Networking for Competitive Advantage:

The Case of U.S. Agricultural Cooperatives

Fabio Ribas Chaddad
Assistant Professor
Ibmec Business School
Rua Quata, 300
Sao Paulo, SP 04546-042
Brazil
Phone: +55-11-4504-2423
Email: fabiorc@isp.edu.br

Paper Submitted to the *International Food and Agribusiness Management Review*

and the IAMA 17th Annual World Symposium

October 2, 2006

Networking for Competitive Advantage:

The Case of U.S. Agricultural Cooperatives

Executive Summary

Despite rapid and fundamental changes in their business environment, agricultural cooperatives in the U.S. continue to perform an important economic role in the agricultural and food chain as farmers' integrating agency. Several factors might help explain the successful evolution of agricultural cooperatives in the U.S., including the collective entrepreneurship of farmers, favorable public policy support provided in the institutional environment, leaders' willingness to change cooperative structures and strategies, professional management coupled with effective farmer control, adequate financing and consolidation into fewer, but economically feasible cooperative organizations. In this paper, we develop the idea that vertical and horizontal linkages among cooperatives and between cooperatives and investor-oriented firms (IOFs) also play a significant role in explaining the competitiveness of U.S. agricultural cooperatives. This paper analyzes how U.S. agricultural cooperatives have formed complex networks and supply chains (*netchains*) by means of federated structures, marketing agencies in common and strategic alliances with sundry partners. Inter-organizational collaborations in these cooperative netchains can be viewed as a source of competitive advantage that may inform the future development of agricultural cooperatives in both developed and developing countries.

Networking for Competitive Advantage:

The Case of U.S. Agricultural Cooperatives

Abstract

Despite rapid and fundamental changes in their business environment, agricultural cooperatives in the U.S. continue to perform an important economic role in the agricultural and food chain as farmers' integrating agency. In this paper, we develop the idea that vertical and horizontal linkages among cooperatives and between cooperatives and investor-oriented firms (IOFs) play a significant role in explaining the competitiveness of U.S. agricultural cooperatives. By means of federated structures, marketing agencies in common and strategic alliances, U.S. agricultural cooperatives have formed complex networks and supply chains (*netchains*). Inter-organizational collaborations in these netchains can be viewed as a source of competitive advantage.

Networking for Competitive Advantage:

The Case of U.S. Agricultural Cooperatives

Introduction

Despite rapid and fundamental changes in their business environment, agricultural cooperatives in the United States (U.S.) continue to perform an important economic role in the agricultural and food chain as farmers' integrating agency. According to USDA Rural Business Cooperative Services (RBS) data, the nation's 3,140 agricultural cooperatives generated $97 billion in net sales and accumulated $47 billion in total assets in 2002 (USDA, 2004). U.S. agricultural cooperatives are major players in providing production inputs and services to farmers, and in processing and marketing their commodities. In 2001, cooperative market shares for farm commodity marketing and purchased inputs reached 28 and 26 percent respectively.

Several factors might help explain the successful evolution of agricultural cooperatives in the U.S., including the collective entrepreneurship of farmers, favorable public policy support provided in the institutional environment, leaders' willingness to change cooperative structures and strategies, professional management coupled with effective farmer control, adequate financing and consolidation into fewer, but economically feasible cooperative organizations. In this paper, we develop the idea that vertical and horizontal linkages among cooperatives and between cooperatives and investor-oriented firms (IOFs) also play a significant role in explaining the competitiveness of U.S. agricultural cooperatives. By means of federated structures, marketing agencies in common and strategic alliances with sundry partners, U.S. agricultural cooperatives have formed complex networks and supply chains (*netchains*). Inter-organizational collaborations in these netchains can be viewed as a source of competitive advantage that may

inform the future development of agricultural cooperatives in both developed and developing countries.

