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**FINANCING AND SUPPLYING  
INPUTS TO THE 21<sup>ST</sup> CENTURY**

**PRODUCER**

by

Michael D. Boehlje, Steven L. Hofing

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# FINANCING AND SUPPLYING INPUTS TO THE 21<sup>ST</sup> CENTURY PRODUCER

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 21<sup>st</sup> century is 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 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 Financing and Supplying Inputs to the 21<sup>st</sup> Century Producer; companion series are also available on Farming in the 21<sup>st</sup> Century (Staff Paper 99-9), and Value Chains in the Food Production and Distribution Industries (Staff Paper 99-10).

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

Keywords: technology platforms, agricultural finance, marketing strategy, input suppliers, grower segments, financial markets

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## Future Challenges of The North American Food System

The North American food production, processing and distribution industry is in the midst of major structural changes. The most fundamental driver of these changes is globalization of the food and fiber markets. Assuming continued income growth in developing regions of the world like China and Southeast Asia, prospects for growing world food demand remain excellent. Consumer demands for safety, convenience, variety, and quality are important. Food industry demands for differentiated products, risk management, and efficient supply management solutions combined with a supply chain mentality are also major drivers of change. The government's role in trade policy, environmental regulations, food safety, land use, and intellectual property rights will continue to shape the markets. Biotechnology will offer new solutions to agricultural production problems, as well as open new markets for crops and livestock with specific output traits. At the same time, information technology will play a key role in facilitating a more coordinated food system.

Describing the future market environment is a formidable challenge, but five key features seem important. First, the market will be even more volatile over the next decade, making forecasting the future even more difficult. Globalization, changing government policy, rapid technological change, and input firms in transition will all combine to make for a business environment that will be more uncertain. A second key feature is rising standards on the part of every player in the food system. Every entity will demand higher quality and lower prices, better service, more information, greater flexibility, and quicker response.

A third feature is continued consolidation. The need for scale/size — will continue to drive consolidation across input industries at both the manufacturing and distribution levels. The sheer cost of developing, obtaining approval for, and introducing new products drives manufacturing firms to seek global market opportunities. In distribution, the economics of procurement and information management will lead to fewer, larger organizations. There will be an even more aggressive move to multiple location facilities, spreading the cost of accounting, inventory, regulatory compliance, equipment, administration, etc. across a number of sites.

The fourth key feature will be the drive for efficiency. Suppliers will work to add value and differentiate offerings, but in the current and expected competitive environment, even this is a challenge as any innovation is quickly copied and "commoditized". There is enormous pressure on margins with the resulting emphasis on internal operating efficiency. This will lead to a search for linkages and a more coordinated system as finding cost economies increasingly requires system optimization.

Finally the fundamental issue of control of the system will result in significant new linkages between food firms, farmer/producers, and input suppliers with the full range of acquisitions, joint ventures, and contractual and partnering arrangements being used. A premium will be placed on alliance and partnering skills as organizations work to obtain the advantages of size without ownership, or seek access to resources unavailable within their own organization.

The push for efficiency will drive more consolidation at every level. It will drive more linkages across inputs as input bundles which cut across traditional input industry boundaries are assembled to maximize productivity. And it will lead to stronger linkages across the food production/distribution stages to form vertically linked food chains. The ability to cultivate and manage alliance and partnering relationships will be fundamental to a successful strategic position.

## Grower Segments in Production Agriculture\*

The dramatic changes now occurring in production agriculture are changing the way we define a farmer. Farmers of the future may be better described as growers, and these growers will not all look alike or be as uniform in size or type of operation as today's farmers.

Growers of agricultural products will likely be delineated into two distinct categories in the future -- traditional growers and industrialized growers. Traditional growers will operate in much the same fashion as family farmers do today. They will be primarily in commodity product production; own a significant portion of the land and other resources used in the operation; manage and operate the business as a family; use impersonal, open markets to sell their products; finance the business with family equity and conventional debt; use modern technology; and operate on a larger scale compared to today's farmers. As a group, traditional growers or producers will be a declining segment of the industry both in numbers and in volume.

