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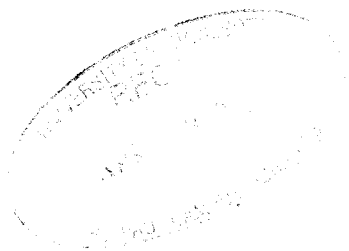
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# JOURNAL OF RURAL COOPERATION



Centre international de recherches sur les communautés coopératives rurales  
International Research Centre on Rural Cooperative Communities  
המרכז הבינלאומי לחקר קהילות כפריות שיתופיות

**CIRCOM**

VOLUME 29

No. 2

2001

CIRCOM, International Research Centre on Rural Cooperative Communities was established in September 1965 in Paris.

The purpose of the Centre is to provide a framework for investigations and research on problems concerning rural cooperative communities and publication of the results, to coordinate the exchange of information on current research projects and published works, and to encourage the organization of symposia on the problems of cooperative rural communities, as well as the exchange of experts between different countries.

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*Information for Subscribers:* The *Journal of Rural Cooperation* is a semi-annual periodical, aimed at the pursuit of research in the field of rural cooperation. Editorial enquiries and other correspondence should be addressed to CIRCOM, Yad Tabenkin, Ramat Efal 52960, Israel (Fax: +972-3-5346376). Subscription rate: \$27 per annum (plus \$3.00 sea mail; \$6.00 airmail).



## JOURNAL OF RURAL COOPERATION

Vol. 29

No. 2

2001

**Guest Editor:** Eliezer Ben-Rafael, Department of Sociology, Weinberg Chair of Political Sociology, Tel-Aviv University, Israel

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# Agricultural Cooperatives and Dilemmas of Survival\*

by

Thomas W. Gray

Rural Business-Cooperative Service, USDA, Washington, DC

William Heffernan and Mary Hendrickson

Department of Rural Sociology,

University of Missouri-Columbia, USA

## Abstract

The context of agricultural cooperatives is undergoing major change with the development of various food and information monitoring technologies. Large multi-nationals have moved to take advantage of these developments with the construction of agri-food chains. These chains are being facilitated via various mergers, acquisitions, and alliances, with the power, and deepening power of such deep-pocket organizations as Cargill, ADM, and ConAgra. Cooperatives have been integrated into these chains for their core competencies, generally for their supply functions, and capacity to handle primary commodities. These direct links to the farmers serve as markets for biotechnology innovations, and as a source of raw material for later processing. Agricultural cooperatives in general are not well suited to compete with these giants, given they are highly specialized at the first handler level. However some cooperatives are able to enter the competition along the lines of multi-nationals competition, *i.e.* non-price competition in product differentiation, branding, advertising, research and capacity expansion. Farmland, Gold Kist, AGP, Land O'Lakes and Growmark are examples. The cost of these positionings is to shift these organizations toward positions that are characteristically less cooperative, and more bureaucratic, and more top down, though likely more efficient, and with greater market penetration.

## Introduction

Agriculture in the US is undergoing changes that some characterize as an "emerging new agriculture." Global, economic, technological and informational dynamics are integral to these changes, as are the investment rationales, and organizational changes of several large multi-national corporations. These changes represent part of the economic context within which agricultural cooperatives function.

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\*This paper represents the analyses of the authors only, and does not represent the official view of any associated Agency, Department, or Administration.

Most economic organizations are organized around at least one of three purposes, *i.e.* making profits, providing service (taken broadly), and/or realizing meaning. Exemplar organizations tend to range along a continuum from investment-oriented firms (IOFs) at the profits end, to the kibbutz at the life-meaning end. All three purposes may be present, though one will tend to predominate within an organization. In the US, agricultural cooperatives have tended to be organized to provide service, *i.e.* serving users' specified needs through time (Craig, 1993; Nadeau and Thompson, 1996). However, they also have earnings needs, internal participation and meaning mandates.

Historically, US agricultural cooperatives have been structured for member use. "A cooperative is a user-owned, and controlled business form in which benefits are derived and distributed on the basis of use" (Dunn, 1988:85). This use aspect of cooperatives perhaps has been best captured in the US by Schaars (1980), and later Dunn (1988) in three cooperative principles:

1. The User-Owner Principle: Those who own and finance the cooperative are those who use the cooperative;
2. The User-Control Principle: Those who control the cooperative are those who use the cooperative;
3. The User-Benefits Principle: The cooperative's sole purpose is to provide and distribute benefits to its users on the basis of their use.

Various tensions are built into cooperatives that are structured in a manner congruent with these principles. Embedded are values of equality, equity, participation, and self-governance, but also efficiency performance, and economic return. They are at once democratic associations of members as well as businesses (Craig, 1993; Lasley, 1981).

These internal tensions are in dynamic relation to the external context. Organizational dilemmas can present themselves as cooperatives encounter, among others, economic and financial pressures, technological changes, changes in the structure of agriculture, globalization, and urbanization. Opposing choices, and incremental changes may occur that shift an organization between complex expertise and grass roots needs, efficiency and equality, authoritarian logic and democratic logic, bureaucracy and participation.

US agricultural cooperatives have been organized in a context of market oppression. Farmers organized cooperatives in struggles against oligopoly power and cartels, market manipulation, extraction of value by middlemen, and windfall profits (Craig, 1993). They were grass roots initiatives to change economic power relationships and to ensure reliable service to farmers through the boom and bust cycles of US agriculture.

However, the reality of the market place tends to drive participation and service in opposite directions. The needs for efficiency, and a predominant emphasis on

the bottom line, can drive organizational form toward bureaucratic shape and logic, with emphases given to organizational hierarchies, flows of authority that are top down, and centralized decision-making (Breimyer, 1965). This logic is distinct from a grounded cooperative logic, or a logic that emphasizes local responsiveness, decentralized decision-making, participation and involvement.

When participation declines and organizations tend toward greater centralization of decision-making and a bureaucratic logic, it can become increasingly difficult to recognize differences in cooperative behavior from investor-oriented firm behavior. However, to act without recognition of market imperatives (need for earnings), market competition and power can also result in loss of the structural presence of cooperatives (Torgerson, Reynolds and Gray, 1998).

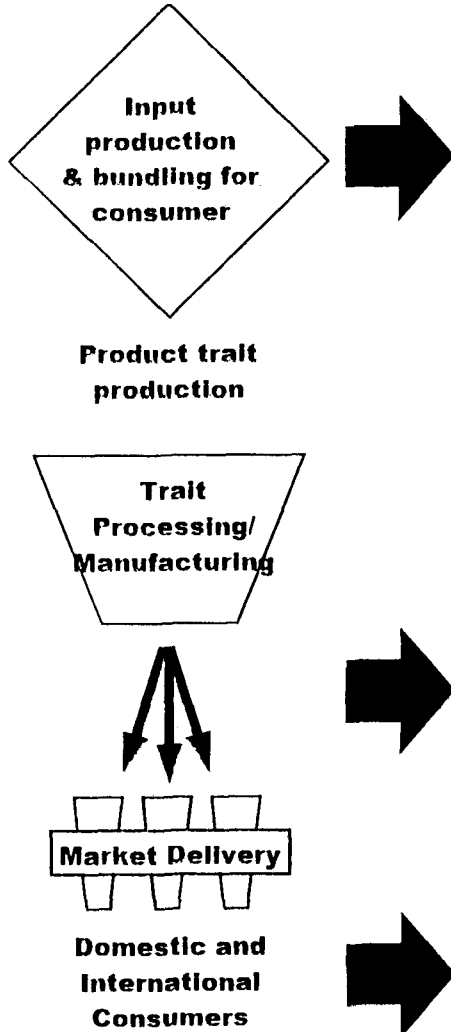
This paper is written in two parts. Part I presents the current context of US agricultural cooperatives by reviewing: 1) the various dynamics some describe as an “emerging new agriculture”; 2) the implications of this “new agriculture” in terms of the vertical and horizontal integration tactics of agri-business firms; 3) the concrete organizational movements of agri-business multi-nationals Cargill, Archer-Daniels Midland, and ConAgra; and 4) a summarization of the cultural logic agri-business firms draw upon for survival strategies, given this new context. Part II gives greater focus to the agricultural cooperative implications of these contextual changes by: 1) clarifying concrete differences between investment agri-business firms, and agricultural cooperatives, by detailing the structural commitments of agricultural cooperatives, and suggesting their capacities to compete with oligopolies/oligopsonies; 2) describing the use made of agricultural cooperatives by these large multi-nationals; and 3) detailing instances where agricultural cooperatives have taken oligopolistic competitive positions, and the implications of these positions for the inherent tensions within cooperatives.

