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Reframing Agribusiness: Moving from Farm to Market Centric

Mark R. Edwards and Clifford J. Shultz, II

Agribusiness is moving from farm to market centric, where effective activities anticipate and respond to customers, markets, and the systems in which they function. This evolution requires a broader conceptualization and more accurate definition, to convey a more dynamic, systemic, and integrative discipline, which increasingly is committed to value creation and the sustainable orchestration of food, fiber, and renewable resources. We discuss the forces driving this shift to the market, offer a new and more representative definition of agribusiness, provide models to illustrate some of the most compelling trends, and articulate key elements and implications of those models.

Key Words: agribusiness definition, conceptual models, market centric, market systems

> *Agriculture* – n. The cultivation of a field.
> *Field* – n. 1. A fenced pasture.
> 2. A body of knowledge or area of human activity.
> — Dictionary.com (2004)

The discipline of agribusiness has grown and evolved remarkably in only two generations. Agribusiness began as a distinct area of study in 1955, when John Davis defined it in terms of a fenced pasture; agribusiness centered on farms and commodities produced on them (Moore, 1959). This definition was appropriate when most agribusiness actions and employment focused on maximizing food and fiber production. With fresh insights from Ray Goldberg, the pasture-farm definition grew to: "The sum total of all operations involved in the manufacture and distribution of farm supplies; production operations on the farm; and the storage, processing, and distribution of the resulting farm commodities and items" (Davis and Goldberg, 1956). Similar definitions have been offered by others, such as Downey and Erickson (1987, p. 6): "Agribusiness includes all those business and management activities performed by firms that provide inputs to the farm sector, produce farm products, and/or process, transport, finance, handle or market farm products."

Mark R. Edwards is professor of agribusiness and Clifford J. Shultz, II, is professor and Marley Foundation Chair, both at the Morrison School of Agribusiness and Resource Management, Arizona State University East, Mesa, Arizona. The authors thank Ray Marquardt, George Seperich, and the anonymous journal reviewers for their many helpful comments on earlier drafts of this article.

These traditional definitions, though increasingly more expansive over time, reflect the focus of agribusiness on the farm or production unit, where the agribusiness center of mass has been for decades. Today, a scatter plot of employment would show that while over 30% of jobs in North America are in agribusiness, less than 1% are directly involved in production or are on the farm (U.S. Department of Labor, 2004). Agribusiness is no longer farm centric. Twenty-first century agribusiness encompasses a much broader set of actions, largely outside the fenced pasture, including *the market-oriented sustainable orchestration of food, fiber, and renewable resources.*

Boundary Drivers

Several factors have pushed the boundaries of agribusiness from primarily farm-centered production endeavors to more customer- and market-centered activities. Today, successful agribusinesses typically are more focused on:

- The *systemic nature of value chains* and each firm's or entrepreneur's position in and contributions to those chains;
- *Multiple stakeholders* of increasingly diffuse and complex agribusiness value chains;
- *Natural/scarce resources* and their prudent management;
- *New technologies* and their appropriate applications;
- *Globalization*, including myriad opportunities and threats that arise accordingly;
- *Sustainable differential advantage*, or more precisely, sources and sustenance—e.g., branding and brand-equity—in an increasingly competitive and dynamic world of agribusiness.

We examine here the underlying forces that have invoked the shift from farm to market, and offer an updated definition for agribusiness. Further, we propose models that capture the essence of this transformation.

What Has Changed?

The center of agribusiness during much of the 20th century was the family farm and all immediately relevant supply inputs, production, processing, and distribution. Typical agribusiness firms provided a single input such as tractors or fertilizers, or processed one commodity such as milk, grain, vegetables, or fruits.

In contrast, the 21st century experience incorporates a dynamic, systemic, stakeholder focus, with multiple and integrated inputs—particularly in the tasks of production, processing, distribution, and marketing communications. New demands such as rapid product innovation, leveraging scale-economies, driving revenue growth, capturing market share, adding sufficient value, co-marketing with competitors, and sensitivity to environmental impacts have become dominant managerial concerns.