The industrialized segment of production agriculture will include three different types of growers: 1) large-scale commodity producers, 2) large-scale (and some small-scale) contract growers, and 3) managers or deal-makers. These three different types of industrial growers have enough similarities that they may not be easily distinguishable in practice. Large-scale commodity producers will use manufacturing concepts to produce generic or component specific commodities that will generally be sold in impersonal open markets much like most grain and livestock markets today. The distinguishing features between traditional growers and large-scale industrialized commodity growers will be the much larger scale of the industrialized grower (larger by orders of magnitude of five to ten times), and the intensity of use of manufacturing techniques in production as well as management and organization of the business.

In contrast, contract growers in the industrialized sector will be more focused on specific attribute raw material products, and they will participate primarily in negotiation coordinated markets through contracts, strategic alliances and similar arrangements rather than the impersonally coordinated commodity markets of the large-scale commodity grower. With respect to scale of operation, technology and a manufacturing approach to production, few differences will exist between large-scale commodity growers and most contract growers except as dictated by the attributes of the product produced.

The third group of industrialized growers will be distinguished from the previous two categories in terms of their method of organizing and actually implementing the production process. Whereas industrialized large-scale commodity and contract growers own a significant portion of the assets used in production (machinery, equipment and facilities more so than land and buildings), the manager or deal-maker obtains machine services from contractors, service companies or through custom operations; acquires labor through hiring independent contractors;

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\*Boehlje, Michael and Lee F. Schrader. "Agriculture in the 21<sup>st</sup> Century", *Journal Production Agriculture*, Vol. 9(3):335-340, 1996.

and leases the land. In essence, the manager or deal-maker brings few if any physical resources to the table. His(her) competitive advantage is in the negotiation or deal making activity and s/he obtains most if not all the physical and financial resources needed for the growing process from others. The manager or deal-maker might be viewed in some sense as the integrator who negotiates a contract with the end-user to produce component specific commodities or specific attribute raw materials, and then negotiates with those who own the land, machinery, equipment, facilities and labor to produce those specific products. In this context, the value the manager or deal-maker contributes to the production and distribution process is that of coordination; s/he in essence reduces the cost and inefficiencies of coordination between the stages of the process, and his/her reward depends on how large these costs or inefficiencies are and how effective s/he is in reducing them.

In general, industrialized growers will be more important suppliers to component specific commodity and specific attribute raw material markets. Traditional growers will have a relative advantage (but not necessarily an absolute advantage) in generic commodity production, but competitive pressures will force them to adopt manufacturing concepts to be competitive with large-scale industrialized commodity growers.

## The New Agriculture: Implications for Marketing Strategy\*

The North American food production, processing, and distribution industry is in the midst of major structural changes. Globalization, changing government policy, rapid technological change, and mergers and strategic alliances among agribusiness firms all create uncertainty about the future business environment. This will lead to greater market volatility over the next decade as firms struggle to determine their new roles in the evolving marketplace. Firms will also be faced with rising standards on the part of every player in the food system. Every entity will demand higher quality, lower prices, better service, more information, greater flexibility, and quicker response.

So how is this future market environment expected to impact the marketing strategies of input manufacturers and distributors? We will focus on five key areas: customer relationships, product/service packages, and pricing, distribution, and communication strategies.

Customer relationships - Expect a much less homogenous customer base. Individual accounts will vary not only in size, but also in product and service requirements. As a whole, expect customers to be more focused, well informed, and business savvy. Also, tighter vertical linkages from alliances, partnerships, and ownership will expand and complicate the traditional definition of the customer. Complex business relationships and "teams" at different ends of the marketing channel could have similar effects.

### Key Points:

- Traceback of all inputs in the food production process will become increasingly expected (required?) by consumers. Tighter vertical linkages might make this task easier, but added attention and more precise record-keeping by input suppliers will inevitably result. The final link in the marketing chain is the retail consumer. His/her needs must be met and fears and concerns alleviated to ensure an expanding market for agricultural products.
- Key accounts will be vitally important, making consumer loyalty extremely valuable. Efforts that build loyalty by rewarding the most valuable customers will likely pay high dividends. "Smartcards" are becoming increasingly popular at retail outlets as a means to this end, and we might expect similar strategies to appear within wholesale markets.
- Trust will be ever more important in both business and customer relations. It is a prerequisite for the tighter vertical and horizontal relationships that we foresee between firms, and it is also an important part of the process of building and maintaining consumer confidence in a safe food supply. Attempts at deception will be easily noticed and severely punished.