## **The agricultural cooperative context**

### *The emerging “New Agriculture”*

The traditional structure of the US food system has been based in the farm production unit with a linear flow of product from the farm to the market (Fig. 1). The farm unit has been supported—to varying degrees historically—by sectors that include transportation, energy, finance, communication, and other input suppliers (feed, seed, fertilizer, machinery). Output commodity production then goes through various paths to domestic and international consumers via differing combinations of wholesaling, retailing, processing, and manufacturing. The system has been held together through spot markets and market signals—though various agri-food firms have sought to escape the pressure of these markets through horizontal and vertical integration (as well as product differentiation and advertising).

### Traditional Structure of U.S. Food System



### Evolving "Virtual" Food System Value Chain

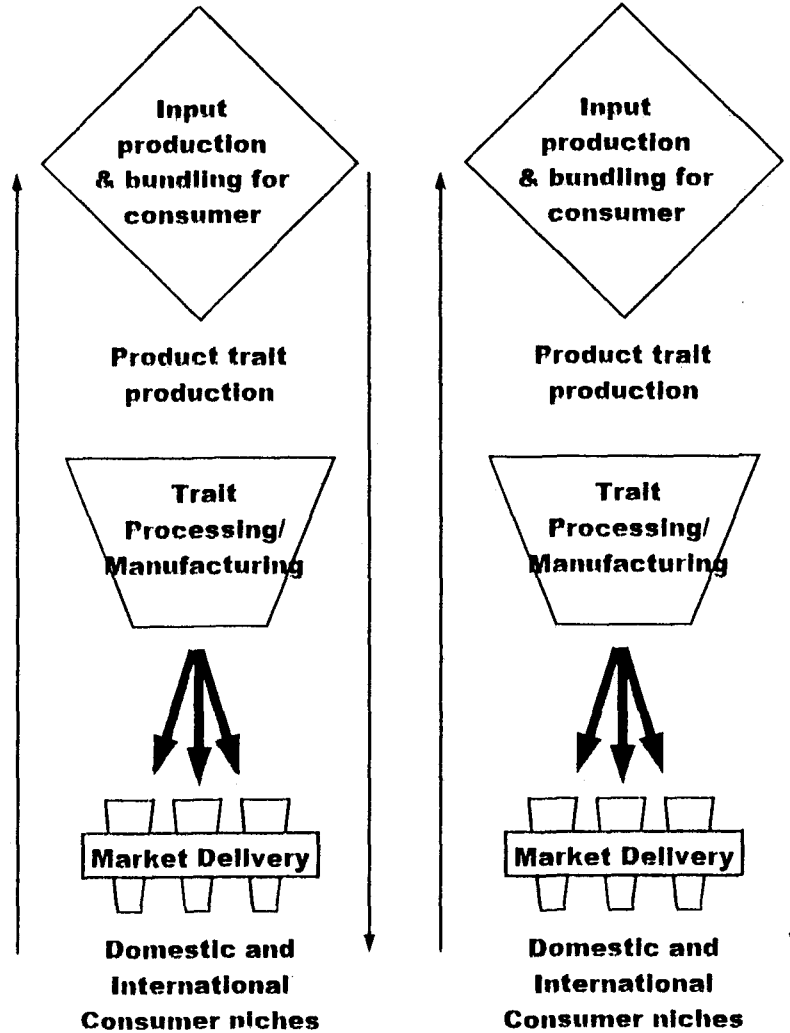


Figure 1. US Food System Chains

Source: (Barr 1999)



In the new-agriculture, more integrated food system chains are being formed in response to several synergistic developments. Consumers are demanding specific traits in products. Various biotechnology and nutritional technological developments have allowed the incorporation of traits into production. Other information monitoring and measuring technologies have been developed that allow for attribute traceability throughout a food chain. Intervention technologies permit modification if attributes deviate from desired values. Tighter quality control, and flow scheduling are possible and demanded. These developments have allowed for the emergence of integrated food chains that are end-user responsive to demanded traits, with trace back and intervention capabilities (Fig. 1).

“As in other industries, those with unique and accurate information and knowledge have increasing power and control” (Boehlje and Schrader, 1998:14). Control and relative predictability allow for organizational integration, and the solidification of a system for capturing profits and shifting risks. Geography becomes less constraining as traditionally understood, and new locations become privileged, determined by new advantages of resource specialization, size economies, and flexibility (This is currently the case with hog production that has become disembedded from family farms in the mid-west to mega-hog industrial units in North Carolina).

Farmers are integrated into these systems via production contracts, variously termed franchise growers, network qualified suppliers, piece work contractors. Uniform quality, and volume predictability are central in these contracts. Specific product traits are being demanded. To control for quality and quantity product buyers frequently mandate uniform management and production practices across contracted farms. This could include scheduling planting, harvesting and delivery, mandating feeding, husbandry, time of slaughter. More of a manufacturing mentality emerges, with technological developments that permit relative routinization of production.

These system chains protect the power and control associated with the knowledge based technologies, and trait bundling, and allow investment oriented stakeholders to move into the market place to realize these advantages. Spot markets leave open vulnerabilities to loss of profits, which with routinization and relative predictability, can be closed.

Boehlje and Schrader (1998) suggest that discrete locations of power exist in these developments, and inhere respectively with access to biotechnology developments, raw materials, and final consumers. The several information monitoring and production technologies can bring a potential synthesis to these developments that make production, processing, and distribution geographically fluid:

greater understanding of how various growth and environmental factors interact to affect biological performance will be forthcoming.

...Precision farming in crop production includes the use of global positioning systems (GPS), yield monitors and variable rate application technology to more precisely apply crop inputs to enhance growth, lower cost and reduce environmental degradation. ...animal production include medication treatment by animal rather the entire ...herd, nutritional feeding to the specific genetics, sex, age, health, and consumer market for the individual animal. ...Nutrition management is expected to more closely match nutrient supply with the needs of individual animals. ...Buildings and equipment will continue to move toward larger scale to fit the industrialized model. Inside the buildings, expect enhancement of monitoring and control systems to help detect gases, temperature, humidity, and disease organisms that could adversely impact the economic performance of animals, and correct problems when they reach critical thresholds (Boehlje and Sonka, 1999:2-3).

Boehlje and Sonka (1999) maintain that just as the industrialization of the poultry industry was fait accompli during the 1960s, and cattle feeding in the 1960s and 1970s, so the dairy and pork industries will be predominantly entrenched in an industrial model of confinement and intensive management by 2010. This control and rationalization serves to bring predictability and manageability to what historically has been less manageable aspects of production. A generalization of production factors occurs, such that advantages intrinsic to geographic location tend to fragment, and production becomes disembedded from locality—witness the shift of US hog production from the mid-west to the state of North Carolina.

Power ultimately resides with interests that can bring a synthesis to these forces with organizational agency. The deep pockets of multi-national food firms, their interests to maximize profits and minimize costs, their inertial global positions, place them by interests and resource in a position to bring concrete synthesis to these differing loci of power. Facilitated with GATT, NAFTA and other trade agreements, these firms are able to shift capital and technology globally, to realize the profit potentials, and competitive advantages of the “new agriculture.” And their capacities to reach globally in their sourcing, selling, and production, and processing strategies are deepened.