Cooperative Netchains

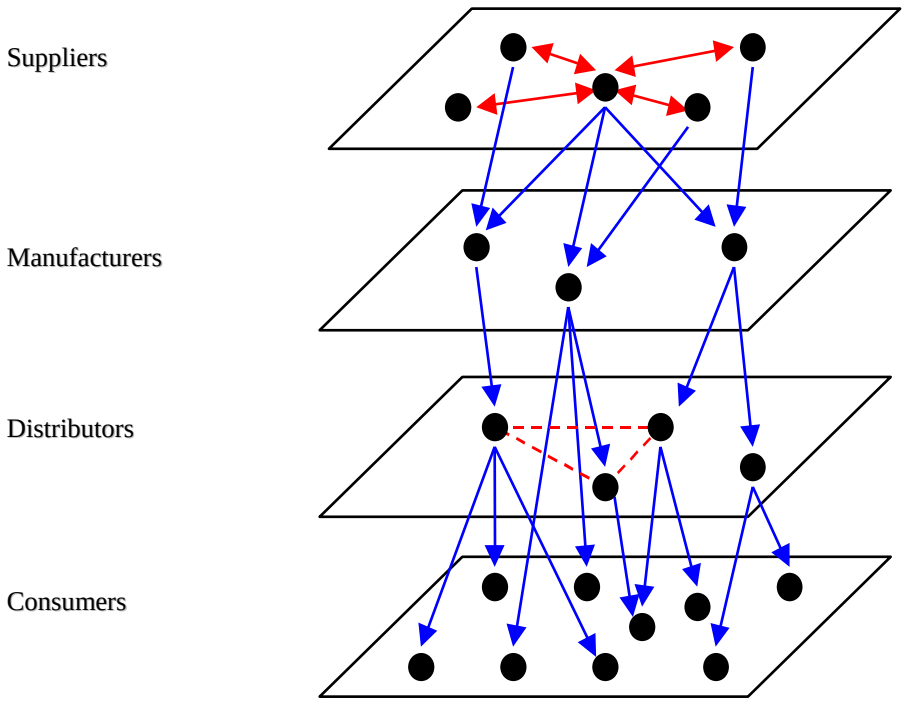
In recent years, cooperative linkages among competitors in the same industry and between firms in related industries have proliferated. Increasing vertical and horizontal coordination among firms continue to shape the competitive landscape and business strategies. Accordingly, the capabilities and value creation potential of firms are increasingly dependent not only on their unique assets and resources but also on those of their partners. Various theories provide alternative explanations about inter-organizational relationships, including supply chain and network analyses.

Supply chains are defined as a set of sequential, vertically organized transactions representing successive stages of value creation. The literature on supply chain analysis (SCA) suggests vertical interdependencies require a systemic understanding of resource allocation and information flow between firms engaged in sequential stages of production (Simchi-Levi et al., 2000). Value chain analysis (Porter, 1985), an approach describing a set of sequential activities creating value within firms, has been more recently extended to activities between firms (Barney, 1997).

Network analysis (NA), in turn, provides numerous tools to map the structure of inter-organizational relationships or "ties" based on the recognition that network structure constrains and at the same time is shaped by firms' actions (Granovetter, 1973; Burt, 1992; Nohria, 1992; Wasserman and Faust, 1994). Unlike SCA, NA is not particularly concerned with vertically organized ties, but rather with horizontal relationships between firms belonging to a particular industry or group (Powell, 1990).

Although both supply chain and network scholars stress the importance of interdependencies among multiple firms and how inter-organizational relationships can be used as a source of competitive advantage (Dyer and Singh, 1998), the integration of their core concepts and analytical tools is still to be done. In one attempt to fill this void in the literature, Lazzarini, Chaddad and Cook (2001) introduce the concept of netchain. A netchain is defined as a set of networks comprised of horizontal ties between firms within a particular industry or group, such that these networks (or layers) are sequentially arranged based on the vertical ties between firms in different layers (Figure 1). Netchain analysis explicitly differentiates between horizontal (transactions in the same layer) and vertical ties (transactions between layers), mapping how agents in each layer are related to each other and to agents in other layers.

Figure 1: Example of a Generic Netchain



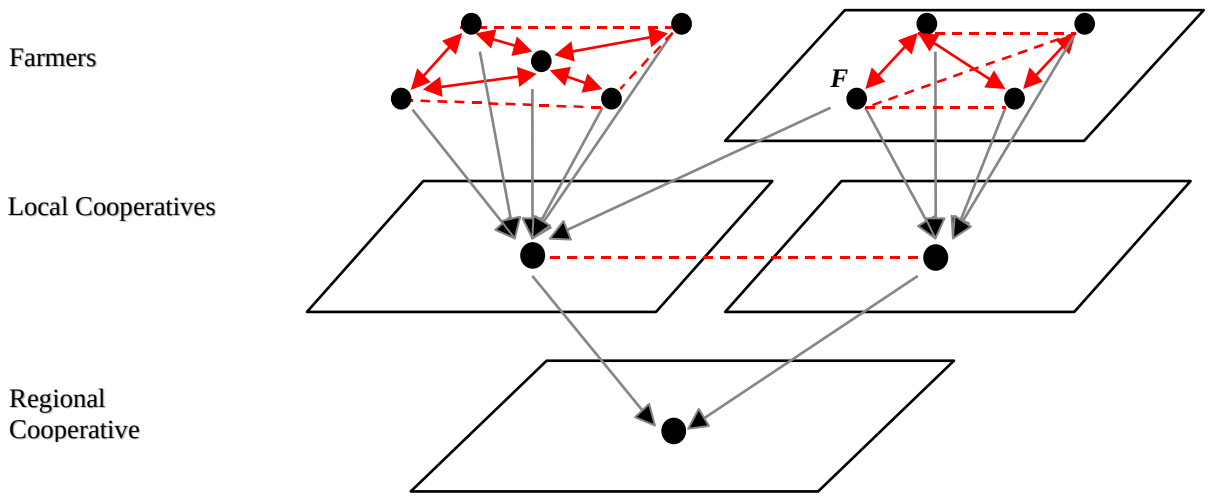
The netchain approach integrates SCA and NA by recognizing that complex inter-organizational settings embody several types of interdependencies (Thompson, 1967), which are

associated with distinct sources of value – that is, strategic variables yielding economic rents – and coordination mechanisms involved in inter-organizational collaboration. The Lazzarini et al. (2001) paper also examines the applicability of the netchain approach by discussing a diverse set of netchain configurations, including buyer-supplier relationships; information technology induced inter-organization collaborations; and the "macrohierarchy" organization structure. This paper analyzes alternative cooperative netchain configurations including federations, marketing agencies in common and strategic alliances.