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\*Developed in collaboration with Jay Akridge, Professor of Agribusiness, Center for Agricultural Business, Purdue University.



Products and services - The grower of the future will increasingly be expecting and demanding total solutions to his unique business problem. The focus will not be only on agronomic or nutritional responses to crop and livestock production problems, but systems solutions to crop and livestock profitability. The emphasis will be on systems, and the fundamental issue will be whether a particular supplier provides a total systems solution or only selected components of that solution. And more than likely, if only selected components are provided, the customer will still expect suggestions and possibly recommendations concerning the other components and the compatibility or lack thereof between the components provided and those that will be obtained elsewhere.

### Key Points

- A total systems solution approach will likely involve offering a broader product service package by the supplier, or increased business linkages between component product/service providers to obtain a total system solution. And increasing consumer/producer expectations will likely result in more demand for customized products and specialized inputs to respond to unique customer and market segments.
- Note that this is really a different issue than that of bundling or unbundling in terms of pricing of products and services. A more complex agriculture and an increasingly demanding customer base will generally require more systems solutions; some customers will want the pricing of the product service package to be unbundled (i.e. component pricing), and others will prefer a total package price as long as the components are identified.
- The rate of change and pace of innovation in new products and services and product/service packaging will be rapid. More and more non-traditional services will be identified and provided. Innovation in services and product/service packaging may be more rapid than product innovation. Information and the conversion of mounds of data to profitable decisions will likely be at the core of many service innovations.
- Growth in precision agriculture might lead to product and service packaging opportunities. This is one of the most obvious examples of the potential growth in information based services. An explosion of possible business options for producers fuels such potential.
- Risk reduction may become part of the product package through the more prevalent use of warranties/guarantees. Contracts will also play a role here. Net income per acre contracting in grain similar to fee-based contract growing of hogs is likely.

- Producers may become more “outsource based” as specialized agricultural inputs increasingly will require users to be “qualified”. This could enhance opportunities to package products and services.
- Marketing of products may increasingly become part of the product/service package. In the production of specialty crops/livestock, selling a specialized package of inputs to these producers might include some type of marketing contract or linkage to assure the producer an outlet for their produce.

Pricing Strategies - Expect a more informed and demanding customer base to lead to competitive price pressures. Pricing strategies that create loyalty will be ever more important.

Key Points:

- Pricing strategies that reduce (or share) risk will likely be embraced; contractual pricing of products and services is likely to become more common.
- Pricing strategies that transfer risk to third parties might also become more common. Flat-billing for products such as heating oil and utilities is already starting to appear. This allows customers to lock in costs in advance, while transferring the price volatility to speculators using financial instruments such as weather derivatives.
- Firms must prepare for future price pressures by controlling costs now — anticipating competitor and customer pressure for products that mature ever more rapidly.
- Expect less pricing for each “transaction”, more pricing based on “lifetime” service.
- Innovative pricing arrangements, such as technology fees, will be more common.

Distribution Strategies - Expect a more efficient flow of raw materials, products, and information across the marketing channel, increasing the pressure on the “middleman” or distributor. The future role of traditional dealers is unclear, but it will depend vitally on their ability to add value. There are likely to be many opportunities, but they may well be in areas different from those currently addressed by dealers.

Key Points:

- Better inventory management and control will lead to significant cost savings, and will be expected of all businesses in the industry.
- Use of direct selling from the manufacturer to the producer will likely increase.

- Dealers and distributors will be challenged to find new ways to add value if they are to remain viable business entities. A potential new role is that of a “deal maker” between the producer and the other parts of the marketing channel.
- Relationships in the channel may be based more on pay for service type arrangements where specific players are compensated for the function they perform and no more.
- The Internet/electronic data interchange will play a major role in tightening the linkages across the channel.