### ***Integration for market power***

This food system/food chain development is occurring with a re-linking of stages through integration, both vertically and horizontally, via organizational acquisitions, mergers, joint ventures and strategic alliances. Increasingly large multi-nationals are speaking of “dirt-to-plate,” and “seed-to-shelf” concepts (Barr, 1999). Seipel and Heffernan (1997) and Heffernan (1999) report Cargill, Archer-Daniels Midland (ADM,) and ConAgra are chief among these integrators.

These integration tactics are not new. Current informational and biotechnological

developments permit their more extensive development. Acceptability of biotech foods is not clear however. European consumers are refusing admission. Limited acceptance of GMO (Genetically Modified Organism) foods may limit the extensiveness of chain development, but not terminate them. Says Barr (1999:19): "the food system changes are not just about the biotechnology evolution. They are about the changing 'customers,' their willingness to pay for food traits and the new information technology which permits the system to be responsive to the demand." Information technologies permit the technical development of the "tightly coordinated" chains where information replaces inventory.

Agricultural/food firms have a long history of organizational behavior that is marked by the strategic exercise of market power. Some of this imbalance was put in place with the development of grain elevator monopsonies along railroad access during the early 1900s. Prices to farmers were set well below what was warranted by wholesale and retail demand. Farmers had no choice but to accept dictated prices and arbitrary quality demands. Monopolies existed as well where a single seller of supplies could dictate prices with little guarantee of, or assurance of quality of products.

In our more modern era, many firms continue to seek to position themselves in the market to influence price and other terms of trade by capturing large market shares. Though debated, literature suggests when four or fewer firms have at least a 40 percent market share, they are positioned to influence price, quantity and quality of product marketed, as well as location of production (Rogers, 1997; Sexton, 1997; Heffernan, 1999).

### ***Horizontal integration in the current US agriculture***

Seipel and Heffernan (1997) have assembled data that depict highly concentrated agricultural markets, *i.e.* a few firms hold large proportions of the total market, in several agricultural commodities (Table 1).

Meats are found to be highly concentrated. The least concentrated is turkey production and processing. The four largest firms control 35 percent of production. In beef and sheep slaughter four firms control 72 and 70 percent respectively. The largest four firms in broiler production and processing have a 46 percent market share, the large four in pork slaughter a 45 percent market share, and the largest four in beef feedlots a 50 percent market share. ConAgra is found present in each of these 6 meat production activities. Cargill has a presence in three of them.

When examining various milling and crushing activities, even greater concentration is found. The four largest firms in dry corn milling have a 57 percent market share. No less than 70 percent of the market is accounted for by just four firms in flour milling, soybean crushing, and wet corn milling.

Again ConAgra and Cargill have a presence in most of these activities. They are joined by Archer-Daniels Midland (ADM), ADM being one of the largest four firms

in all of these milling and crushing activities. Other data by The National Farmers Union suggest that ConAgra, ADM, and Cargill also have major market presence in animal feed plants, multiple elevator companies, and ethanol production (Heffernan *et al.*, 1999.) This degree of concentration suggests possibilities for influencing prices and other terms of trade beyond the norm of influence in competitive markets.

**Table 1.** Largest Four Firms and Combined Market Share in Agricultural Commodity Markets

---

**Broiler Production and Processing**

Largest four control 46% of production

Tyson

ConAgra

Goldkist

Perdue Farms

**Beef Slaughter**

Largest four control 72% of slaughter

IBP

ConAgra

Cargill

Farmland Industries

**Beef Feedlots**

20 feedlots market over 50% of fed beef

Continental Grain

Cactus Feeders

ConAgra (Monfort)

Cargill (Caprock)

**Pork Slaughter**

Largest four control 45% of slaughter

IBP

ConAgra

Cargill (Excel)

Sara Lee

**Sheep Slaughter**

Largest four control 70% of slaughter

ConAgra

Superior Packing

High Country

Denver Lamb

**Turkey Production and Processing**

Largest four control 35% of production

ConAgra

Rocco Turkeys

Hormel (Jennie-O)

Carolina Turkeys

**Flour Milling**

Largest four control 71% of milling

ConAgra

Archer-Daniels Midland

Cargill

General Mills

**Soybean Crushing**

Largest four control 76% of processing

Archer-Daniels Midland

Cargill

Bunge

Ag. Processors (AGP)

**Dry Corn Milling**

Largest four control 57% of milling

Bunge

Illinois Cereal Mills

Archer-Daniels Midland

ConAgra (Lincoln Grain)

**Wet Corn Milling**

Largest four control 74% of milling

Archer-Daniels Midland

Cargill

Tate and Lyle

CPC

---

Source: Concentration of Agricultural Markets, Fall 1994 (Seipel and Heffernan, 1997:3)

Market position in multiple activities, and in multiple locations allows firms to engage in cross-subsidization. These firms can allow business losses to occur with some products, and in some locations, and subsidize those losses with gains in other areas, potentially driving competition out. Seipel and Heffernan (1997) suggest that

the dominance of Cargill, ConAgra, and Iowa Beef Packers (IBP) in beef slaughter is due in part to such strategies. These processes, and others, can deepen concentration, furthering a firm's ability to influence price, as well as quantity, quality, and type of product marketed, and ultimately the location of production. Independent producers (family farmers) can become price—and terms of trade—takers.

### ***Vertical integration in the current US agriculture***

Firms may also integrate vertically from “dirt-to-plate” as mentioned previously. Craig (1993) describes a process similar to cross subsidization where differing prices can be set for products along a product chain. Options can exist for setting prices at cost, or even less than cost, with losses or low returns made up by profits at different locations in the chain. Total corporate profits may be maximized in such a process, while less integrated competitive firms may have trouble surviving.

Heffernan at the “Farmer Cooperatives in the 21st Century” (a futuring conference held in June 1999, at Des Moines, Iowa), as well as for the National Farmers Union, presents a schematic representation of the vertical integrations networks of Cargill, ConAgra, and ADM, as organized around meats (Figs. 2, 3 and 4<sup>1</sup>). These are networks of firms held together via various joint ventures, alliances, and less formalized agreements. They are structures or “clusters of firms” that represent integration potential from the farm and and the grocery shelf, or from the laboratory to the farm to the grocery shelf. They have co-emerged with the biotechnology and information monitoring, and processing technologies discussed previously in the paper. These figures are by no means complete representations of all of the linkages among firms with ConAgra, ADM, and Cargill. ConAgra alone has reported 150 acquisitions and joint ventures during the 10 year period from 1988-1998 (Heffernan, 1999). Globally these figures only scratch the surface of the various linkages. Cargill has operations in over 50 countries, and trading relationships in 130 others (Seipel and Heffernan, 1997).

However, they do represent the kinds of structurings that are occurring currently in agriculture and food systems. Some argue that these firms are positioning themselves strategically to better compete—not with individual firms—but with other clusters of firms in supply chains “competing for their share of the consumers’ food expenditures” (Boehlje and Sonka, 1999:4).

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<sup>1</sup>The process of organizational concentration continues at a rapid pace. Various mergers, acquisitions and joint ventures continue to occur, variously among Farmland and ADM, Consolidated Nutrition and ADM, Farmland, Land O’Lakes, and Cenex-Harvest States, Cargill and Agribands, Purina Mills and Land O’Lakes, Land O’Lakes, Cenex-Harvest States, and Farmland, to mention only a few related to the grain, animal feed and meat industries. Farmland Industries Cooperative has sold several functions, including grain storage to ADM, but currently remains the largest agricultural cooperative in the US.