The Federated Cooperative Structure as a Macrohierarchy

Macrohierarchies are hierarchies involving organizations – instead of agents within organizations – that jointly coordinate some of their activities through multiple layers of ownership. One particular example of macrohierarchy is discussed: farmer cooperatives organized in a multi-layered fashion, which is known as the federated structure.

Figure 2: Example of Macrohierarchy – The Federated Cooperative Structure



In a federated agricultural cooperative, patrons are members of a local cooperative, which in turn is a member of a regional cooperative. Regional cooperatives themselves may also decide to form an inter-regional cooperative. As a result, a federated cooperative is structured by means

of sequential layers of ownership (Figure 2). In addition, cooperatives are characterized by restricted residual claims, i.e., they are owned and controlled by patrons (Vitaliano, 1983). Consequently, the vertical ties between subsequent layers of a federated cooperative structure entail both a transaction and an ownership relationship.

The assignment of ownership in a cooperative to its patrons is often explained as a transaction cost minimization strategy, which is a source of value associated with sequential interdependencies. When farmers own – and thus control – an agricultural cooperative they avoid potential hold-up situations arising from location and temporal asset specificity. For example, by forming a cooperative, dairy farmers can invest in equipment for storage and processing, thereby avoiding downstream pressures to reduce prices given the perishable nature of their product. Additionally, market contracting is costly when the firm has better information than its patrons (or vice-versa). In case a firm knows more about the quality of the product it sells, it has an incentive to deliver a lower-quality product than originally promised. In this case, customer ownership reduces the firm's incentive to exploit its information advantage. Hansmann (1996) explains the formation of consumer and agricultural supply cooperatives on the basis of measurement problems of this sort.

There are multiple sequential interdependencies in federated farmer cooperatives, since in one occasion farmers sell their output to the cooperative (e.g., milk), while in other occasions they acquire production inputs from the cooperative (e.g., seeds and fertilizers). These interdependencies are not properly classified as reciprocal because these transactions are not necessarily carried out together, except in some cases where the cooperative "bundles" services (e.g., product acquisition and technical support) and products (e.g., farm inputs). As discussed previously, the contractual hazards created by these sequential transactions determine ownership

by farmers, which then acquire rights to control (or "plan") the allocation of resources through successive stages of the supply chain.

In addition to these sequential interdependencies, federated cooperative structures are also characterized by pooled and reciprocal interdependencies among members (or cooperatives) within the same horizontal layer. For example, individual members within the same layer keep their decision-making autonomy, but pool their financial and productive resources to create a higher-level structure to develop related businesses, therefore characterizing a pooled interdependence. This higher-level structure defines common, standardized rules to commercialize products, purchase inputs, transfer information, and divide the residual claims among members.

Additionally, Bonus (1986) refers to the local cooperative as a "social group" with an "esprit de corps." The formation of reciprocal interdependencies among farmers in local cooperatives is explained as a consequence of intimate personal knowledge and strong social ties, a distinguishing characteristic of rural communities. In those circumstances, members are likely to employ joint decision-making and problem solving to coordinate their activities – i.e., mutual adjustments. As a result, the transactional and ownership components of the vertical ties are embedded in a network of personal relationships among members. These social attachments may foster the emergence of trust, which tends to neutralize potential internal conflicts and opportunistic behavior. In other words, reciprocal interdependencies may positively affect vertical transactions between layers.

According to Staatz (1987), some cooperatives have an identifiable base of member-patrons who are more inclined to reveal strategic, proprietary information to their cooperative (and vice-versa). Farmers can also be members of more than one local cooperative, which tends

to facilitate the joint coordination of local cooperatives belonging to a higher-level (regional) cooperative.

Description of Federated Agricultural Cooperatives in the United States

The federated model based on Edwin Nourse's "bottom-up" philosophy of cooperation is the cornerstone of the U.S. agricultural cooperative system. In 2000, nearly two-thirds of all U.S. agricultural cooperatives were Nourse I, local multipurpose cooperatives that are members of Nourse II, federated systems. More than 75 percent of all producer memberships held in cooperatives were in these local cooperatives. In 2000, there were 57 federated agricultural associations operating in the U.S., some of which are Fortune 500 companies (Kraenzle et al., 2000). More recently, some large Nourse II, regional cooperatives declared bankruptcy and were liquidated, including Farmland Industries, Agway and Southern States.