Trends suggest dominant 21st century agribusinesses tend to be characterized as:

- *Larger.* Many farms and firms have aggregated horizontally by adding substantially more acreage or more similar products to achieve economies of scale.
- *Diversified.* Often conglomerates that evolved from acquisition rather than internal growth have a portfolio of firms which may include food, fiber, chemicals, pharmaceuticals, and even energy.
- *Complex.* New requirements for accounting, financial reporting, and marketing relationships increase the complexity of agribusiness firms.
- *Strategic.* Long-term thinking about scarce resources such as soil, air, water, power, timber, petroleum, minerals, and fishes, as well as the number of variables that can affect them, have pushed many firms to manage carefully natural resources, often in ways that make resource sustainability a competitive advantage.
- *Political.* Political pressures manifest in zoning, safety, quality, ecology, access to water and power, and conservation are motivating many agribusiness firms to become politically active.
- *Multinational.* Grains, dairy products, meat; processed foods and fibers; and pharmaceuticals are exported worldwide.

Additional challenges affect agribusinesses directly, as illustrated in figure 1.

Pushing Agribusiness Boundaries

These changes create new challenges and thus opportunities or threats, depending upon one's perspective and vested interests. In short, the boundaries of agribusiness are being pushed, particularly from the people, concepts, and institutions discussed below.

Agribusiness boundary expansion is driven in an economic sense by a variety of pressures, including social costs and transaction costs. Ronald Coase (1960) explained that people or firms bear both private costs (to themselves) and external costs (to society). These costs sum to the social cost of any action. Coase, and later Williamson (1996), showed how transaction costs push firms to innovate and change due to the increased costs of resources used for the creation of products and services. Transaction costs include defining and measuring resources or claims, the costs of using and enforcing rights, and the costs of information, negotiation, and enforcement (Williamson, 1996). As resources become increasingly scarce, both social and transaction costs go up, forcing organizations to change the way they act. Hence, the margins of agribusinesses move beyond traditional boundaries.

The following list is not exhaustive; rather, trend analyses suggest it represents some of the most compelling challenges that are dramatically reshaping agribusiness. Many of these factors are interactive, which, in addition to pushing boundaries, cause traditional borders to blur or to overlap.

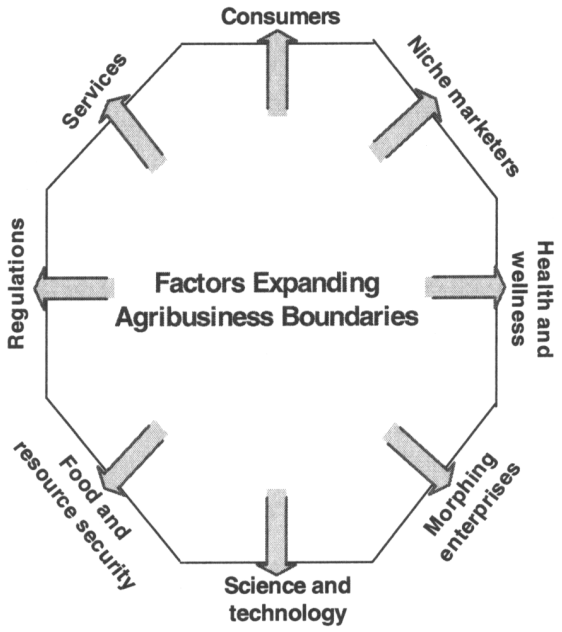

Figure 1. Pushing agribusiness boundaries

Űber Consumers

Consumers act as the dominant change-agent because they impel agribusiness, and shape and reshape its boundaries. Consumers ultimately determine any value attached to an agribusiness product or service. Rapid market changes are redefining relationships among agribusinesses (business to business, or B to B) and agribusinesses to customers (B to C). Markets evolve with more complexity and segmentation while consumers are increasingly demanding. Consumer idiosyncrasies are creating markets for specialty foods and fibers, fertilizers, and even new fragrances. As consumers demand to satisfy their expression of uniqueness, they drive national, regional, and global brand proliferation. On a broader scale, consumers are pressuring agribusiness firms to reduce pollution, improve labeling, and to become more ecologically sensitive (Shultz and Holbrook, 1999). In addition, many consumers are raising the consciousness level for managing limited resources such as water, air, and power. In essence, consumers and the markets they create continually change the agribusiness landscape.

Niche and Nontraditional Players

Smaller, nimble agribusinesses that are niche-focused continue to emerge and to capture market share. These highly specialized firms focus on a single specific market and product line, such as dietary low fat, low carbohydrate, or red meat

alternatives (RMAs). Recently, for example, a new niche firm, Baja Fresh, has emerged as one of the fastest growing fast-food providers. Baja Fresh reflects its customers who want faster, fresher, more flavorful, and healthier food. Similarly, Whole Foods has shown extraordinary growth, building-out the niche associated with fresh organic foods. Other firms focus on fast foods (or, increasingly, slow foods) or specialty foods such as premium quality wines, cheeses, flavored vinegars, olive oils, micro brewing, health foods, or gourmet foods.

