

VALUE CHAINS IN THE AGRICULTURAL INDUSTRIES

by

Michael D. Boehlje, Steven L. Hofing, and

R. Christopher Schroeder

Staff Paper # 99-10

August 31, 1999

Department of Agricultural Economics

Purdue University

Copyright © Ag Education & Consulting, LLC

Purdue University is committed to the policy that all persons shall have equal access to its programs and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, veteran status, or sexual orientation.

VALUE CHAINS IN THE AGRICULTURAL INDUSTRIES

by

Michael D. Boehlje*, Steven L. Hofing** and R. Christopher Schroeder**

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 21st 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 21st Century (Staff Paper 99-9), and Financing and Supplying Inputs to the 21st 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

*Professor of Agribusiness, Center for Agricultural Business, Purdue University, West Lafayette, IN 47907-1145 and Senior Associate, Ag Education & Consulting, LLC;
boehlje@agecon.purdue.edu

** Partners, Ag Education & Consulting, LLC, Savoy, Illinois 61874, www.centrec.com

Drivers, Competencies and Barriers in Forming Supply Chains*

More tightly aligned supply chains are increasingly becoming common-place in the food production and distribution industries. As one looks at the formation and performance of these chains three fundamental questions arise:

1. What drives the formation of more tightly aligned supply chains?
2. What are the core competencies in chain formation?
3. What are the key barriers to chain formation?

What drives formation of tightly aligned supply chains?

The fundamental drivers of more tightly aligned supply or value chains in the food production/distribution industry are four fold: demand and consumption, productivity and technology, government regulations and policies, and resources.

Demand and Consumption — Consumers are becoming more discriminating in the food products they consume; different consumers want different characteristics and they increasingly have the ability to pay for these unique characteristics. Some of the dimensions of the changing consumption pattern of consumers that are driving the formation of more tightly aligned supply chains are:

1. healthfulness and safety ,
2. taste and variety,
3. convenience and freshness,
4. anytime availability,
5. price and quality,
6. international sourcing and selling,
7. origin of product,
8. animal welfare and environment,
9. processing method.

Productivity and technology — Advances in technology in the food production and distribution system are facilitating or enabling the formation of more tightly aligned supply chains. These improvements in technology and productivity include:

1. information technology,
2. biotechnology,
3. monitoring and measuring technology,
4. transportation and logistical technology,
5. environmental technology,
6. economies of scale,
7. efficiencies of specialization.

*Adapted from Agri Chain Competence Foundation DECANTHUS project at www.akk.nl/project/prjb-106.htm

Government regulations and policies — Changes in the role of governments worldwide to simultaneously reduce subsidies and protection from international competition, and to increase regulation with respect to consumer concerns is resulting in increased pressures to form more tightly aligned supply chains. Important changes in government policy that encourage supply chain formation include:

8. food safety regulations,
9. reduced farm subsidies,
10. harmonization of trade regulations,
11. increased privatization,
12. shift from market protection to global market access.

Resources — Finally, the shift in the resources essential to compete in global markets is resulting in pressures to form more tightly aligned supply chains. These resource pressures include:

13. more sophisticated research and development,
14. increased importance of knowledge and information,
15. a more efficient distribution channel,
16. a more skilled labor force,
17. more sophisticated technology,
18. more globally accessible capital and finance,
19. global access to all resources from all locales.

What are the core competencies in chain formation?

Forming more tightly aligned supply chains requires skills or competencies that may not be part of the traditional production and distribution systems in the agricultural industries. One means of determining what skills are important is to study the successful supply chains in other industries as. Furthermore, it is quite possible that the more successful supply chains may be formed by those who are less tradition bound, and maybe even those from outside the traditional agricultural industries. For example, Wal-Mart has been successful in implementing supply chain concepts in retail merchandising; now they are bringing that same set of skills and competencies to food distribution.

Some of the core competencies that are essential in successfully forming and managing more tightly aligned supply chains include:

20. increased focus on product and process development,
21. emphasis on market flexibility to meet changing consumer demands,
22. improved ability to respond and customize products to end-user needs,
23. continued focus on cost control and efficiency,
24. more emphasis on risk management,
25. optimization of the logistics and transportation/distribution system,
26. a focus on holistic systems that integrate the entire supply chain,
27. increased emphasis on quality and quality assurance along the chain,
28. more emphasis on information and information sharing,
29. increased skill in negotiation and joint decision-making,
30. development of cooperative/collaborative attitudes and perspectives,
31. capacity to trust and to be trust-worthy.

What are the barriers to change formation?

As a logical follow-on to the core competencies needed to form successful supply chains, there are some critical barriers that may make it difficult if not impossible to be successful in the formation or functioning of more tightly aligned supply chains in the food production and distribution industry. These barriers or constraints are not impossible to overcome, but must be mitigated if more tightly aligned supply chains are to be successful. Some of these barriers include:

32. mutual trust by chain participants,
33. communication and information flow across chain participants,
34. commitment and willingness to invest in chain infrastructure,
35. awareness of the benefits and costs of more tightly aligned supply chains,
36. equitable sharing of the risk and rewards in a supply chain,
37. an acceptable governance system with equitable sharing of power and control,
38. capacity of the chain to be flexible and adaptable,
39. a policy environment that does not constrain or limit chain formation,
40. an organizational structure that allows implementation of chain and systems approaches,
41. willingness to adopt a collaborative vs. competitive business approach.

Evaluation of these three important issues in supply chain formation and management — drivers, core competencies, and key barriers — will be helpful in assessing the opportunities for success of supply chains in various segments of the agricultural industries.