**Figure 2.** Cargill/Monsanto Joint Ventures and Strategic Alliances

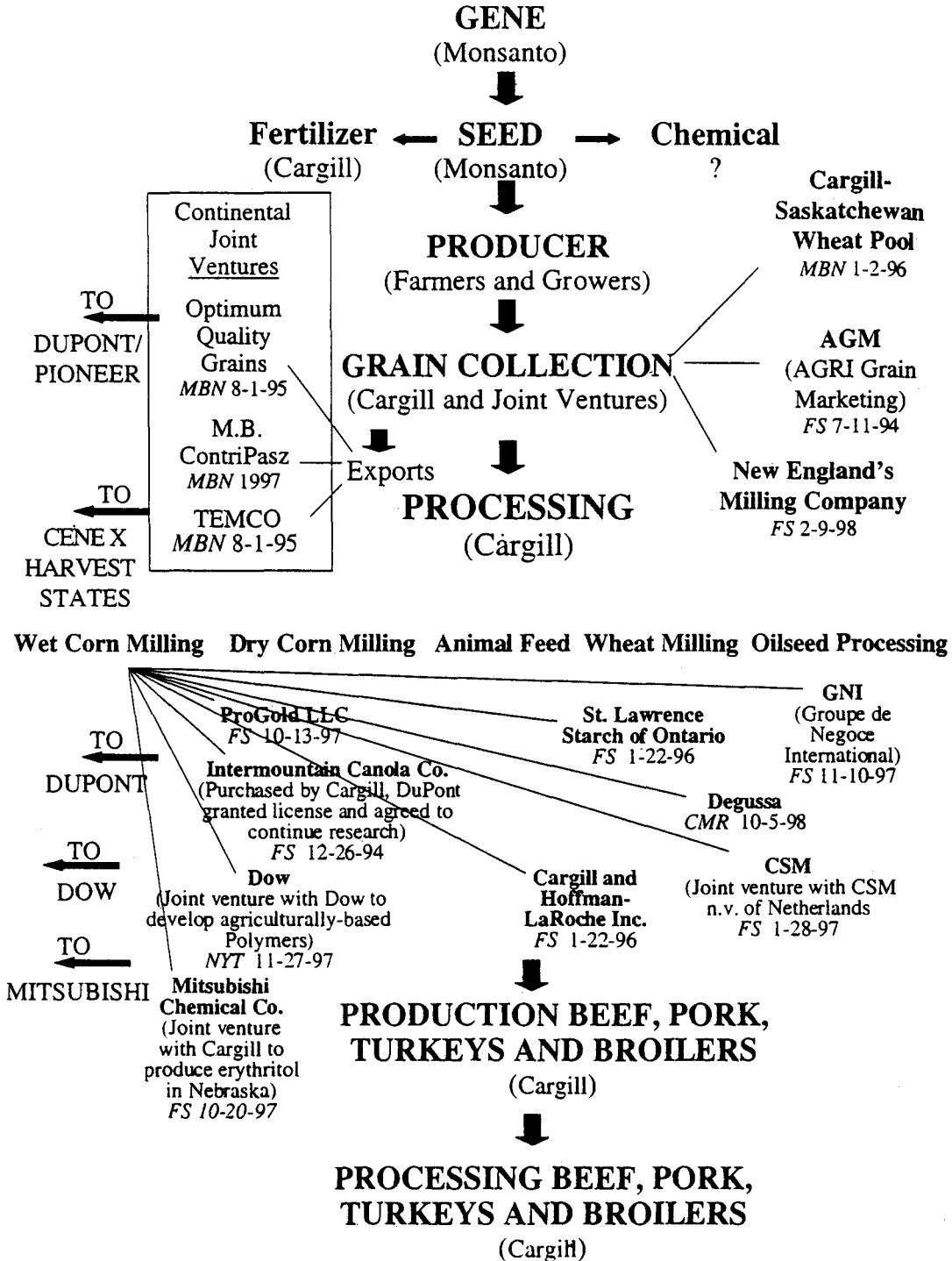


Figure 3. ConAgra Joint Ventures and Strategic Alliances

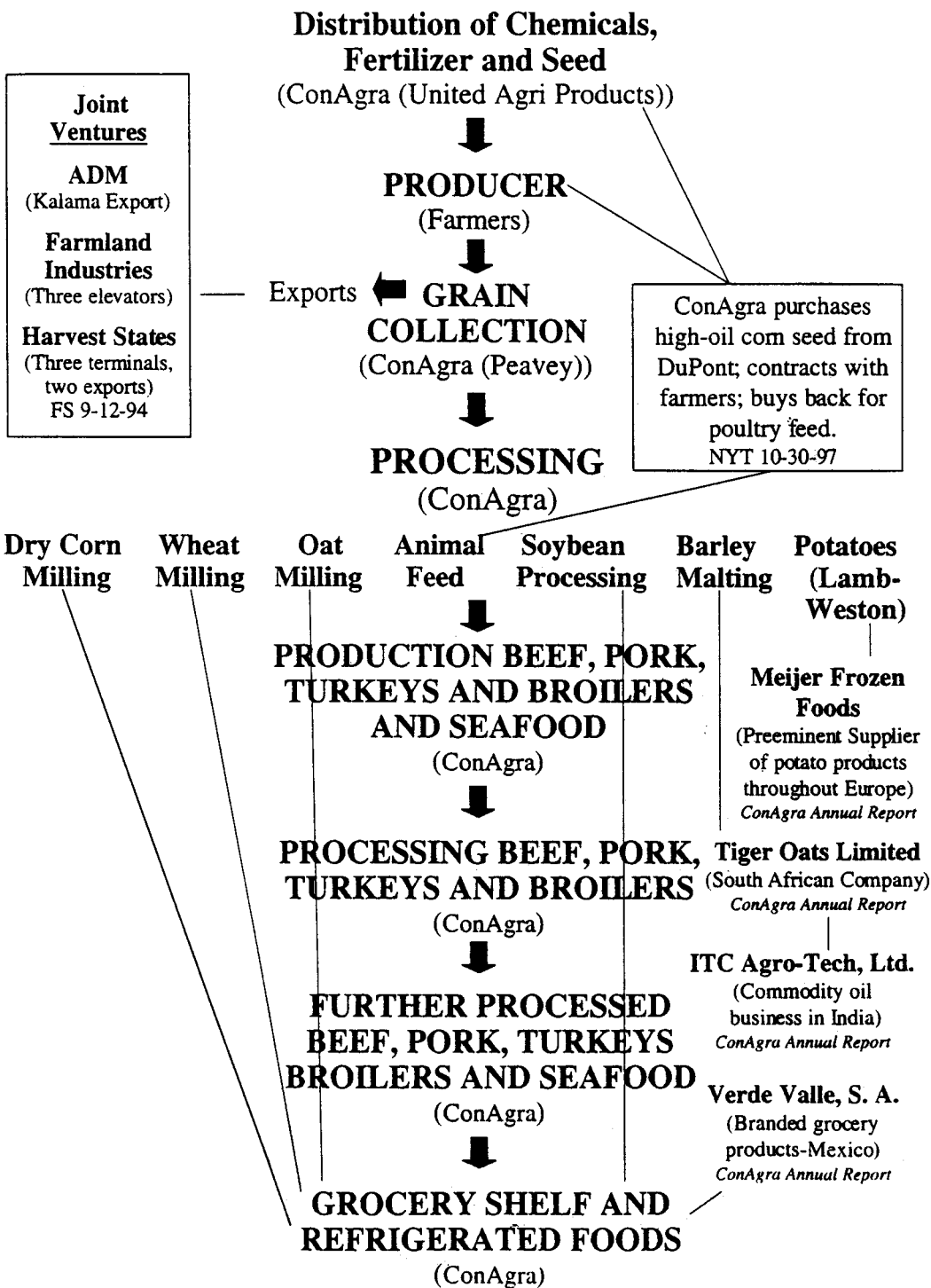
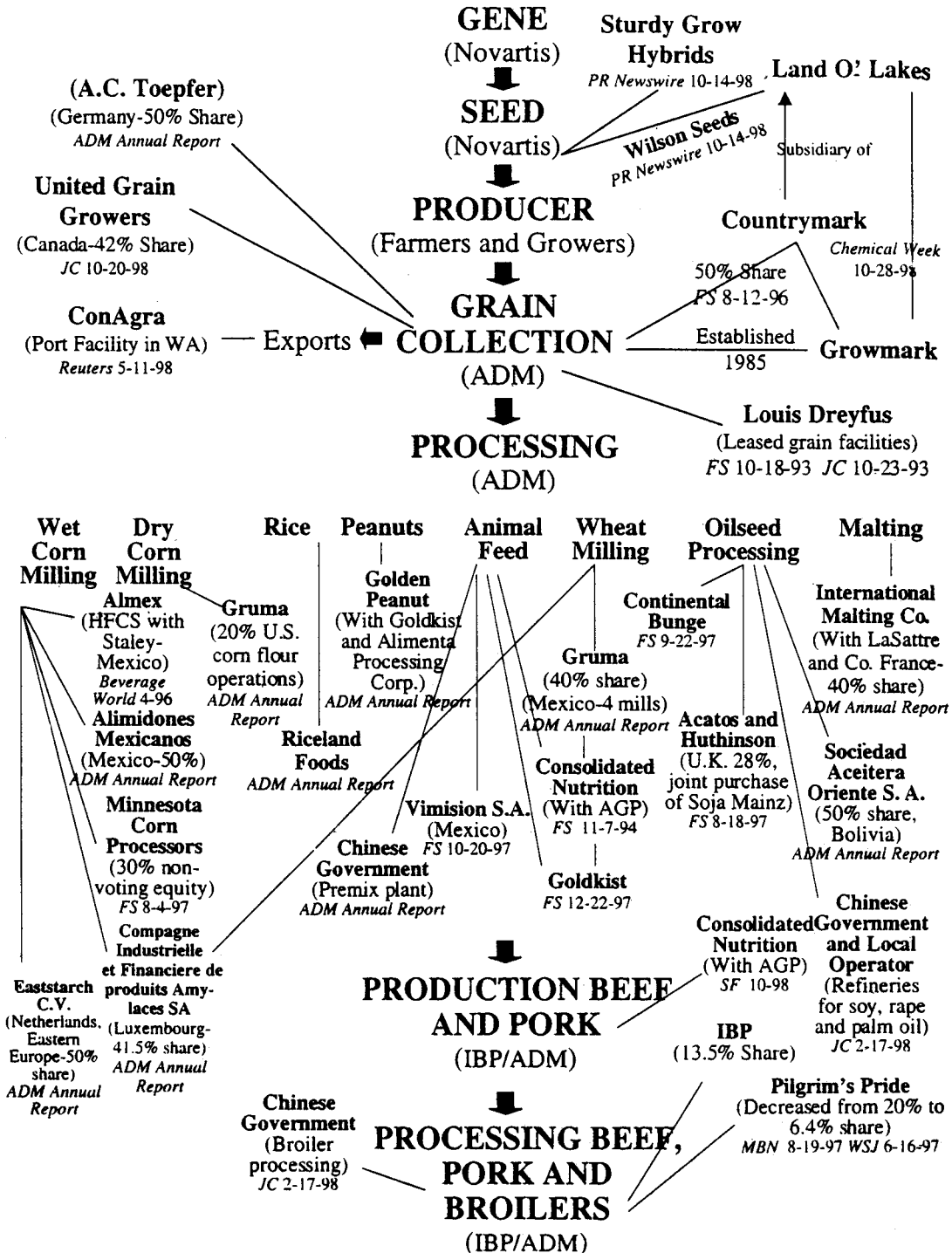