Communication Strategies - Technology continues to make communication easier regardless of geographic boundaries. It also is becoming easier to store and collect information about the marketplace and individual customers.

Key Points:

- Expect to capture more and more information about individual producers and be challenged to find new ways to use that information to better serve those individuals.
- Customer databases will continue to grow, which will provide greater opportunities for direct marketing of products and services.
- Expect the Internet to continue to present global marketing opportunities, while at the same time introducing global competition from distant firms.
- Electronic data transfer and extremely rapid movement of information will make managing communications more challenging — problems will still be ‘coffee shop talk’, only now the world is the coffee shop as producers circulate opinions over the Internet.
- Communication strategies in general will be far more tailored, and will make very heavy use of data bases and electronic communication technologies.
- Personalized messages and messaging technology will allow individual messages to be delivered to individual customers.
- Team-based selling and field marketing concepts (local responsibility and authority) will be even more prevalent given the changing producer/customer.
- Communication with end-user customers will stretch firms to become familiar with a new set of decision processes, and highly technical sales abilities (engineering, chemistry, food sciences, etc.) will be key to success with these targets.

## Technology Platforms In Biotechnology

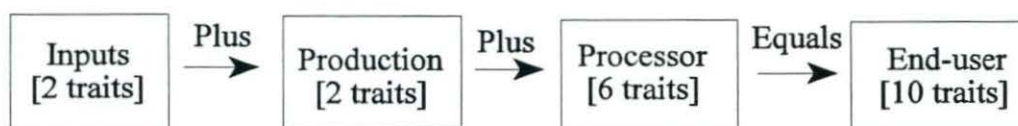
In many of the non-agricultural industries, the common denominator for new product introductions has been the manufacturing or technology platform. For example, in the automobile industry similar if not identical engineering platforms are used for different models of vehicles. This commonality improves efficiency, reduces manufacturing costs, and accelerates time to market. Increasingly, the technology platform concept is being used in agribusiness firms not only to introduce new products, but to motivate acquisitions and strategic alliances. Understanding the logic and use of technology platforms may help us anticipate the linkages that are occurring in the food and agribusiness industries, and in the biotechnology industry in particular.

Mergers, acquisitions and strategic alliances in the biotechnology industry are occurring for many reasons including access to capital and financing to fund the R&D activities, access to distribution channels to reduce the cost and increase the speed of bringing product to market, and access to new knowledge and technology that can be more quickly acquired from others than developed internally. In biotechnology industries this latter motivation has important technology platform dimensions.

The first technology platform dimension helps explain the joint ventures and strategic alliances between human drug and pharmaceutical companies and agricultural chemical and genetics companies. The common denominators between these two industries are the science and knowledge based used, and the ultimate user and value base for the products. Both human pharmaceutical companies and agricultural biotechnology companies have at the core of their product development the sciences of microbiology, chemistry, and genetics. Understanding and manipulating the genome is critical to both. And they are both focused on the health of individuals, one from a medical and disease prevention perspective and the other from a nutritional perspective. These commonalities suggests that a common technological platform may be useful in developing integrated nutritional and medicinal programs to improve human as well as plant and animal health.

The second technology platform concept builds on the value chain approach to satisfying end-user demands. Integrated, sequential creation of end-user attributes through various stages of a value chain may be more likely to be successful than trying to create all of the desired attributes in one or two stages. For example, if ten traits are to be delivered to the end-user, two could come from input suppliers, two could be added at production and six in processing as suggested by Figure 1. But the efficiency of creating the attributes in down-stream activities (i.e. processing) will be significantly higher if the raw material coming into that process has the desired traits from previous processes. Thus, the technology platform concept of trait creation

Figure 1. Trait or Attribute Development Along a Value Chain



across a value chain is not much different than that of the assembly line in a manufacturing plant where the sequencing of processes is critical to efficiency and effectiveness of product development. With specific reference to biotechnology, this approach suggests that some attributes may be more effectively created by biotechnology manipulation in processing (for example enzyme manipulation in cheese fermentation) than in either production or input biotechnology manipulation, but that the efficiency or effectiveness of biotechnology applications closer to the end-user will be impacted by the raw material used in that process which can be manipulated by biotechnology in previous stages. The key issue is integrating these between stage technological manipulations to obtain the end-user product most effectively and efficiently.