Large firms, with customer loyalties, e.g., Coca-Cola, are losing the share of "stomach" and consequently market share to the likes of Safeway's "Choice," as well as upstart brands, e.g., Red Bull (a niche player), that capture the imagination of cost-conscious and impressionable new markets, respectively. The point: whether large or small, agribusiness "winners," throughout the value chain, are keenly market focused and deliver goods and services that explicitly meet the needs of those markets.

Lower-Cost, Opposite Season, and New Competitors

Many agribusinesses in developing economies have lower costs and compete successfully on price. Fruit and vegetable producers are experiencing significant new market entry from countries south of the equator that have an opposite growing season to North America. Most food stores now carry grapes, vegetables, and pit-fruits all winter from Chile and other South American countries. New, "exotic" foods and fibers, not grown currently in developed markets, are finding their way to supermarkets in the United States and Europe, and require more shelf space. These include new spices, sprouts, fruits, and seafoods. Soy and other plant-based meat substitutes similarly are entering the food market. New fertilizers, pesticides, and structural composites are likely to displace existing products, especially when they can be produced faster, cheaper, and use fewer natural resources than traditional products use.

Scientific Innovations and New Technologies and Methods

Genetics, nutrition, production, health, and vitality all act to integrate science in agribusiness. Other issues also serve to merge agribusiness with science and technology, such as shelf-life, supply-chain management, ecological impacts, and perceived value (Middendorf et al., 1998). New technologies and methods such as bagged lettuce, boxed beef, flash-frozen seafood, and pre-prepared meals are results from scientific innovations that change agribusiness. Similarly, hydroponics, timber farms, genetically modified organisms (GMOs), and other new production modes are challenging traditional production methods.

Food Production and Security

Food production increasingly is a science-based business, often controlled by large, multinational corporations. These huge agribusiness firms compete to sleuth the

genetic secrets of plants and animals and to control their discoveries by acquiring patents for them (Wrigley, 2001). Further, in a post 9-11 world, agribusiness must redouble its efforts to address concerns about supply, security, and safety.

Health and Wellness

Health issues tend to dominate many traditional agribusiness strategies. The creation of "no-fat fats," seed hybrids, and genetic alterations integrate strong doses of medical information and testing. Issues such as pesticide residues, food contaminates, and water purity rank high in the public consciousness (Peterson et al., 2001). The extent to which new foods enhance health and wellness ultimately will determine their success in the vitality market segment.

Time Allocation and Pressures

Agribusiness people at all levels of the value chain spend a great deal of their time working on nontraditional agribusiness issues, such as relationship management in the supply chain and influencers of the chain. Agribusiness people focus on ecology, product safety, refuse management, and the preservation of natural resources (e.g., Trojnar, 2001). Time pressures also are mounting; consumers and members of the value chain simultaneously have become less patient and expect delivery, payment, services, etc., much more quickly.

Morphing Enterprises and Business Extensions

Traditional chemical firms such as DuPont have created agribusiness divisions to build markets for their technical innovations (*Business*, 2002). Classic agribusiness firms such as Monsanto continue to term the firm "agribusiness," while their business models evolve to new forms of enterprise where they acquire and co-market with pharmaceutical firms, and develop entirely new product categories such as nutriceuticals (Challener, 2001). Forest product companies such as Boise Cascade and Weyerhaeuser invest considerable resources in forest husbandry. Rubber companies grow renewable rubber trees and make extensive investments in glass and other materials to increase tire strength, longevity, and safety. Aquaculture has spawned new industries for fish and shellfish farming while managing serious constraints from ecological concerns (Olofson, 2001).

Distribution and Retailing Clout

Larger retailers, which also are morphing, have growing clout, affecting supply chain management, prices, production, branding, and marketing communication. In developing and transitioning economies (in which over half the world's population resides), they are radically reshaping the agribusiness landscape, as farmers now engage in contract production with the strategy of more coordinated and efficient

distribution. The net result is the demise of some traditional markets, but enhanced efficiency, choice, quality, and safety. Smaller, niche retailers also affect these variables, though clearly not so substantively. Boutique sellers frequently target opinion-leading consumers, and therefore often predict market trends. Amazon.com has made an industry around targeting opinion leaders by what they read and buy. Niche retailers are often able to sell higher margin products and services and to engage in higher margin activities.