Figure 4. Novartis/Archer-Daniels Midland (ADM) Joint Ventures and Strategic Alliances



Source: (Heffernan, 1999: For National Farmers Union)



*Cargill.* Figure 2 shows joint ventures, strategic alliances, and acquisitions involving Cargill and various other organizations. Genetic/raw material/processing linkages are evident. While Cargill historically has had a presence in seed marketing, both at national and international levels, they lacked access to biotechnology-seed products. The joint venture with Monsanto allows them such access. They are able to capture the profit advantages of seed innovation with sales to farmers, while Monsanto captures Cargill customers. Cargill is then positioned to buy grain production (its historic strength) directly from farmers, and through various other joint ventures/strategic alliances [e.g. Saskatchewan Wheat Pool and AGRI Grain Marketing (AGM)]. The company can then move product via export as well as into processing. Acquisition of InterMountain Canola Co. provided them with similar options. InterMountain has been a breeder of specialty varieties of canola seed. Cargill can access that research, contract with farmers, and then process seed into oil. The acquisition of Vineyard (not shown on the figure) is a similar positioning. Vineyard has been a producer of specialty food-corn hybrids for use in the developing corn chip, taco, and tortilla market (Cargill Corporation, accessed June 2000).

As mentioned, Cargill has processing capacity in animal feed, as well as in wheat milling, oilseed processing, dry and wet corn milling, and other processing. Animal feed links directly to beef, pork, turkey, and broiler production, as well as to other processing in preparation for the grocery shelf.

Figure 2 presents just a few of the international processing links, and in particular with St. Lawrence Starch of Ontario, CSM of the Netherlands, Degussa, and Groupe de Negoce International. Cargill has operations in over 50 countries, and has various trade relations in 130 more. Cargill also processes beef in Australia, as well as in Thailand, thereby gaining access to production, marketing, distribution in the Far East. Globalization can provide the advantages of both horizontal and vertical integration, allowing firm to source and sell what is cheapest, and most competitively advantageous in horizontally different locations, but also to integrate vertically in different locations, as the costs and profits dictate, and market power allows.

*ConAgra.* Figure 3 shows joint ventures, strategic alliances, and acquisitions involving ConAgra and various other organizations. Of the three companies, ConAgra probably has the most complete food system from “farm gate to dinner plate.” Biotechnology products, principally seed, are distributed through ConAgra’s United Agri Products (UAP). Dow, a world leader in biotech product development, sells high-oil corn to its consumer, ConAgra. ConAgra in turn contracts with farmers to grow the corn out, then purchases corn production back, and processes it into poultry feed. Other products—feed, seed, and fertilizer—are sold to the consuming farmer, who may in many instances sell production back to ConAgra and Peavey (a ConAgra subsidiary). Purchases from farmers may then go to exports or processing, and on into dry corn, wheat, oat milling, animal feed production, soybean processing

barley malting, as well as potato processing and others. Animal feed production may then go into the feeding of ConAgra beef, pork, turkeys, broilers, as well as into seafood, then to ConAgra processing, and re-processing, as it is readied for the grocery shelf as frozen foods. Various other milling and processed products may be re-combined for final consumer sales under such ConAgra owned brands as Swift, Butterball, Healthy Choice, Peter Pan, Hunt's, Armor, and others.

ConAgra's global presence at the processed foods end of the chain, is evident in Fig. 3 with joint ventures with Meijer Frozen Foods, a potato products supplier in Europe, Tiger Oats Limited, a South African company, ITC Agro-Tech, Ltd., a commodity oil firm in India, and Verde Valle, a Mexican grocery products firm. ConAgra is also a leading distributor of fertilizers, seed, and chemicals in Mexico, Chile, the UK and Canada, and has formed a joint venture with AstraZeneca, a South African firm, to distribute into African markets. The company also is a dominant firm in beef slaughter in Australia, in a company acquired and functioning as ConAgra-Elders. Globalization brings horizontal integration via different geographic locations, to vertical processing links.