Increasingly, technology platform and value chain notions are being integrated with individual companies focusing on specific industries. Thus, value chains that use an integrated biotechnology platform across all stages of the value chain are being developed for the food, health/pharmaceutical, and industrial end-use markets as suggested by Figure 2. This integration of value chains and biotechnology platforms will be expected to generate numerous additional strategic alliances, mergers and acquisitions between companies who have traditionally been perceived to be in vastly different and unrelated industries.

Figure 2. Integrated Value Chain Platforms for Various End-Use Markets

Value Chain Linkage	Food	Health/ Pharmaceutical	Industrial
Inputs/Genetics	↓	↓	↓
Production			
Processing			
<b>Examples</b>	* Monsanto * Optimum Quality Grains	American Home Products/ Monsanto	DuPont/ Pioneer

## **Biological and Mechanical Technology Platforms in Production Agriculture**

Two technology platforms are expected to dominate production agriculture in the future: 1) the biological technology platform, and 2) the mechanical technology platform. In the past companies such as Deere and Case-IH have attempted to provide full line machinery services -- in essence to supply the full component set for the mechanical technology platform. This approach has not dominated the biological technology platform. Instead, the genetic, chemical, and nutritional dimensions of this platform have generally been provided by separate companies. But that is changing dramatically with mergers and acquisitions in the genetics and chemical industries in particular, thus resulting in a more integrated biological technology platform than in the past. In the future, individual producers will likely choose a prime supplier of their biological inputs and thus be committed to the full package of seed, chemicals and plant nutrition from a single source similar to what is common today in the choice of a particular machinery and equipment line. In essence, it may be increasingly more common for farmers to choose a specific biological technology platform and a specific mechanical technology platform to optimize productivity and efficiency.

An interesting issue in the future will be whether the biological technology and the mechanical technology platforms need to be integrated to obtain the highest performance — i.e. will certain biological platforms work better with selected mechanical platforms, or can the choice of a biological technology platform be made independent of the choice of a mechanical technology platform. This integration between the two technology platforms is not likely to occur with respect to tillage operations, nor would one expect that harvesting activities would require a unique integration of these technology platforms. But with the increased specificity that precision farming brings to seed, chemical and nutritional ingredient application and management, it is conceivable that in the future more integration will be needed between the biological technology platforms and the mechanical technology platforms in these dimensions or stages of crop production.

The potential implications of this increased integration is that a particular biological technology platform will only produce optimum yields if it is combined with the proper mechanical technology platform. Consequently, tighter alliances might be expected in those circumstances between biological technology companies such as Monsanto or Novartis and mechanical technology companies such as Deere or Case-IH. And the important points of interface between these technologies would be in seeding, chemical application and nutritional applications rather than in tillage or harvesting. This would suggest that the tillage and harvesting activities could be more readily provided by a wider spectrum of both technologies and/or providers, as it is less critical for these activities to be a fully integrated part of the total production technology package.

If tillage and harvesting activities thus become less unique and specific to a total production technology package, they are not only more easily outsourced, but have the prospect of becoming commoditized. And with commoditization comes lower profit margins for these

services and for the machinery and equipment that provide such services. The implication would be that the most unique mechanical technology services and thus the highest potential profit margins would be in planting, chemical and nutritional input applications rather than in tillage and harvesting activities. These former processes would also be the most critical points of potential power and control for mechanical technology companies to negotiate a stronger position with biological technology companies in the increasingly more tightly aligned supplier value chains in production agriculture.

## Evolution of the Agricultural Financial Markets

The agricultural financial markets are undergoing dramatic changes. The evolution of these markets is expected to involve five phases. Some segments of the market will transition through all of these phases, whereas others will not, but the changes in the competitive environment for most agricultural lenders have been profound in the last twenty years, and the rate of change is not expected to abate in the next twenty. The result of this evolution will be new financial and risk management products, new credit delivery systems, and new competitors.