Students cum Consumers and Employees

Students at all levels are shifting from traditional products to new forms of coffee, flavored milk and water, as well as pushing new forms of eating such as vegan diets. For example, students at the University of Maryland have protested actions associated with animal slaughter by the College of Agriculture. Student protesters at the University of California at Davis rallied against the display of livestock on "Picnic Day," citing that the milking of cows was a form of rape (Argetsinger, 2003). These opinion leaders often tend to be market predictors. Moreover, graduates from agribusiness programs are finding employment in an extraordinary number of professions, many only tangentially related to production agriculture, yet they leverage their knowledge and further expand the discipline.

Government and Regulation

Despite a shift away from government intervention, in many respects governments still greatly affect agribusiness and expand boundaries by legislating standards, advocating for businesses and consumers, and largely stimulate a commercial landscape that enables agribusiness to administer its many value chains, to the benefit of the majority of stakeholders in those chains.

Trade Associations

Professional associations champion special interests, open new markets, protect old ones, expedite trade, educate consumers, producers, and retailers, and help to disseminate information.

Services

Many agribusinesses have evolved into predominantly service versus product providers. Producers, processors, transporters, shippers, grocers, restaurants, insurance companies, and banks have a profound impact on the extent to which foods and fibers find their way to markets and are (or are not) consumed. Firms understand that consumers are highly influenced by the subtle (and sometimes not so subtle) cues from service providers (Berry and Bendapudi, 2003). Consequently, the typical feedback card at a restaurant often asks more questions about the service and

service-scape (surroundings) than the quality of food. Failing risk protection and financing, germane to unique challenges inherent to agribusiness (e.g., perishability, ecology, and consumer safety), most agribusinesses would not survive.

Literature and Textbooks

Articles on agribusiness often focus on issues such as vitality or medicine, positive or negative benefits of diet and health, the impacts of pesticides, and the preservation of resources. Information technologies now access some of the most remote consumers and other stakeholders in value changes. Consumers have access to web information on nearly any consumer issue, such as complaints, globalization, executive wages, diversity issues, animal rights, and ecological sensitivity. Traditional agribusiness definitions continue to be offered in standard agribusiness textbooks. In contrast, the body of popular literature—as illustrated by the subject headings appearing in *The Economist* and *Fortune*—generally has expanded the description and scope of agribusiness firms and activities to include forestry, fisheries, and even mining.

Electronic Media and the Internet

Satellites, cable, fiber-optics, and the Internet now virtually work toward assuring—at an accelerating rate—that every agribusiness and its stakeholders are interconnected. Web search engines (e.g., Google, Yahoo, MSN, Alta Vista, Pro-Cite, and others) commonly cross-reference key terms and categories. Agribusiness becomes connected through search engines with ecology, pollution controls, water resources, and extractive industries. The Internet also expands the reach of agribusiness and intrinsically is another medium. Agribusinesses of any size can communicate with customers in the most remote regions of the world. Micromarketers from remote regions in developing markets now can communicate with customers, distributors, and other members of value chains, thereby enabling distant channel members to sell to markets never before imagined.

Evolving Product Concepts: Pharmaceuticals, Agriceuticals, and Fibers

Many of the aforementioned topics elicit changes to product concepts traditionally produced by natural and artificial substances. Some medicines, such as insulin, soon will be extracted from genetically modified plants; new strains of rice will include vitamin A and probably other nutrients; some expensive medicines will become available at low prices when they are extracted from the milk of cows or other mammals. Ongoing revelations suggest that many new medicines will emerge from discoveries in the rainforests and the oceans, largely untapped and promising reservoirs of natural flora and fauna which can be parlayed into health benefits. The anticipated medical outcomes position rainforest and ocean preservation as critical both to biosphere protection and financial gain.

These trends suggest an expansion of the pharmaceuticals industry to include the term "agriceuticals." Fibers similarly have been a straightforward category of natural and artificial components. Now micro and nanno (very, very small) fibers are changing the category and extending into new areas, as are new product forms that combine natural and synthetic fibers. For example, the leading medical product to treat burns on human skin for decades has been thinly sliced skin from specially raised pigs. Now it is GORE-TEX®, a product most observers equate with athletic gear. Wood fibers are being aligned to make products lighter and stronger, in some cases lighter and stronger than steel. Combinations of wood fibers and concrete are being fused into single pieces to make composites for creating strong, resilient, cost-effective housing materials.

