Summary and Conclusions

The U.S. broiler industry provides an excellent demonstration of the importance of vertical coordination on food system performance. While several possible motives exist for contracting and vertical integration, these methods of coordination clearly facilitated substantial reductions in the retail price of broilers (table 2). Although technological advances in the 1940's and 1950's set the stage for growth and development of the broiler industry, the manner in which the industry was organized prevented its making best use of this technology. New methods of organizing broiler production facilitated the rapid and thorough adoption of new cost-lowering production technology. Contracts between the broiler growers and feed company-integrators became a means of quickly harnessing new technology by reducing capital constraints.

By facilitating adoption of new technology, improving risk management, and stabilizing flows of uniform broiler supplies into processing plants, these arrangements provided the means for lowering production costs, increasing production, lowering retail prices, and controlling quality. Following World War II, while broiler production and consumption expanded at a rapid pace, supplies and prices were highly variable. Production contracts between broiler growers and integrators improved production practices and transferred price and production risk to the integrators, who could manage the risk more cheaply. Vertical integration of the feed, hatchery, and processing stages enabled firms to maintain large volumes and control the flow of broilers at each stage to capture economies of scale. Contracting and vertical integration, from breeding to processing, also enabled broiler integrators to standardize production inputs and gain a large degree of control over the production process. That control has enabled the industry to provide uniform, high-quality broilers for further processing and branding.

Rapid changes in methods of vertical coordination in the pork industry are also associated with new technology, substantial growth in new geographical areas of production, and scale economies. The motives for changing to new methods of vertical coordination seem to be similar in both industries. Contractual agreements and vertical integration are associated with specific assets, quality control, and assurances of stable input flows and market outlets. By reducing the likelihood of opportunistic behavior associated with specific assets, larger investments may be made in cost-reducing and quality-improving technology. Contracting and integration may also facilitate

Table 2—Implications of changing methods of vertical coordination for meat products

Incentive	Outcome	Effect on meat products
Capital inflow from financially stronger firms	Facilitate adoption of new technology	Lower production costs, larger supplies, lower prices, improved quality
Shift risk-management responsibilities to more capable, technically proficient firms	Lower costs of managing price and production risks	Larger supplies, lower prices
Lower measuring and sorting costs	Improved animal quality and uniformity	Lower production costs, improved quality, convenience
Assure input supplies and market outlets	More stable input flows and lower production risk	Lower procurement and processing costs, larger supplies, lower prices
Gain market power	Increased profits	Ambiguous

improvements in meat quality by lowering measuring and sorting costs to assure high-quality animals. With large, stable flows of uniform animal supplies, processing plants can operate near optimum capacity, thereby keeping processing costs low.

While recent developments in the pork industry have increased pork supplies, lowered retail pork prices, and improved pork quality, the need to further improve the quality and consistency of pork products may accelerate the use of contractual arrangements and vertical integration. New entrants into packing in the 1990's have included a number of single-plant firms, emphasizing value-added, differentiated pork products in order to compete with the higher volume, lower cost, multi-plant firms (Boehlje and others). Firms such as Premium Standard Farms (PSF) and Seaboard Corp. stress highly coordinated raw material flows and close alliances with their customers.

Throughout the development of the broiler industry, the government's approach was basically *laissez-faire*. While concerns were raised about price discrimination and thin markets associated with increases in contracting and vertical integration, few instances of antitrust prosecution occurred, and no restrictions were placed on new methods of coordination. When open markets fail to satisfy the ideals of perfectly competitive markets, firms may seek alternatives to open market coordination. For example, in the early years of broiler industry development, large capital requirements provided significant barriers for broiler growers. Contractual arrangements with feed dealers reduced the growers' financial burden and facilitated the adoption of new cost-saving technology. As the marketing system adjusted to coordinate production with consumer demand, consumers were the major beneficiaries.

Economic incentives for new methods of coordination, and possible benefits to consumers, should also be considered when addressing issues of market power and environmental degradation related to large hog and packing operations. Public policies that limit structural changes in the pork industry may reduce benefits related to size economies and increased vertical coordination.