The first phase of development in the agricultural financial markets is the origination of the traditional agricultural debt service provider. In the U.S., this phase occurred earlier this century with the formation of specific institutions such as the Farm Credit System and agricultural loan division of commercial banks and insurance companies, and the development of unique terms including longer maturities to serve the farm production sector. These institutions and their new financial instruments served the agricultural sector well throughout most of this past century.

For those financial institutions who had the authority to do so, over time a broader set of financial products and services were also offered to farm borrowers including trusts, estate planning, insurance, savings and deposit, and other services. For many commercial banks, this offering of a broader set of financial products and services to farm customers was a logical extension of their charter as well as a response to increased competition in the market. For the Farm Credit System which did not have the regulatory authority to offer broader financial products and services, strategic alliances and other arrangements were introduced to make some of these services available to their customers. This broadened offering of financial products and services to farm borrowers was the second phase of the farm financial market evolution.

In the early 1980s when traditional lenders encountered significant financial losses in their agricultural loan portfolio and became more restrictive in extending credit to farmers, captive finance companies aggressively entered the market. Thus began phase three of the evolution of these markets. This phase was characterized by significant growth in non-regulated financial institution lending to the agricultural sector. Finance companies associated with input supply firms initially entered the market to enhance product sales and meet competition. Captive finance companies used both credit as well as leasing arrangements to deepen the customer relationship and broaden the product service offering in increasingly competitive markets. But many of them found that extending credit or lease financing to farmers could also be a profitable business venture. These profits existed because many of these companies could source relatively inexpensive funds from the commercial paper and secondary markets through securitization; they could use asset based lending and credit scorecarding procedures to dramatically lower the cost of credit extension; and the higher cost and consequently rates of traditional agricultural lenders provided them an opportunity to lend money to farmers at higher rates and profit margins than might occur otherwise.



The agricultural financial markets are now entering a fourth phase of the evolutionary process. This phase is characterized by non-agricultural financial companies such as General Motors Acceptance Corporation Mortgage Division, and other non-regulated, non-agricultural finance companies entering the market to serve the sector. In some cases financial institutions are considering total financial services to include equity as well as debt capital. This phase also includes the more complete integration of the financial and risk management markets with traditional lenders frequently requiring and selling insurance products as part of the financial products-service package. And in some cases financial service and risk management providers have been integrated into single institutions such as the merger of Travelers Insurance Company with Citibank to form Citigroup.

The fifth and final phase of the evolution of the financial markets for production agriculture is just now unfolding in the form of a broader integration of the input, finance, risk, and product markets. Companies such as Koch Industries and Cargill are experimenting with product service offerings to farmers that include an optimized set of fertilizer, seed and chemicals; the financing to acquire this optimized input bundle; a risk management program including product warranties, options and forward contracting arrangements, and insurance products; and finally a contract or other arrangement to buy the finished product from the producer. Thus, financing is integrated as part of a total product/service bundle — a total systems solution. And in this arrangement the product flow relationship is dominant and is used as a carrier to provide the risk and financial services components of the package.

This final phase of evolution of the financial markets to be part of a total product/service package offered by value chain integrators has the potential to profoundly change not only the financial markets for production agriculture, but also the entire relationship that farmers have with their financial services provider. In essence, the once dominant relationship of the lender with his farm customer would be replaced by a dominant relationship between the farm customer and the value chain integrator.

## Integration of the Financing and Product Industries in Agriculture

Traditionally, lenders have not viewed chemical, seed and fertilizer manufacturers or retailers as major competitors. And certainly livestock and grain packers and processors have been easily defined as participants in a different industry. Insurance companies have behaved predictably as participants in the risk management markets, and only in the financial markets as providers of mortgage financing. Industry boundaries were relatively well defined, and key competitors could be readily identified. But dramatic changes are occurring in the financial, risk, input and product markets in the agricultural industries. And these changes are significantly altering industry boundaries and fundamentally reshaping the competitive landscape of these industries. What are these changes and how are they impacting the competitive environment for industry participants and financial institutions in particular?

