

# **VALUE CHAINS IN THE AGRICULTURAL INDUSTRIES**

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## Preface

The U.S. agricultural industry is in the midst of major structural change — changes in product characteristics, in worldwide production and consumption, in technology, in size of operation, in geographic location. And the pace of change seems to be increasing. Production is changing from an industry dominated by family-based, small-scale, relatively independent firms to one of larger firms that are more tightly aligned across the production and distribution chain.

And the input supply and product processing sectors are becoming more consolidated, more concentrated, more integrated.

Agriculture in the 21<sup>st</sup> Century likely to be characterized by: 1) adoption of manufacturing processes in production as well as processing, 2) a systems or food supply chain approach to production and distribution, 3) negotiated coordination replacing market coordination of the system, 4) a more important role for information, knowledge and other soft assets (in contrast to hard assets of machinery, equipment, facilities) in reducing cost and increasing responsiveness, and 5) increasing consolidation at all levels raising issues of market power and control.

These profound changes in the agricultural industry present new challenges and new opportunities that require new opportunities that require new ideas and concepts to analyze and implement. They require new learning and thinking. Some of those new ideas and concepts are presented here, not as empirically verified truths, but as “thoughts” to stimulate different and better thinking. They have been developed based on observations, analysis and discussions with numerous managers and colleagues in agribusinesses in North America and Europe. This series focuses on Value Chains in the Food Production and Distribution Industries; companion series are also available on Farming in the 21<sup>st</sup> Century (Staff Paper 99-9), and Financing and Supplying Inputs to the 21<sup>st</sup> Century Producer (Staff Paper 99-11).

Our purpose in sharing these “thoughts” is to invite discussion, dialogue, disagreement — in general to encourage others to develop better “thoughts”.

Keywords: Value chains, value decay, product differentiation, information, structural change

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## On Organizing Supply Chains\*

More tightly controlled supply chains are becoming a common part of agriculture today, and many farmers and their suppliers are concerned about issues of organizing and controlling the supply chain. The issues of implementation and organization of a supply chain must be separated from those of power and control in a chain. More specifically, the power and control held by those who know the consumer does not necessarily imply that they will play a role in actually organizing or coordinating the chain. The “controller” may simply set the standards or the rules of the game, and negotiate with someone else to enforce and monitor performance against those standards or rules. In fact, the preferred strategy by a “controller” might be to have someone else perform this organizing and implementing function so as to minimize their transaction cost. For example, even though power in the pork chain may be held by the retailer or processor and the genetics companies, they have given the integrator the responsibility to organize the pork supply chain. In essence, implementation and organizing the chain may be done by a separate party than the one who has power and control.

With respect to organizing the chain, two issues are paramount: 1) transfer pricing and risk allocation, and 2) logistics management and time competition. Transfer pricing and risk allocation are related issues in chain organization. Emerging chains in the U.S. pork sector, for example, rely on reported open market trading extensively as the basis for transfer prices. However, as chain differentiation proceeds, the residual open market becomes thinner and less reliable as a value indicator. Furthermore the prices generated in the residual commodity market have less relevance for the specific attribute products in the chain. Lack of trust among participants limits the use of multi-stage profit maximization and profit and risk sharing arrangements.

Given the difficulty of establishing profit sharing arrangements that are perceived as equitable by all participants, one finds a tendency for one firm in the chain to take control as contractor with others in the chain. Usually the chain manager also become the residual claimant on profits from the chain as well as assuming a major share of price risk. Failure to find a pricing arrangement that provides appropriate incentives and is perceived as fair also encourages ownership integration of stages by one firm.

With respect to logistics and time competition, more demanding consumers combined with pressures to lower costs in the supply chain will result in the implementation of efficient consumer response (ECR) principles not just in retail markets, but through the entire supply chain. With more limited opportunities to develop a competitive advantage solely around product performance or price, or around the provision of services, an increasingly important technique for establishing competitive advantage is responsiveness and cycle time. Just-in-time (JIT) inventory systems, faster product development cycle times, and supply chain integration are all techniques to be more timely and responsive throughout the chain. Increasingly, time competition will replace product, price, and service competition in the agricultural input supply and distribution markets.

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\*Adapted from Boehlje, M., L. Schrader and J. Akridge. “Observations on Formation of Food Supply Chains”, Proceedings of the *Third International Conference on Chain Management in Agribusiness and the Food Industry*, Wageningen Agricultural University, May 1998.

Delivering a time-based advantage through effective logistics is a complex undertaking with a number of key processes. One set of these processes encompasses marketing related activities; assessing the product and service requirements or attributes desired by specific customer segments; and developing a distribution system that minimizes cost, provides competitive levels of service, and is customer responsive. Another set involves system coordination: developing the appropriate channel linkages and level of integration to efficiently and effectively supply exactly what customers want.

An additional set of these processes focuses on more traditional logistics management activities: choosing materials handling and storage technologies which will provide the desired level of customer service with optimum levels of investment in facilities and equipment; implementing inventory management procedures to simultaneously minimize potential stock out problems and reduce the cost of excessive inventory; and controlling and/or reducing transportation and warehousing costs in both the short- and long-term through strategic positioning of processing and warehousing facilities and better flow scheduling to reduce inventories. A final step involves implementation of an information system that conveys accurate messages with respect to consumer satisfaction, product flows and system efficiencies, quality characteristics of both product and service, and overall financial performance.