We conducted a survey of all known agricultural cooperatives organized under a federated structure in the United States. We were able to have access to information about the structure of 16 federated cooperative systems. Table 1 shows a summary description of these 16 macrohierarchies in the agricultural sector of the United States. The cooperatives in the sample are among the largest in the country with combined sales of over $35 billion in 2002.

These cooperatives tend to operate on a regional and sometimes national and even international scale. The cooperatives in the sample have business operations in grain marketing, food processing, cotton ginning, financial services, and agricultural input supply manufacturing and distribution.

Table 1: Description of Federated Agricultural Cooperatives in the U.S.

Macrohierarchy	Headquarters	Territory	Business Operations	Volume (2002)	Structure
AgFirst, FCB	Columbia, SC	15 Eastern States and Puerto Rico	Agricultural lender. Originates real estate, operating and rural home mortgage loans. Offers insurance, equipment leasing, tax and other financial services.	Loans: $12 billion.	Part of Farm Credit System. Provides funding and services to 24 Agricultural Credit Associations who own AgFirst.
Ag Processing Inc.	Omaha, NE	16 States (mostly in Midwest) and Canada	Soybean processing (primary business). Other products include vegetable oil, animal feeds, grain marketing and transportation services, ethanol and bio-fuels, fuel additives, and solvents.	Sales: $1.8 billion.	250,000 members represented through 243 local cooperatives and 8 regional cooperatives.
AgriBank, FCB	St. Paul, MN	15 States	Wholesale lending and business services to Farm Credit System (FCS) associations in America's heartland.	Loans: $19 billion.	Part of Farm Credit System. The 7th District Farm Credit Services Associations (19) own AgriBank.
Alabama Farmers Cooperative Inc.	Decatur, AL	All of AL and parts of GA, MS and FL.	Fertilizer, feed, grain and farm supply.	Sales: $300 million.	All facilities operated by AFC are governed by local, farmer-owned cooperatives.
CHS Cooperatives	Inver Grove Heights, MN	24 States	Grain marketing, food processing, petroleum refineries/pipelines, markets and distributes energy products, agronomic inputs and feed.	Sales: $ 7.8 billion.	Owned by 1,400 local cooperatives.
CoBank, ACB	Greenwood Village, CO	National	Loan programs, financial and leasing services.	Loans: $27 billion.	Part of Farm Credit System. Owned by about 2,500 stockholders, consisting of agribusinesses, rural utilities and farm credit associations.
Farmland Industries, Inc.	Kansas City, MO	U.S., Canada and Mexico	Supplies local cooperatives with crop nutrients, crop protection products, petroleum products and animal feeds. Processes and markets grain, pork, beef and catfish products.	Sales: $6.6 billion	Owned by 1,700 local cooperatives representing about 600,000 farmers.

Table 1: Description of Federated Agricultural Cooperatives in the U.S. (continued)

Macrohierarchy	Headquarters	Territory	Business Operations	Volume (2002)	Structure
Florida's Natural Growers	Lake Wales, FL	Florida	Orange juice and citrus processor.	Sales: $600 million	1,100 member owners in 12 smaller cooperatives.
Growmark, Inc.	Bloomington, IL	6 Midwestern States and Ontario	Regional agricultural supply and grain marketing cooperative.	Sales: $1.2 billion	Owned by 100 retail and 250 grain marketing cooperatives.
Land O'Lakes, Inc.	Arden Hills, MN	Continental U.S.	Food processing, feed manufacturing and agricultural input supply cooperative.	Sales: $5.8 billion	Owned by more than 7,000 producer-members and 1,300 local cooperatives.
MFA Inc.	Columbia, MO	Missouri and 3 adjacent States	Agricultural input supply, financial services, livestock and grain marketing.	Sales: $692 million	Owned by more than 45,000 members.
PYCO Industries, Inc.	Lubbock, TX	Southern U.S. States	Manufacturer of cotton oil and other cottonseed products.	Sales: $155 million	Owned by over 120 member cotton gins.
Southern States Cooperative, Inc.	Richmond, VA	23 Southern and Midwestern States	Purchases, manufactures or sells agricultural input, animal health, pet food, home and garden supplies. Gins cotton, procures peanuts and markets small grains, corn, soybeans and fish.	Sales: 1.5 billion	Owned by more than 321,000 farmers.
Staple Cotton Cooperative Association	Greenwood, MS	8 Southeastern States	Domestic and export cotton marketing.	Sales: $1.2 billion	More than 12,140 member-owners in 41 states, who sign marketing agreements.
Sunkist Growers Inc.	Sherman Oaks, CA	California, Arizona	Markets fresh oranges, lemons, grapefruit and tangerines in the US and overseas. Fruit that doesn't meet fresh market standards is used in food products.	Sales: $965 million	Owned by 6,500 California and Arizona citrus growers who make up its membership. Each is a member of a local association or district exchange (18).
Tennessee Farmers Cooperative	La Vergne, TN	Tennessee	Animal health products, feed, fertilizer, outdoors power equipment, seeds and tires.	Sales: $400 million	70 member cooperatives own TFC, with 70,000 farmer members.