Production agriculture is increasingly being transformed from an industry that produces generic, undifferentiated products to one that manufactures specific attribute raw materials for unique consumer or end-user markets. This industry is thus becoming more interdependent and less fragmented than in the past, with an increased focus on supply or value chains characterized by tighter alliances from genetic and other input suppliers through producers, processors and food wholesalers and retailers to final consumers. This value chain approach is confounding historical definitions of and barriers between various stages or segments of the agricultural and food production and distribution industry.

One of the most logical combinations or integrations in the formation of these value chains is between the financial services industry and the risk management services industry. Insurance companies have always been significant players in both the risk and financing markets, but not as integrated providers. Instead, the investment division of life insurance companies in particular have been important providers of mortgage credit to farmers, whereas speciality crop and casualty insurance companies have been the major participants in the risk management markets. But risk is a key issue impacting the terms and rates of the financing package offered to specific customers, and it has been common-place for lenders to require various risk management strategies such as purchasing crop insurance as a condition for extending credit. More recently, new risk management instruments including price, yield and performance warranties by input supply companies and net income contracting in grain and livestock production have been introduced into the market by input suppliers and product purchasers. These new instruments and arrangements are resulting in an increasingly integrated risk management service industry and real product input supply and product processing industries.

Other examples of partial integration of previously separated industries can be cited. Some financial institutions are more formally integrating the financing and risk services industries as exemplified by the formation of Citigroup through a merger of Travelers Insurance Company and Citibank. In the last ten years, numerous input supply companies have formed their own financing subsidiary as evidenced by such organizations as Deere Credit Services, PHI Financial, Case Credit Corporation, and FS Credit Services which are specific examples of the

integration of the input and financing industries. More recently, the processors and first handlers are offering financing to growers producing speciality or identity preserved crops to construct storage facilities and purchase other equipment uniquely needed for these crops as evidenced by the program offered by Cargill for storage facility investments.

The formation of more tightly aligned supply chains as noted earlier has resulted in the evolution of a new type of firm or business in the food production/distribution industries — the value chain integrator. The value chain integrator or coordinator is focused on providing an integrated package of products and services — a total systems solution that extends from end-user to input and raw materials supplier. He or she may provide only part of the products for services needed by the value chain from in-house resources, and outsource the remaining components of the integrated product service package. Thus, a firm such as Optimum Quality Grains may negotiate processor contracts for high oil corn and provide the genetic material to produce that corn, but the prescribed fertilizer and chemical inputs might come from DuPont, the financial services from PHI Financial and the risk management services from a traditional crop insurance provider. Alternatively, companies such as Koch Industries may actually provide a completely integrated package of financing, risk management, preoptimized fertilizer, genetic and chemical inputs, as well as a contract to purchase the product.

As noted in Figure 1, these value chain integrators are expected to have a significant impact on industry integration. They will dramatically change the boundaries and the competitive landscape of industries that have traditionally been definitive and separable. Lenders in particular will find that the challenges that they face in the future will not be how to compete with traditional financial service providers, but how to collaborate as well as compete with the total systems solution package of the value chain integrator or coordinator. In essence, the traditional lenders to agriculture — commercial banks and the Farm Credit System — may find that they do not define each other as their major competitors in the future, but that their most intense competition will be with firms such as ADM, Koch, and Cargill — companies that have not even shown up in the past on their radar screen.

Figure 1. Future Industry Integration

Providers	Industries			
	Inputs/Services	Risk	Financing	Product
Financial Institutions		X	X	
Input Manufacturers/ Suppliers	X		X	
Insurance Companies		X	X	
Processors			X	X
Value Chain Integrators	X	X	X	X

X = indicates a presence or a specific offering of products and services in that industry by the identified provider

## The Future of Agricultural Lending

Significant changes are occurring in the agricultural sector and in the organizations and institutions that finance that sector. What does this mean to commercial banks, the Farm Credit System, insurance companies, captive finance companies, and other institutions that finance farm and agribusiness firms?

