operating unit. Where the feed sales division and the sow leasing operation were not under the same management, firms may have failed to accurately account for the feed sales benefits from the sow leasing operation, possible understating the returns (to the corporation) of this coordination innovation.

It is apparent from the results reported by these major sow leasing firms that the ability to offer breeding stock in combination with feed was beneficial to feed sales. It is also clear however that the expenses of operating the lease program exceeded the benefits expected from that program. Firms that were de-emphasizing leasing were expecting similar feed sales results for those farmers that purchased their breeding stock as opposed to leasing it. In this case the increase in administrative coordination did not appear necessary to achieve the feed sales ends that were being sought.

As a footnote to the conversion from leasing to selling it is significant that some feed firms are offering marketing services for farmers leasing or buying their breeding stock. They are attempting to use contract selling of farmers hogs to achieve market prices for their customers which they believe more accurately represent the quality of the animals being marketed. In order to capture the benefits from producing and selling high quality breeding stock, they believed it necessary to overcome market imperfections in some areas which allegedly resulted in only average returns for above average animals being produced by their customers.

Implications

Where is the hog-pork subsector going in terms of vertical coordination? It is not likely that the demand for reduced variance both in quantity and quality of pork products will disappear. Major bottlenecks appear to lie in the wholesale-retail area. The volatility of these markets makes meat packers wary of long term contracts with farmers. The absence of viable promotion and merchandising programs for pork products has limited the benefits to be attained from improved product quality.

In addition to these factors, the entire subsector seems conditioned to instability. This conditioning, as evidenced by the limits to which meat packers are willing to contract their production and their concern over short term losses, feeds on itself. Firms throughout the subsector are thus unwilling to commit themselves to stabilizing arrangements. This feeling of insecurity must certainly have been accentuated by recent price increases in the red meat sector.

While little is known about farmers' reactions to various contract terms it is virtually certain that recent price swings left farmers who had contracted for future delivery feeling cheated. By the same reasoning some packers may be less reluctant to offer contracts because of recent experiences.

It does seem likely that most of the action of feed firms and meat packers in vertical coordination will involve marketing as opposed to production contracts during the next two to five years. Contracting arrangements will probably evolve toward longer term commitments with tighter specifications on delivery and quality. This is the way that packers appear to want these contracts to go. The reactions of farmers and farmer groups to these types of contracts needs to be analyzed. Where farmers dislike contract provisions, the required price premiums will

will probably be greater than the likely benefits for packers. However, longer term price security for farmers may be a benefit of contracts that may encourage more farmer interest, especially when larger leveraged, more capital intensive operations become more numerous.

One of the problems with trying to analyze vertical coordination in the hog-pork subsector is the experimental nature of many of the new arrangements. It is unclear whether contracts will be offered on a take it or leave it basis, or whether there will be some latitude for individual negotiation of terms. In several cases packers have negotiated contracts with producer groups, the relative frequency of these arrangements will depend largely on producers and the evolving legal framework which may facilitate collective action and bargaining.

Engleman has pointed out the increasing concentration on the buyer side of many markets for slaughter hogs [1]. This along with the continued decline in terminal market receipts as a proportion of all hogs sold continues to raise questions about equitable and accurate pricing bases for new hog contracts.

Roy describes the evolution of integration as beginning with credit arrangements, followed by pricing arrangements, next by profit sharing, followed by flat fee or piece rates, and finally with company owned production [8]. The hog industry has moved in a slightly different pattern with firms who have tested profit sharing, flat fee, and company owned production generally dissatisfied with the results. This leaves the subsector at the pricing stage with several barriers to moving further.

Conclusion

Seasonal demand fluctuations and fairly volatile market conditions have led to demand for management flexibility in meat packing. Management anxiety over short term losses puts some restraints on further committment to contract purchasing. But as terminal and auction markets become thinner, contracting may look more desirable to both packers and producers. Further potential long run efficiencies may induce some firms to undertake longer run contracts despite the risk of short term losses. For example, the four year contract now being offered by one firm suggests a change from "day-to-day" decision making which may force others to adopt a longer run profit and loss perspective. These longer run contracts may stimulate further retail product merchandising programs, possibly stabilizing some elements of the seasonal product demand and thus alleviate an additional roadblock to more contract vertical coordination.

The role of feed manufacturers in this system is still very uncertain. Sow leasing has resulted in disappointments; this may regress to breeding stock sales and more traditional financing arrangement. The role of feed manufacturers as major suppliers of breeding stock may stimulate their interest in improved marketing systems for slaughter hogs (which could shift the derived demand for their breeding stock).

Thus, we anticipate a slowly evolving expansion in contract vertical coordination in the producer through retailer segment of the hog-pork subsector, but several behavioral road blocks currently exist which will only gradually be eroded away.

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