Based on these 16 federated cooperatives' structural information, we attempt to develop a conceptual framework to describe observed heterogeneity in macrohierarchy architectures. It appears that a continuum exists with two polar forms: a) purely federated system; and b) purely centralized system.

In a purely federated system, farmers pool resources to form a local, tier 1 cooperative. Tier 1 cooperatives pool resources to form a regional (or national), tier 2 cooperative. Farmers and local cooperatives maintain a high degree of independence, as the regional cooperative has no or little power in controlling farmers' and local cooperatives' behavior. Farmers and local cooperatives compete amongst themselves and may even compete with the regional. There is a high degree of pooled interdependence governed by standardized rules and mechanisms. In addition, there is some degree of sequential interdependence. Examples include the three federated systems under the Farm Credit System (AgFirst, AgriBank and CoBank), Growmark, Ag Processing Inc. and Florida's Natural.

In a purely centralized system, farmers own and do business directly with the regional cooperative. "Local" assets are owned by the regional, such as the case with MFA, Inc. Some centralized cooperatives have adopted this structure since their inception, but there is a trend towards centralization among some federated structures.

Hybrid macrohierarchy structures are observed between the two polar forms. These hybrid structures include Land O'Lakes (centralized in dairy business and federated in other businesses), Farmland Industries (centralized in meat businesses, federated in input supply businesses) and CHS Cooperative. CHS is even more complex because while some businesses are centralized and others are federated, the cooperative has engaged in a "regionalization" process whereby "local" assets are owned and operated by CHS but governed by a local board formed by farmers.

Frederick and colleagues (2002) examine current challenges faced by U.S. farmer-owned cooperatives in the dawn of the 21st century. This report summarizes the ideas and observations of cooperative leaders and academic specialists who gathered in focus groups to share their perspectives on a set of questions posed by RBS. Results indicate that panel participants expressed concern on the traditional network of local grain elevators and farm supply stores and their federated regional cooperatives. They suggest that significant conflicts have emerged between local cooperatives and their federated regional. First, local cooperatives are resistant to change and pressure their regional cooperatives to redeem their equity. This is so because local cooperative boards are dominated by older farmer-members nearing retirement age and thus with limited planning horizon.

Second, local cooperatives embrace the culture of service over profit and are unwilling to take steps necessary to maintain profitability. Many locals operate at a deficit and depend on federated cash patronage refunds and redemption of retained patronage refunds to stay in business.

Third, local cooperatives oft-times join and patronize multiple Nourse II, regional cooperatives because they benefit from several competing bids for their business. This lack of local cooperative loyalty constrains regional cooperatives' ability to grow and coordinate efforts aimed at capturing economies of scale and market power.

And lastly, due to consolidation activity through mergers and acquisitions, some progressive local cooperatives have grown as large as some regional cooperatives. It is questionable whether these "super-locals" still need a second-tier regional structure. Super-locals indeed compete and duplicate the services and products of some of their regional counterparts (Hogeland, 2002).

Marketing Agencies in Common

In addition to federated structures, U.S. cooperatives have also pursued an alternative netchain structure-strategy configuration by forming marketing agencies in common (MACs) to conduct inter-cooperative coordination of certain facets of their operations. MACs have been used by agricultural cooperatives for many years to accomplish specific marketing activities. Members of MACs retain individual member ownership of assets, while their MAC provides various supplementary functions, such as group communications and product selling coordination.

The term "marketing agencies in common" is explicitly used in the Capper-Volstead Act as a way for cooperatives to coordinate their marketing functions. MACs can be applied to both cooperatives and non-cooperatives. The limited exemptions from anti-trust provided by the Capper-Volstead Act have enabled agricultural cooperatives to have more experience with MACs than most other segments of U.S. industry.

The purposes of MACs are, in most cases, coordinating sales of member products and complementing the marketing programs that member cooperatives have developed on their own. The marketing coordination function performed by MACs can be extended to inter-organizational planning and decision-making for certain operational areas that involve mutual or interactive impacts on members.

According to Reynolds (1994), MACs are a distinct alternative for cooperatives seeking the benefits of coordination and economies of size. A comparison of several objectives and alternative organizational forms reveals advantages for MACs when members seek inter-organizational collaboration but have a preference for maintaining their separate identities. MACs have some disadvantages, however, as they generally lack the focus for developing distinctive capabilities and innovations. This happens because each cooperative in a MAC has a unique set of organization specific assets and

resources that it would like to augment and protect, but not transfer out of its direct and immediate control. An important characteristic with most MACs is that, while their member-cooperatives coordinate some aspects of their marketing programs, they also compete in the marketplace.