Fashion

The global fashion industry continues to grow at an astonishing rate. Fashion has among the largest margins of any industry and includes products that have an agribusiness core. The fragrance, clothing, and personal hygiene industries are good examples. Many fragrances have emerged from scientific pursuits in other disciplines. Paper clothing offers great advances in safety, cost-effectiveness, and disposability. Personal hygiene products are derived from myriad natural and synthetic sources. Basic food selection and food consumption venues have become high fashion.

Recreation and Tourism

Many traditional agribusiness properties are evolving into the arenas of recreation, ecological learning, and tourism. Even family farms, where agribusiness has its genesis, have transformed their production from wheat and corn to golf courses, bird sanctuaries, or windmills. Near most cities, there are farms that lure busloads of students to explore pumpkin fields, milk cows, pet goats, or pick peaches. Similarly, many forests are now managed in ways that enable preservation, recreation, reforestation, biodiversity, and ecological learning in addition to timber production.

Globalization

An overarching theme: the demise of trade barriers, new markets, ideas, products, and their growing interconnectedness are pushing the boundaries of agribusiness in ways never envisioned. International trade, finance, and management apply the latest information technologies, scientific discoveries, and marketing tools to maximize the value chain for products and services (see also Stiglitz, 2002).

Market-Centered Agribusiness

The preceding challenges, people, concepts, and institutions operate together to expand and to shift the discipline of agribusiness from the traditional farm-centered focus to customer centered. Market-centric agribusiness follows this path:

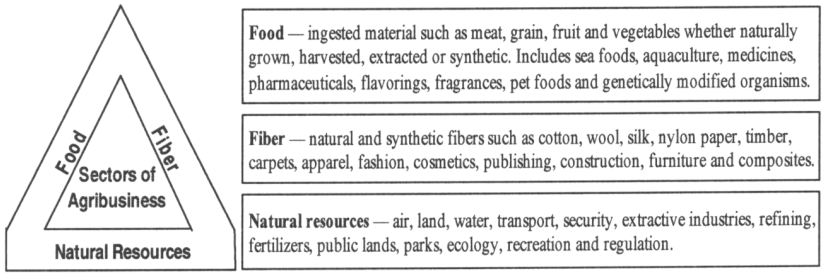

Figure 2. The three agribusiness sectors

- Consumers' desires and needs drive agribusiness;
- Effectively managed value chains deliver "desirable" products and services to consumers;
- When products and services are seen as sufficiently unique and valued, they provide differential advantages in ways no other(s) can;
- Firm growth and profitability accelerate.

This market-centric agribusiness re-conceptualization merits an updated definition.

Toward a New Definition

A new definition for agribusiness needs to be:

- *Concise*—without long lists of industries or functions,
- *Clear*—conveys the coverage of the discipline,
- *Clean*—free of extraneous elements, and
- *Current*—reflects present agribusiness actions.

Accordingly, we propose the following reframed definition of agribusiness:

> *Agribusiness is a dynamic and systemic endeavor that serves consumers globally and locally through innovation and management of multiple value chains that deliver valued goods and services derived from the sustainable orchestration of food, fiber, and natural resources.*

An illustration of the three agribusiness sectors, with synopses, appears in figure 2 above.

Natural resources and associated industries expand agribusiness from the traditional food and fiber areas because the preservation of many natural resources has a direct impact on more traditionally defined agribusinesses. That is, the prudent management of water, soil, petroleum reserves, and the ozone layer, to provide just a few examples, affects the availability and quality of food products, wood products,

and medicines—to name but a few agribusinesses. Unfortunately, not all agribusiness firms favor "green" practices or efforts to enhance resource sustainability—and one certainly could argue that an agribusiness firm can be profitable by being insensitive to such practices—but failure to embrace a systemic approach, failure to integrate natural resources management into the broader construct of agribusiness, hints at a catastrophic threat to agribusiness firms. Therefore, by logical extension and because of vested interests, natural resources including, for example, managed and non-managed stocks of fish and forests as well as renewable energy sources such as hydro, fuel cell, solar, wave, tide, and wind harnessing, all are germane to core agribusinesses and their welfare.