*Archer-Daniels Midland.* Biotechnology links are less clear, and more indirect with Archer-Daniels Midland (ADM) (Fig. 4). ADM's traditional strength has been in processing. However it has indirect links through agricultural cooperatives with Novartis. Novartis is the largest chemical firm in the world, with agri-business operations in 50 countries, and sales of approximately \$4 billion annually (Heffernan et al., 1999 citing *Chemical Week*, 5/21/97). Land O'Lakes is a regional supply and marketing cooperative based in Minneapolis, Minnesota, with core businesses in feed, seed, agronomy, and dairy foods. Wilson Seeds, and Sturdy Grow Hybrids historically have been traditional plant breeding/seed development firms, with focus on corn. Wilson Seeds as of 1998 became a joint venture, owned by both Land O'Lakes and Novartis. Land O'Lakes brings farmer consumers to the relationship, for seed sales, and crop production. Novartis brings deep pockets, and vast technological, biogenetic capacity, and Wilson, their own raw material germplasm bank—not previously available to Novartis. Wilson seeds also has experience with more traditional hybrid and grow-out technologies. Sturdy Grow Hybrids is in a licensing alliance with Novartis and Land O'Lakes, and brings specialization in white corn development, as does Wilson. Central to these structurings is white corn development and anticipated sales of white corn flour for the expanding Mexican food industry, and other associated traits demanded by consumers (Seed Quest, accessed July 2000).

As stated, Archer-Daniels Midland historically has had major market presence in processing. They have lacked direct access to farmers for raw materials for this processing. Joint alliances with Growmark, Countrymark as well as United Grain Growers of Canada served to provide some resolution to this situation. Growmark is

a federated regional grain marketing and farm supply cooperative as is Countrymark. These joint ventures provided ADM access to half of the US corn and soybean market region, and 75 percent of the Canadian region. The joint venture with United Grain Growers (a former cooperative) provided access to Alberta and Manitoba wheat pools (Heffernan *et al.*, 1999:8-11).

Novartis and ADM link technology and processing via Wilson Seeds and Sturdy Grow to Land O'Lakes farmers as consumers, and as a source of raw materials. Land O'Lakes supplemented these functions with acquisition of Countrymark's seed, agronomy and feed supply businesses, and a joint venture with Growmark's seed, feed, and petroleum functions. ADM is then positioned to purchase grain with respective joint ventures with Countrymark and Growmark. This structuring holds particular interest in terms of realizing the profit potential of white corn development and various derivative products. The cooperative link provides the necessary connection to the farmer, and access to quantity and quality of raw material. ADM is also positioned to receive grains for its various other processing ventures, including animal feed, with links to meat processing ventures with Iowa Beef Packers (IBP).

ADM also has a technology link with soybean crushing competitor, Ag. Processing Inc. (AGP). Ag. Processing is a federated cooperative, and the fourth largest soybean processor in the United States. ADM is the largest such processor with 19 plants in 12 states. ADM and Ag. Processing hold a joint venture in Consolidated Nutrition, one of the world's largest animal nutrition research facilities, as well as a leading US feed manufacturer. ADM gains access to the "nutrition research" of the pre-existing AGP laboratory—described in press releases as having "unparalleled" research capabilities (Consolidated Nutrition, accessed June 2000). Such "research-backed" animal feed may serve ADM well in its joint ventures in beef and pork production with IBP. Consolidated also provides access to the farmer consumer in the US, as well as in Canada. Both companies hold a joint venture in vegetable oil refining in Texas (not shown in the figure), augmenting ADM's trend toward the grocery shelf.

Historically, ADM has also had an animal feed relationship with Gold Kist. Gold Kist is a cooperative of 31,000 farmers, and is the second largest poultry processor in the US. Its operations are centered in the Southern US. The company utilizes production contracts with farmers to raise broilers, that are then processed for sale, predominantly to the food service industry, but also to grocery chains. The link provides ADM further outlets to farmer consumers of feed via Gold Kist. There has also been a link between Consolidated Nutrition (joint venture between ADM and AGP) and Gold Kist. However the continuing status of these animal feed links is not clear, since Gold Kist recently sold its animal feed business to Southern States Cooperative.

A joint venture with Riceland, an 8,000 member rice cooperative, offered ADM further access to farmers' products as a raw material, *i.e.* to process and market rice, with some of Riceland's products going to the grocery shelf.

Perhaps appreciating a profit potential, ADM is a passive investor in Minnesota Corn Processors (MCP). MCP is a high-tech corn processing cooperative that produces, among other products, high fructose corn syrups, corn syrups, starches, and ethanol. Described as a "state of the art" laboratory to produce high quality products, ADM's association gives it access to MCP technology innovation in wet corn processing.

ADM also entered into a joint venture with Gold Kist in peanut processing in joint ownership of Golden Peanut. A third firm, Alimenta Processing Corp, a Dutch firm, bought into the Golden Peanut company in 1989, making Golden Peanut the leading peanut processor in the US. Golden Peanut shells peanuts purchased from farmers, sells raw peanuts to peanut product manufacturers, and produces its own peanut flour, flavored peanut oils, and various other processed peanut products. (For ADM, peanuts is more horizontal integration, adding new products to its traditional businesses. Golden Peanuts adds vertical processing to the purchasing and shelling of peanuts.)

ADM's globalization presence is evident in Fig. 4 as well. Though very schematic, Fig. 3 provides some indication of ADM's global presence with processing facilities in France, Netherlands, Luxembourg, Eastern Europe, Bolivia, Mexico, Brazil, Paraguay, as well as China. Various joint ventures, and alliances have allowed ADM to take a market position in commodity processing and feed operations internationally. These positions represent both vertical and horizontal integration.

**Commodity exports.** Commodity exports are a form of horizontal integration in the sense that it opens up international locations for sales, and possibilities for selling commodities at differing prices at different locations. It is a form of vertical integration in a world of identity-preservation, and genetically modified, and non-modified crops. With the selection of specific traits in commodities, exports facilities and activities bring the value of the traits to different locations for sale. Firms positioned to receive that production are positioned to capture that value. Furthermore, firms with processing capacity can shift commodities between commodity sales and processing, nationally and internationally.

**Cargill exports.** In 1999 Cargill completed acquisition of Continental Grain Company's storage, and export trading facilities, in Latin America, Asia, North America and Europe (Cargill Corporation, accessed June 2000). At time of acquisition Continental Grain was the second largest grain exporter in the US. In the US market this acquisition brought "more than 40 percent of all US corn exports, a third of all soybeans exports and at least 20 percent of wheat export" to Cargill (Heffernan *et al.*, 1999:5 citing *Grainnet*, 12/19/98). It improved Cargill's grain

collection positions along the Mississippi river as well as in major export locations, and internationally. The importance of vertical integration in an organizational survival sense is emphasized with this acquisition. As cited by Heffernan *et al.* (1999:5) from the *Wall Street Journal* (11/10/98 p. A3):

As grain handlers go, Continental Grain is at a big disadvantage because it doesn't have the facilities to mill and refine crops into higher-value products, such as flour and high fructose corn syrup. When US exports slow, . . . Continental Grain can't shift crops to domestic uses in the same way that Cargill and Archer-Daniels Midland can. Cargill and Archer-Daniels are major grain processors.

Continental Grain questioned its ability to continue to serve as a major grain handler, given competitors were expanding in "the more profitable businesses of milling and crop biotechnology" and sold those facilities to Cargill (Heffernan *et al.*, 1999:5). With the acquisition of Continental, Cargill continued a joint venture with Harvest States (now Cenex-Harvest States). Cenex-Harvest States is a mixed cooperative, having both cooperatives and farmers as members. The joint venture occurred prior to a merger between Cenex cooperative, and Harvest States cooperative. Harvest States has had a historical and central function of grain marketing. TEMCO, the joint venture between Continental and Harvest States, provided export facilities from Tacoma, Washington, to international customers in the Pacific Rim markets. This function continued with Cargill's acquisition of Continental.