Most studies of cooperative organizations suggest that a MAC is a special type of the federated cooperative structure. Two characteristics, however, distinguish a MAC from a "traditional" federated structure. Unlike many other federated cooperatives, MACs do not serve the purpose of sharing in the acquisition and ownership of financial and physical assets needed for adding value by means of processing and packaging functions. In other words, MACs are organized by groups of cooperatives to coordinate marketing activities, with each member retaining exclusive ownership over a unique set of physical, financial and human capital. As a result, MACs have relatively low asset-to-sales ratios. Reynolds (1994) collected financial data from 63 federated cooperatives and observed that 19 have a ratio of assets to sales below one-tenth of total sales.

In addition to having low asset-to-sales ratios, MACs tend to have a smaller number of member cooperatives than other federated structures. Reynolds (1994) found out that the average number of member-cooperatives in MACs is 9, while the average for traditional federated cooperatives reaches 76 members. Additionally, Cropp and Ingalsbe (1989) argue that most MACs do not take title in marketing transactions with members.

MACs are very common among cooperatives in the dairy industry. For example, Southern Marketing Agency Inc. (SMA) is a MAC formed in 2002 to seek efficiencies in supplying the fluid milk needs of the southeastern United States. SMA is organized as a Kentucky agricultural cooperative under provisions of the Capper-

Volstead Act. It currently has 5 dairy cooperatives as members. Initial goals of SMA include: (1) promote member cooperation and communication; (2) seek cost savings in the purchase of supplemental milk, in farm-to-market milk hauling and in seasonal surplus balancing; and (3) preserve over-order prices in the Southeast.

SMA is governed by an Operations Committee made up of senior managers of each member-cooperative. The Operations Committee reports directly to the SMA board of directors, comprised of 10 dairy farmers. Seven other MACs in the dairy industry are analyzed by Liebrand and Spatz (1993) to demonstrate how groups of cooperatives have successfully used a common agency to market member products.

Strategic Alliances

Fundamental structural changes have been taking place over the past few decades, which are altering traditional business relationships between firms in supply chains and networks. For example, it has been suggested that, "collaboration between competitors is in fashion" (Hamel et al., 1989, p. 133). Many variations of vertical and horizontal coordination strategies have evolved both in agricultural and food chains as well as in other industries with a given firm potentially using multiple strategies depending on the characteristics of their business transactions. One governance structure that is increasingly used by U.S. cooperatives to effect horizontal and vertical coordination is the strategic alliance.

There are many competing definitions of strategic alliances and the different types of alliances in the literature. These definitions vary with some authors broadly defining alliances as any form of inter-firm cooperation, while some authors include merger and acquisition activities and others exclude long-term equity investments. In this paper, a strategic alliance is defined as any form of cooperation or coordination

between two or more independent entities to achieve common strategic goals not limited by ownership, control, or equity investments.

Alliances are usefully distinguished between two major types: vertical and horizontal. A horizontal alliance is one in which two firms that produce or market a product at a given level of the marketing chain work together. A vertical strategic alliance is one in which an entity supplies a commodity or service to a second entity that ads value to that input. Strategic alliances and other forms of vertical cooperation and coordination create a continuum that ranges from open spot markets to vertical integration.

History shows that collaboration among companies existed ever since firms came into being (Dussauge and Garrette, 1999). Joint ventures, for example, are one of the oldest ways of executing business transactions. Many authors agree that in the past two decades an "alliance revolution" has taken place (Gomes Casseres, 1996; Doz and Hamel, 1998; Dussauge and Garrette, 1999). This revolution is described not only in terms of an increase in number, but strategic alliances are also changing the way business is conducted, blurring the boundaries of the traditional firm and transforming conventional business concepts.

Inter-organizational cooperation in the eighties became "mandatory" in some sectors of the U.S. economy. That is, companies needed to form alliances to remain competitive. Gomez Casseres (1996) goes even farther in describing this "alliance revolution." He argues that the unit of analysis in the study of competition should now be "sets of allied firms" instead of the previous emphasis on the firm, the market, or the transaction. The author also points out the fact that, in this evolving business environment, competition has intensified rather than nullified.

Strategic Alliances Among U.S. Agricultural Cooperatives

Because cooperatives are structured on the basis of cooperation, some scholars suggest that cooperatives should posses a natural advantage – as compared to other forms of business organization – when forming and maintaining alliances. Hillier (1996) investigated some case studies of alliances involving cooperatives and observed that the "nature of the players, the motives for forming alliances, and the encompassing cooperative culture all contributed to a positive attitude toward alliances" (p. 53).

In the past U.S. cooperatives have been blamed for failing to cooperate among themselves (Torgerson, 1993; Fulton et al., 1998). It was not until the formation of the Cenex – Land O'Lakes agronomy joint venture in 1986 that U.S. agricultural cooperatives began to pay closer attention to strategic alliances as a business concept. U.S. cooperatives, however, are learning that the need to cooperate becomes "mandatory" in a mature, dynamic, and fast-changing agricultural marketplace.

The growth in inter-cooperative alliance formation has been noticed by Merlo (1999). According to the author, there were more mergers, consolidations, acquisitions, joint ventures, and alliances among U.S. cooperatives in 1998 than in all the history of cooperative development. Recent USDA data reveals that the number of strategic alliances and joint ventures involving U.S. agricultural cooperatives has increased significantly in the mid-1990s.