The essence of these ideas is illustrated in figure 3, which offers a visual representation of agribusiness for the 21st century, in terms of the roles agribusiness people perform. Core or traditional agribusiness industries lie at the center. Additional bands expand to classic, contemporary, and complementary or future industries. Some of the outer bands include roles that are ancillary to agribusiness. However, each role, job area, or industry shown has direct impact on food, fish, fiber, natural resources, production, processing, distribution, marketing, and consumption. Agribusiness students and practitioners are finding careers in each of the three agribusiness sectors.

All sectors include some common business activities such as financial services, other services, and manufacturing. Production, processing, packaging, distribution, wholesaling, marketing, retailing, and other actions also occur in all three sectors. New technologies have merged sectors. New foods may use plant fibers for texture, and these fibers are then combined with petroleum-derived colorings and synthetic molecules to enhance taste.

Hoffmann-La Roche, for example, makes the dyes, canthaxanthin and astaxanthin, from petrochemicals that are sold to salmon farmers. Salmon farmers buy grains and fibers from various sources and use a SalmoFan, a paint wheel with assorted shades of pink, to determine how much dye added to the food will create the degree of pinkness customers want in farmed salmon (Burros, 2003).

The reframing of agribusiness moves away from farm centric to consumer and resource centric because consumers drive demand while natural resources may act as a primary limiting constraint to agribusiness. Consumer desires for more and better foods and fibers are pushing innovations in biogenetics, nutriceuticals, and new delivery services. Ecology, pollution avoidance, and natural resource preservation are major strategic issues facing nearly all forms of agribusiness.

Positioning Agribusiness: A Systemic Approach

Outcomes for agribusinesses increasingly are determined by the expanding market-oriented systems in which they operate. An entity or activity is integral to the agribusiness system if it facilitates movement of a product from production to consumption. Growing, producing, and selling clearly, then, are all agribusiness activities and conventionally are included as such. The systemic approach argues for

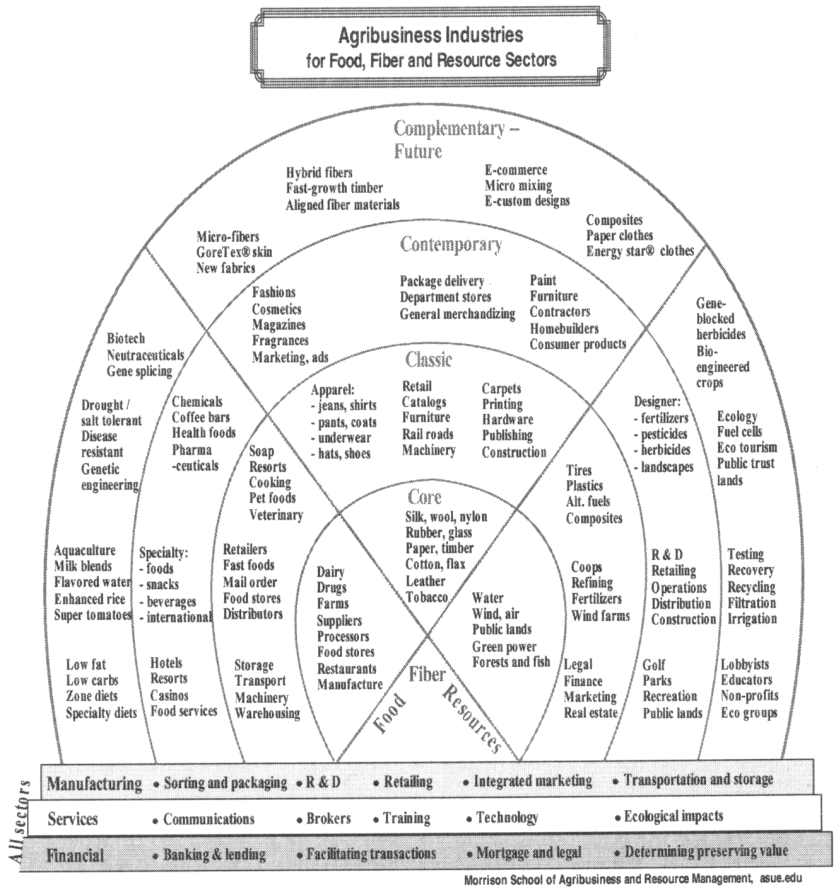

Figure 3. Twenty-first century agribusiness industries: Food, fiber, and natural resources sectors

the inclusion or at least recognition of entities that influence consumer outcomes of more classically categorized agribusinesses (e.g., Meade and Nason, 1991). This broader positioning expands agribusiness to reflect the contemporary focus of agribusiness activities as dynamic and systemic. It includes, for example, policy makers, regulators, and eco-advocates; it also includes natural resources (other than food and fiber), and the companies that manage them and interact with more classically categorized agribusinesses.