*ConAgra exports.* With the acquisition of Peavey Grain in the early 1980s, ConAgra became one of the largest flour millers and the largest "publicly held" grain merchandiser in the US (Cargill is a privately held corporation.). ConAgra is now able to originate grain from most grain production areas in the US for domestic commodity and export sales or alternatively to move it into its various processing ventures. The firm also has a joint venture with Farmland Industries via an organization called Concourse Grain. Farmland is a mixed cooperative, having both direct farmer members, and other cooperatives as members. It is a highly diversified "company with major business lines in crop production and crop protection products, livestock feeds, petroleum, grain processing and marketing, and the processing and marketing of pork, beef and catfish products" (Farmland Cooperative, accessed July 2000). The joint venture involves two ConAgra export elevators, and two Farmland elevators—one for export, and one an interior elevator. The venture was designed to improve servicing to farmers (Farmland), and the flow of multiple classes of wheat through both Farmland's and ConAgra's systems (raw materials) enhancing wheat availability domestically, but also internationally from multiple export points (consumers) (Wadsworth, 1999; Heffernan, 1999). This positioning

is congruent with needs to differentiate products (multiple classes of wheat) as well as diversion possibilities between processing and commodity sales, both domestically and internationally.

ConAgra also has a joint venture with cooperative Cenex-Harvest States. Similar to the joint venture between Cargill and Harvest States, these facilities provide export access. Harvest States has had a historic position serving grain farmers in the mid-west and handling their grain, including major commitments to exporting.

*ADM exports.* ADM like ConAgra and Cargill is able to access grain from most of the US and export it in a dynamic of processing domestically, exporting as a commodity, or exporting for processing internationally. It owns 50 percent of German firm, A.C. Toepfer, one of the largest grain handling firms in the world. It also owns a 42 percent share of the former Canadian cooperative, United Grain Growers, and has joint ventured with ConAgra in an export facility in Washington state, to access markets in the Pacific Rim countries.

***Summary: The agri-business logic for surviving the “New Agriculture”***

At various futuring conferences, agri-business leaders will frequently lay out what they perceive to be the parameters of the “evolving new agriculture,” and implicitly, strategies for survival. Major dynamics highlighted include: 1) the declining growth rate and the aging of the US population; and 2) business consolidation of grocery, and restaurant chains, agri-industry generally, as well as farm consolidation. These dynamics are presented in terms of describing the reality of saturated, agri-food markets. The consumer is generally understood as “determinant,” and is able to demand specific traits in food and agriculture products. Biotechnology and possibilities of non-acceptance are acknowledged but not understood as totally limiting to chain developments. For example, “the food system changes are not just about the biotechnology evolution” (Barr, 1999). Information technologies permit development of the “tightly coordinated” chains of vertically integrated firms.

Biotechnology is understood as enhancing these systems with product possibilities:

1. Crop protectant companies seek biotech platforms and seed companies as both a defensive and offensive strategy. Beef and pork entities consolidate around genetic systems;
2. First wave entities seek linkages to large grain and food processors to create systems based on trait-based products;
3. Companies in the food delivery or related food/input industries will seek to assure customers traceability and preferred access to trait-based product lines (Barr, 1999).

Non-GMO products are being considered as possibly niche products for select markets.

In these systems agricultural input providers will seek input users to give better focus to customer demands and information flows. Input users will seek input providers to influence products and services. “Food manufacturing [ag. processing] and retailing companies will have to become involved in the value chain evolution to translate consumer’s concerns into marketing opportunities” [both nationally and internationally] (Barr, 1999). To survive, he suggests that firms will need to know their core competencies, how they are unique, and how to “maintain their competitive edge” (Barr, 1999). Within these systems, firms need to be able to form alliances and “pick the right partners” (Tibbetts, 1999; Duncan, 1999; Halverson, 1999). Cargill, ADM and ConAgra seem to have followed the outlines of these strategies. Products and processing will move via contracts and negotiation, with much less price discovery through spot markets (Barr, 1999).

## **Contextual implications**

### *Agricultural cooperatives and investment agri-business firms: differences*

As stated previously, agricultural cooperatives have—in-part—been organized in a context of market oppression. Farmers organized cooperatives in struggles against oligopoly, and oligopsony power. They were grass roots initiatives to change economic power relationships and to ensure reliable service to farmers through time.

In this more late era of the US economy, firms such as ADM, Cargill and ConAgra have transcended older boundaries. They transcend nation, product and price. Their reach is global, their products highly diverse. They hold predominant market positions in multiple products and activities. They compete by segmenting markets with differentiated prices, as well as with strategic non-price mechanisms. Return on investment and growth are their central logic of continued operations. Their ability to control and direct capital in a highly fluid manner, among multiple locations and products, deepens these advantages.

Cooperatives are centrally, and historically organized to provide a home for farmers’ products. Their production levels are determined by their farmer-members. In general, the cooperative accepts and sells whatever the producer brings to the cooperative. Producers are committed to be farmers, and for comparative advantage reasons tend to be inflexibly specialized to particular outputs. This keeps cooperatives linked to members in the handling and processing of specific products, and in specific geographic locations.

Most cooperatives are specialized at the first handler level, and do only minimal processing. Says Rogers (1997:56): “[Most] cooperatives hold their greatest shares in food processing markets that:

- Have low value added-to-sales ratios
- Have low product differentiation
- Are not highly concentrated
- Are commodity based
- Have a high proportion of unbranded sales.”

The cooperative is understood as an extension of the farm unit, designed to ensure a market for the product. Organizational focus is given to production rather than marketing. At this stage of product handling, little differentiation exists among products. Commodities are generic, branding and advertising are rare.

In markets characterized by oligopolies, and oligopsonies, dominant firms control markets to a sufficient degree to be able to influence prices. Firms in competition in these markets, seek to escape from direct price competition, and compete with each other in non-price arenas. This may be done by differentiating their products from other products with the development of various “unique” qualities, through intensive processing, re-processing, and product molding, but also through branding, advertising, and packaging. They may also compete with investments in research and development, as well as in expansion in plant capacity. “Various authors have demonstrated how expanding in advance of the market (*i.e.* anticipating market growth) is an effective strategy to gain advantage over extant rivals and discourage new entrants” (Sexton, 1997:44).

Most cooperatives, in the main, are ill-equipped to function in this milieu. Given they are organized to provide a home for the farmer’s product, they must accept all that is produced. Supply can not be controlled, generally preventing cooperatives to “restrict output and raise prices” (Sexton, 1997:40). Investment in research and development, and expansion in production capacity, are long term projects with pay-offs frequently in the distant future. Cooperatives have relative difficulty in this arena because of “horizon problems.” Horizon problems refer to the user-member-owner characteristics of cooperatives. Current members who do not see themselves involved in a cooperative into the future, are more likely to view such investments with disfavor, and to reject them if they do not expect benefits flows to themselves. Further, while large investment firms may have a diverse panoply of products to offer, cooperative offerings are much more limited, and generally have been organized initially around a single commodity. This makes it more difficult to cross subsidize and utilize gains for diverse product and research development. The ties to groups of farmers in specific location, and to specific commodities also limits flexibility per geography and products. Product development when done, generally comes from singular commodities, and a processing and re-processing of those commodities, and/or to activities and services to the producers of those specific commodities.



Investment-oriented firms have a predominant interest in making a return on investment. They have no other commitments to location or group. This allows them great flexibility in moving capital geographically and per product.

### *Investment firm use of agricultural cooperatives*

Figures 2, 3 and 4 reveal that ADM has major involvement with cooperatives, while Cargill and ConAgra have relatively little. These organizations move from their core competencies, then seek to capitalize on market share with research and development, and capacity expansion in anticipated new markets. Cargill has a long history of exporting grain that they collect directly with purchases from farmers. This is agri-business at the primary commodity level, the level of core competence for cooperatives. Cargill has little need of this cooperative competency. They retained the TEMCO joint venture with Cenex-Harvest States, with their acquisition of Continental's grain collection and export functions. This enhanced both companies' access to the Pacific Rim. The joint venture with Saskatchewan Wheat Pool allowed expanded capacity to collect from Canadian grain farmers. However, over-all Cargill's "partnering" relationships with cooperatives are very limited.