In addition to alliance popularity among corporate firms in other industries and increased competitive pressures from the business environment, federal regulation appears to be fostering strategic alliances between cooperatives. In 1998, for example, legislation offering a positive environment for joint venture formation among cooperatives was passed in the U.S. For tax purposes, the ruling permits business conducted by patrons with a limited liability company (LLC) to be treated as if that

business were transacted directly with the cooperatives that own the LLC (Van Someren and Dahlgren, 1998).

Fulton et al. (1998) show that cooperation is not just common among large regional cooperatives, but also among an increasing number of local cooperatives. As one manager of a local cooperative stated in the authors' survey, "we are just being neighborly and we should not compete with the other cooperatives since we are all part of the same family" (p. 63). Additionally, Reynolds (1995) mentions that alliances are considered as a preferred alternative to members and employees, who are usually more reluctant to mergers and acquisitions. In many cases, alliances among local cooperatives serve as a transition to a merger.

Fulton et al. (1998) also identify some of the factors constraining the establishment of collaborative agreements among local cooperatives. Some of these factors apply to cooperatives in particular, including non-progressive board members, "small town politics," membership inertia, and lack of funds. Other factors are considered more general and apply to any business organization, including personal egos, resistance to change, lack of communication between managers and board members, and expensive legal fees.

Survey Research on Strategic Alliances Among Agricultural Cooperatives

Three recent surveys reveal important trends and characteristics about alliance formation among U.S. agricultural cooperatives. Rodriguez-Alcala (2000) conducted a survey of cooperative leaders to analyze alliance formation by agricultural cooperatives. The respondents to this survey included 12 CEOs from the top 100 U.S. agricultural cooperatives. The size of the cooperatives surveyed ranged from $100 million to more than $1 billion in annual sales volume with half of them with sales above $1 billion. The major findings of this survey included:

- All but one of the cooperatives surveyed are involved in strategic alliances.
- The main reasons why cooperatives decide to form strategic alliances include: to gain access to new markets, to obtain economies of scale, to obtain equity capital, to obtain or increase bargaining power, and to maintain or increase market share.
- Respondents to the survey agree that during the eighties and early nineties cooperatives have failed to cooperate among themselves. But they also believe that collaboration among cooperatives in the late nineties (1995-2000) has increased.
- The percentage of strategic alliances with non-cooperatives and other cooperatives are divided evenly based on survey results.
- The survey shows that most cooperatives are forming short-term alliances (less than 5 years). This finding corroborates Doz and Hamel's (1998) assertion that in highly competitive markets alliance duration cannot be used as a measure of alliance success.
- Agricultural cooperatives are forming alliances in single businesses (rather than in multiple businesses) and involving two partners (rather than multiple partners). These alliances are generally less complex and therefore easier to terminate.
- The survey identifies three main reasons leading to alliance termination: conflicting organizational cultures, failure to properly manage the alliance, and partner financial instability. Cooperatives who face these problems have failed to analyze correctly the purposes of forming an alliance and their partner's match before entering the alliance agreement.

In another survey research, Hudson and Herndon (2002) use a binomial probit model to assess the motivations for cooperative participation in mergers, acquisitions, alliances and joint ventures (MAP activity). Questionnaires were sent to 450 U.S. agricultural cooperatives with 97 responses, representing an effective response rate of 26 percent. The average responding cooperative had 4,700 members with annual sales of $384 million. The majority of the cooperatives surveyed participated in MAP activity between 0-3 times over the 1995-2000 period, but several of these firms participated more frequently. The results of this analysis clearly indicate the proliferation of MAP activity in cooperatives. The authors also observe that the majority of MAP activity in cooperatives is horizontal in nature.

Regression results show that competition, patronage refunds, research and development (R&D) activities, and market diversification affect opportunities and participation in strategic alliances. In addition, firm size, position in the market channel, and R&D activities also influence the frequency of participation in MAP activity. These results suggest that many of the factors that affect MAP activity in corporations have similar effects on cooperatives. However, some of the motivations for alliance participation might be different including the potential relationship between capital constraints and patronage refunds.

A more recent survey focuses on alliances in the U.S. beef supply chain (Mulrony and Chaddad, 2004). Differently from the poultry and pork supply chains, which have adopted vertical integration and resource-providing contracts, vertical coordination in the beef industry is taking place primarily with the formation of alliances between supply chain participants. Mulrony and Chaddad (2004) conducted a survey of beef alliances focusing on organizational structure, the nature of participants'

involvement, contractual requirements, information sharing, services offered to participants and marketing strategies. Survey results indicate that:

- Beef alliances range in formation date from 1978 to 2000 with most of them being formed in the last five years.
- The number of owner-members in beef alliances ranges from 145 to 400,000 with 60 percent of the alliances having less than 1,000 owner-members.
- Alliance membership is not limited to large-herd producers.
- The primary motivation for beef alliance formation is to add value to cattle followed by sharing of data/information and increasing profits for members.
- The great majority of beef alliances are vertical comprising more than two segments of the supply chain.
- The vertically coordinated alliances, however, varied in both segments included and the nature of contractual participation.
- The primary business structure adopted by 46 percent of responding alliances was the cooperative structure, followed by the LLC structure.
- Beef alliances differed in terms of member entry and exit barriers, contractual and investment requirements for producers joining the alliance, information sharing practices among participants, pricing mechanisms, the nature of contractual relationships with packers, retailers and distributors, distribution channels, association with branded beef products and target markets.