Revisiting Natural Resources and Their Prudent Management

Limitations to natural resources, largely due to increasing consumer demand, are a growing concern of contemporary agribusiness. Agribusinesses face adversity from

limitations that increase social and transaction costs (Coase, 1960) and threaten business viability. Below we list a few key natural resources, with some compelling examples of effects on agribusiness.

Energy, Water, and Land

Needs for energy, water, and land will increase, become more costly, and require more imaginative solutions. Additional power, space, and water are being demanded by rising populations. Production and processing operations are increasingly threatened by access to sufficient fossil fuels as well as rising prices. Moreover, more hydroelectric power may come at the expense of agribusiness. Many farmers in Washington, Oregon, and Idaho, for example, are selling their water to electric power firms; their land goes fallow while the power companies create electricity (*The Economist*, 2001). In southern Oregon, many farmers have been cut off from 80% of the water they normally receive in order to protect migrating salmon, which get federal protection. (Farmers are appalled that voters should favor a fish's sex life over their future.) Canada has considered the sale of water to the United States, suggesting imaginative solutions to growing challenges (*The Economist*, 1999).

Pollution, Ecology, and Preservation

In addition to scarcity, pollution and subsequent policies by EPA, FCC, FDA, OSHA, the Office of Homeland Security, and other regulatory agencies will drive up the costs of some inputs, production, and processing. Among myriad examples, consider that Coca-Cola and Pepsi lost millions of dollars in sales and were nearly forced to shut down sales completely in India due to false claims of pesticide residues in their cola drinks (*Business-Standard*, 2003). EPA rules and state legislation impose tougher limits for pollutants in water discharges from industries and other point sources as well as rain and storm water runoff from non-point sources such as farms (Silver, 1999; see also *The Economist*, 2002a; *Purchasing*, 2000). Public lands are being set aside, without commercial access, or with limited commercial access requiring users to follow strict extraction or harvesting guidelines—the West has experienced a sharp drop-off in lumber production while lawsuits pursue the plight of the tiny spotted owl, and new and critical water projects are being held up while environmentalists debate the future of endangered fish and birds (*The Economist*, 2002a, b). These actions often sum to major new constraints and costs for agribusiness.

Resource Constraints = Opportunities

While resource constraints can create a drag and add costs to agribusiness, the same concerns create market opportunities. Some of the following examples have already become new industries. These new and emerging technologies include:

- *Filters.* Recycled chicken feathers offer hope for new types of filters for water where heavy metals can be captured and recovered.
- *Green/renewable power.* Solar, wind, wave, geothermal, ethanol, and other types of renewable energy will continue to develop and create sustainable power systems while reducing reliance on fossil fuels.
- *Nutriceuticals.* Transgenic tomatoes and potatoes hold promise for oral vaccines to prevent diarrhea diseases such as cholera, ETEC, and Norwalk virus. These diseases annually kill over 2.5 million children. Plant-derived vaccines would enable local people globally to grow these tomatoes and potatoes for harvesting valuable, yet low-cost pharmaceuticals (Grant, 2003).
- *Grey water.* Reuse of water has enabled golf courses to flourish throughout the Southwest. San Diego and other communities are planning for major changes to enable urban use of grey water. Similarly, grey water will become more commonly used in food and fiber production and processing.
- *Drought- and salt-tolerant plants.* As more of the world becomes desert or water-deprived, plants that can thrive despite drought and salt will be in great demand.
- *Biodegradable and recyclable products.* As landfills become full and the cost of waste disposal becomes exorbitant, the demand for new packaging products that are more easily and quickly recyclable will continue to increase. Fast food and other retailers will continue to innovate ways to deliver food with less packaging waste and litter.

These opportunities, in addition to pushing the boundaries of agribusiness, will continue to blur the lines separating industries such as petroleum, food, and fiber.