First, a basic assumption – lending is a commodity business. If all a financial institution does is provide credit to farm and agribusiness customers, it is participating in a very competitive market where a number of other suppliers can provide that product. And like all commodity markets, a lender in the commodity business must compete primarily on price.

But many financial institutions serving farm and agribusiness customers transitioned a number of years ago from being a lender to a financial service provider which, in general, provides more opportunity for differentiation. Some financial institutions provide a broad spectrum of financial services including asset and cash management services, trust services, investment banking services, deposit services, accounting and information services, etc. More recently, some institutions are providing equity financing services to farmers through venture capital companies or subsidiaries. These institutions can provide a combination of properly structured debt plus lease financing and equity capital – in essence, a total financing package or total systems solution – to their customers. Other lenders are providing financing and financial services as part of a product bundle, whether it be in form of supplier financing through captive finance companies or similar subsidiaries, or through an alliance with a conventional financial institution through a preferred supplier program that provides financing for producers who have become franchise growers or qualified suppliers in a more vertically aligned value chain.

A critical additional form of differentiation to blunt the commodity nature of the agricultural lending business has been the depth of the relationship many financial institutions have developed with their farm customers. The agricultural lender has become a trusted advisor in some cases; a financial counselor for many; a source of unbiased information about not just financing but strategic direction, marketing strategy, investment options, etc. And this relationships has had personal as well as professional dimensions that have resulted in the lender being one of the most important advisors and the farmer-lender relationship being one of the most critical to a farmer's long-run financial success. In fact, for many producers, the most critical relationships they have and the ones that are most important to maintain are the relationships with their lender and with their landlord.

For traditional farmers, the personal and professional relationships with the lender will still be important and a critical source of differentiation. But for producers who become franchise growers or qualified suppliers in a more tightly aligned value chain, the right relationships with the processor and input supplier will become increasingly important, and may be even more important than the relationship with the lender. In some cases, this qualified

supplier or franchise grower relationship may even include access to financing, suggesting that the traditional lender may not be part of the package. And for those farmers who are simply looking for the lowest priced commodity type financing, the availability of Internet and other e-commerce based financing options will increase the competitive nature of the pure lending business and possibly even lower the cost of that business.

These profound changes in the agriculture of the future will dramatically change the basis for competition in the agricultural credit market as well as the types of competitors. It will change the delivery system and the products and services delivered. The future of agricultural lending with respect to customers, products, delivery/distribution and competitors might be summarized as follows:

#### Customers

1. Customers are increasingly different with different financial needs, so segmentation is essential.
2. The industrialized customer segment is growing.
3. The traditional customer segment is declining but still an important source of business today and for the near future.
4. Relationships will continue to be important, but the prime relationship a farmer has with his lender will be increasingly challenged by value-chain relationships characterized by networked qualified supplier and franchise grower structures.

#### Products

1. Risk management and financial management products and services will be increasingly integrated into a comprehensive package.
2. The financial products and services will be increasingly provided as a component of the product service bundle by value chain coordinators/suppliers.
3. Increasingly farm customers will be looking for total systems solutions that include an integrated package of information, financing and financial services, inputs and product merchandising services, and risk management services.

#### Delivery/Distribution

1. Multiple channel distribution serving different customer segments will become increasingly predominant in the agricultural industries.
2. There will be less direct retailing of agricultural financial products and services because they will be increasingly integrated with the provision of other products and services in total system solutions packages.
3. The end result of industry integration will be more point of sale (POS) delivery of credit—particularly operating credit.
4. Consortium and joint/packaged credit and financial services arrangements will become increasingly important as lenders and financial service providers combine their core competencies and emphasize their unique capacities to serve customers with a broad set of products and services.
5. There will be increased separation of the origination, servicing and funding of agricultural credits much like has occurred in the financial markets serving the housing industry.

### Competitors

1. Non-regulated competitors will increasingly become major players in the agricultural markets including organizations such as Deere and GMAC.
2. Financing of agricultural production will increasingly become part of a product service package offered by such organizations and input suppliers such as Farmland and Pioneer.
3. Increasingly value chain integrators will provide total systems solutions including inputs, product merchandising, risk management services and financial products and services like packages currently being offered by Cargill.

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