ConAgra is associated with cooperatives in a similar fashion as Cargill. ConAgra utilizes the core competency of its acquisition; Peavey Grain, in its grain collection endeavors. Like Cargill it does not need "cooperative" core competencies in grain collection. Like Cargill, ConAgra has joint ventures with cooperatives in export elevator functions. Farmland and Cenex-Harvest States are traditional large volume commodity grain handlers, with a long history in export. These export ventures give both companies' greater flexibility to handle herculean grain flows from continental US. Beyond these export functions, and Cargill's penetration into Canadian "commodity" grain collection, both companies' involvement with cooperatives is relatively limited. The close link between farmers and cooperatives is not needed due to Cargill's and ConAgra grain collection, as well as farm supply functions.

ADM's core competency has been in processing of commodities. They have not had the historic position of direct contact with farmers, as has Cargill and ConAgra's Peavey. Links with the core competencies of Land O'Lakes, Countrymark, and Growmark gives ADM those links for farm supply and grain collection, and as vehicles for their technology links with Novartis. A similar relationship exists with Riceland Foods, and Riceland's commodity relationship with southern rice farmers. Minnesota Corn Processors, and Consolidated Nutrition are interesting exceptions. At the core of both MCP and Consolidated Nutrition, is research and development. Research and development are avenues through which oligopolistic/oligopsonistic firms compete. These joint ventures may allow ADM access to patented products and processes not easily or legally duplicated. Furthermore, their outputs may have more generic applications in ADM's several other processing endeavors.

### *Cooperative responses and tensions*

Most of the 3,500 agricultural cooperatives in the US cannot compete directly with these large complex transnational corporations. Given their historical and unique organizational and structural characteristics, they are at a disadvantage to compete strategically with oligopolies/sonies. This competition occurs at the level of market segmentation and pricing discrimination, product differentiation, branding, advertising, and investment in research and capacity expansion (in anticipation of market expansion). Construction and control of product chains integrate these various mechanisms for realizing profits. Cooperatives in the main, work at the level of commodity handling and low level processing, supply and servicing of farmer-members. Opportunities to compete in the non-price arenas imply scale, resource, and market share that few individual cooperatives hold.

However, a few are so positioned. Reference was made earlier to the market position of Farmland Industries in beef slaughter, Gold Kist in broiler production and processing, and Ag Processing (AGP) in soybean crushing. Other data by Heffernan *et al.* (1999) and presented by the National Farmers Union show Farmland Industries as one of six firms accounting for 57 percent of US pork slaughter. These three cooperatives do hold respective oligopsonistic positions as presented in Table 1. None are positioned in as diverse (present in several activities) and dominating a manner as are ConAgra, ADM, and Cargill. They are organizations that have originated within, and are built up around relatively fewer core activities. Their central mission has been to provide an outlet for farmer products. Their presence within even these activities tends to be paled by the much larger investment firms. While Farmland slaughters 8,700 head of cattle in 2 plants, and is fourth on the list, IBP slaughters 38,800 head in 13 plants. While Gold Kist is second on the list for broilers, processing 55 million pounds weekly, they are second to Tyson Foods' processing of 155 million pounds weekly. While AGP is fourth in soybean processing and operates 6 plants in the 3 states, the largest processor is ADM, and Cargill is second. These latter firms operate respectively 19 plants in 12 states, and 16 plants in 12 states (Heffernan, 1999).

However, while much smaller and lacking the deep pockets of ADM, ConAgra, and Cargill, these cooperatives do begin to push in a direction away from more grounded aspects of cooperative organization, and toward behavior resembling an investment firm. Farmland's mission is "to be a global, consumer-driven, producer-owned 'farm-to-table' cooperative system." They operate in 50 states and 60 countries. They offer a dozen or more major business lines. "More than 600,000 family farmers own the 1,700 local cooperatives that encompass the Farmland Cooperative System" (Farmland Cooperative, accessed June 2000). Gold Kist has 31,000 farmer members. It contracts with these farmers to raise broilers for sale to the food service industry, and to grocery chains. AGP produces vegetable oil, commercial animal feeds, corn-based ethanol, soybean oil-based bio-fuel, fuel

additives, and solvents. "The co-ops owners include 300,000 members from 16 states and Canada" (Agriculture Processing, accessed June 2000). CENEX-Harvest States "is a fully integrated agricultural cooperative whose operations cover the farm-to-market spectrum, increasing the value of member commodities through products and service that include agronomy, petroleum, grain marketing, feeds, wheat milling, oilseed processing and refining, and food manufacturing and distribution" (Cenex Harvest States, accessed July 2000). Riceland markets rice, soybeans, and wheat grown by its 8,000 members, and mills rice for grocery and food service firms. It processes soybeans, edible oils and lecithin. It markets its products through the US and internationally in the Caribbean, Mexico, the Middle East, South Africa, and Western Europe (Riceland Cooperative, accessed July 2001). Land O'Lakes serves 300,000 farmers in 29 states, and over 1,000 local cooperatives. It provides its members with fertilizers, crop protection products, seed, and animal feed, and produces packaged milk, margarine, sour cream, cheese and butter (Land O'Lakes, accessed October 2001). Growmark serves farmers in the Midwestern US and Canada with retail supply, and grain marketing. It offers fertilizers, seeds and other supplies (Growmark Cooperative, accessed June 2000).

These are complex organizations. Both horizontal and vertical integration are evident. They have been able to overcome some of the previously stated disadvantages of cooperatives competing with larger investment firms. They have a diversity of products both horizontally, and vertically. They seem to have overcome horizon problems in investment for capacity expansion, and research and development.

However their success competing with larger agri-business may in fact compromise some of their other characteristics, pushing them away from various defining cooperative attributes. These very large organizations though efficient, are highly bureaucratic. Many develop subsidiaries to manage this complexity, but these subsidiaries are frequently removed from the cooperative organization proper. They are under the purview of management, but not the direct oversight and representation link to member directors. Participation and democratic logic tend to be replaced by bureaucratic organization and efficiency. Member benefits derived from the organization tend to be defined in individual terms. Individual members receive benefit flows, but members as a collective group tend not to be considered. When organizations develop such high degrees of complexity, it is sometimes unclear who the prime beneficiaries are. It can at times shift to management at the expense of the membership. When joint ventures are made with investment firms, it brings together two logics of business organization. The logic of serving member through time may get subordinated to the interest of stockholders to make a return on investment. To the extent cooperatives utilize production contracts in integrating the new agriculture into their organizations, this may raise questions concerning the role of cooperatives

in empowering farmers. Cooperatives may survive economically with these shifts, but may suffer losses of their character as cooperatives.

## Summary

The context of agricultural cooperatives is undergoing major change with the development of biotechnology, and information monitoring technologies. Large multi-nationals have moved to take advantage of these developments with the construction of agri-food chains. These chains are being facilitated via various mergers, acquisitions and alliances, with the deepening power of such deep-pocket organizations as Cargill, ADM, and ConAgra. Cooperatives have been integrated into these chains for their core competencies, generally for their supply functions, and capacity to handle primary commodities. These direct links to the farmers serve as markets for biotechnology innovations, and as a source of raw material for later processing. Agricultural cooperatives in general are not well suited to compete with these giants, given they are highly specialized at the first handler level. However some cooperatives are able to enter the competition along the lines of multi-nationals competition, *i.e.* non-price competition in product differentiation, branding, advertising, research and capacity expansion. Farmland, Gold Kist, AGP, Land O'Lakes, Growmark are examples. The cost of these positionings is to shift these organizations toward positions that are characteristically less cooperative and more bureaucratic, and more top down, though likely more efficient, and with greater market penetration.

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