Channel Implications

The expanded view of agribusiness drives strategic responses in marketing channels. Changes in agribusiness marketing channels have occurred primarily in the following six areas:

- *Service orientation* has emerged as the required solution for gaining customer satisfaction. Successful firms have created strong customer service links where they become partners with their customers in creating new products. Many traditional product-oriented firms now view their offering as a service, where the product represents just one element of total customer satisfaction.
- *Vertical integration* is taking place where larger channel members have consolidated smaller entities both up and down the channel. However, these integrations continue to evolve as firms relearn that existing channel members often have more expertise and efficiencies than the larger firms can bring to the channel. Some meat producers, for example, assign one of their well-trained meat buyers to the food processing business, to educate food processors and to maximize the quality of purchased meat.

- *E-commerce* is changing the nature of many channel actions, especially communications, ordering, dispatching, assortment, quality assurance, delivery, and customer service relationships. Several of the top cereal producers have cooperated on an E-commerce solution for trucking that shares dispatches among members, reduces empty hauls by 85%, and increases profitability for everyone. Web-based consumer purchasing for items such as books, food, clothes, and pharmaceuticals may change the nature of contribution or eliminate selected channel members.
- *Resource focus* puts constraints on and affords opportunities for all parties. Agribusiness historically has focused on efficiencies in order to maximize production with minimum inputs. Today, scarcity and costs of critical resources, such as water and power, force different kinds of efficiencies, such as no-till farming, creating and growing drought- and salt-tolerant plants. Fish scarcity is changing policy from maximum harvest to managing fisheries according to their environmental impact and sustainability. Green consumerism and health advocacy initiatives are creating new constraints on sustainability, preservation of resources, and conveyance of the value added to health and vitality.
- *New metrics* created initially to improve production are now used for measuring and monitoring internal and external factors. For example, many firms use *360E Feedback* to provide leaders and employees with behavior profiles from their internal customers and team members (Edwards and Ewen, 1996). Firms have created balanced scorecards that allow members to track critical information such as employee satisfaction, the quality of supplier services, production reliability, and financial stability, as well as customer satisfaction (Kaplan and Norton, 1996).
- *Food security* is a growing concern and threats to it can result from disruptions at any point along the channel network. Indeed, disruptions to elements comprising what we have described as the agribusiness system can have adverse effects on the ability to manage channels effectively and efficiently, which in turn can have disastrous effects on food security. Such disruptions could come from terrorism, natural disasters, or genetic limitations of plants (which, in this last case, could be bolstered by GMOs).

The dynamism of these areas creates opportunities and challenges for agribusiness firms. New metrics that monitor the flows of consumer needs, channel member performance, and the efficient use of natural and modified resources will operate in concert to drive continuous evolution in agribusiness firms.

Summary

The discipline of agribusiness has changed from farm to market centric. While farms continue to play a vital role in agribusiness, consumers and other members of the food and fiber value chain increasingly affect changes to the scope, shape, form, and operations of agribusiness firms. Producers, consumers, retailers—indeed, all members of the food and fiber value chain and those persons and institutions that influence it—are part of a broad agribusiness system. This consumer-driven market system, while enhancing efficiencies and effectiveness, also continues to deplete

limited natural resources upon which agribusiness depends for long-term prosperity. Many agribusinesses, though not all of them, therefore have become more sensitive to "green" initiatives and the preservation of natural resources. We hasten to add that this sensitivity often is in response to new market opportunities, pressure from regulators and consumers, and scarcity, but also is in the best interests of their consumers and the sustainability of their enterprises.

Market-centric agribusinesses create partnerships with their customers and instead of focusing on optimizing production, focus on maximizing consumer experiences and total customer satisfaction. Many successful agribusiness producers are wrapping their market offering within a total service package that includes consumer education, feedback, E-commerce, and other forms of support.

Agribusinesses face substantial mindshare load for tradeoffs among competing demands from new laws and regulations, new technologies, and resource sustainability and preservation. Many suppliers must provide research support for the health benefits of specific ingredients, or provide credible evidence that ingredients result in no harm. Producers and suppliers of pesticides, fertilizers, seeds, aquaculture, and managed forests must follow strict ecological regulations and goals. Agribusinesses must compete with cities for water and power while minimizing air, ground, and water pollution. Food retailers—and therefore the entire agribusiness industry—face increasing pressure from health, vitality, waste, and animal rights advocates.

Agribusiness in the 21st century is increasingly reframed with a larger view—an expansive and inclusive system that encompasses what contemporary agribusiness does: listen to customers in order to create value and to deliver products and services from food, fiber, and natural resources, while managing and preserving resources.

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