In other words, research results suggest that beef alliances are primarily used as vertical coordination mechanisms, which are assisting beef supply chain participants to evolve toward a consumer-oriented system. Although alliances appear to be diverse in makeup, size, organization, contractual requirements and marketing strategies, they

share the common goal of adding value to cattle in order to increase industry profits by supplying a more desired product. The differences and similarities among alliances provide beef supply chain participants coordinated marketing options so that they can engage in value-added activities and at the same time preserve their valued independence.

Secondary Data on Cooperative Strategic Alliances and Joint Ventures

In order to better understand how cooperatives are using alliances and joint ventures to advance their strategic goals, data were collected from the SDC Platinum database – a service of Thomson Financial. The search included the 50 largest U.S. agricultural cooperatives and therefore does not comprise alliances involving small, local cooperatives. The search for the period 1980-2003 identified 54 strategic alliances involving at least one U.S. agricultural cooperative.

These alliances can be categorized as follows:

- Forward vertical integration into food processing industries. Examples include Dairy Farmers of America's strategic alliances with several private companies in fresh milk bottling; Land O'Lakes' joint venture with Dean Foods in dairy product manufacturing; CHS Cooperative's joint venture with Mitsui & Co. in edible vegetable oil manufacturing and with Cargill in flour milling.
- Backward vertical integration into agricultural input manufacturing and distribution. Examples include Agrilliance, the largest agronomy company in the U.S. formed by CHS Cooperative and Land O'Lakes; CF Industries, a joint venture of seven regional cooperatives in fertilizer and crop nutrient manufacturing; and FS Industries, the joint venture between Farmland and JR Simplot Co. in phosphate fertilizer manufacturing.

- Backward vertical integration into agricultural production. Examples include the dairy farming joint venture between Dairy Farmers of America and Suiza Foods; MoArk LLC, a joint venture formed by Land O'Lakes in egg production and processing; and Farmland's alliance with proprietary partners in the catfish production business.
- Other alliance ventures, including Internet ventures, management consulting, and information services. Examples include Rooster.com, a joint venture involving Cargill, DuPont and CHS Cooperative; the alliance between Farmland and Reuters in the agricultural information services venture; and the alliance involving Deere Co., Farmland and Growmark in the information management and production analysis business.

In addition, the data analysis reveals that U.S. agricultural cooperatives are forming strategic alliances with other cooperatives as well as with investor-owned firms (IOFs). For example, the Cenex-Land O'Lakes agronomy joint venture, which is now known as Agrilliance, is a cooperative-cooperative alliance. Both parent companies, however, maintain several alliances with IOFs as well.

Torgerson (1993) adopts a "purist" viewpoint on this issue maintaining that cooperatives should focus on forming alliances with other cooperatives rather than with IOFs. He believes the cooperative character can be compromised otherwise, as was the case in the AGRI Industries/Cargill agreement, where farm interests were made captive. However, cooperatives sometimes form alliances with non-cooperatives because they do not have choices.

Cooperatives need to become more competitive in the global marketplace by creating critical mass, achieving economies of scale, and building market share (Merlo 1999). Therefore, alliances are mainly formed to allow parent companies to remain or

become more efficient domestically and globally. Cooperatives are not only focusing on domestic partners to achieve strategic objectives, but they have also formed international partnerships. Examples include DFA's joint venture with Fonterra in the dairy business; Farmland's ammonia plant venture in Trinidad and Tobago; Land O' Lakes' livestock feed venture in Taiwan; and Riceland Foods' venture with two Japanese companies in rice export.

Another factor affecting strategic alliance formation among agricultural cooperatives is the need to acquire risk capital for growth purposes. In general, traditional agricultural cooperatives struggle to acquire equity capital because only members may invest in the cooperative but they lack the necessary incentives to do so (Vitaliano, 1983; Cook 1995). Chaddad and Cook (2004) identify alternative capital seeking strategies for agricultural cooperatives, including joint ventures with other cooperatives, joint ventures with non-cooperatives, trust companies and limited liability companies with sundry partners. In other words, strategic alliances are increasingly utilized as equity capital seeking strategies by U.S. agricultural cooperatives.

Conclusions

Networks, supply chains and strategic alliances have been important in the business world for some time. The same economic pressures and global influences that have made these effective strategies for business are coming to bear on agriculture as well. The question then arises as to how farmers can continue to specialize in what they do best – i.e., farming – and, at the same time, become more integrated into the rest of the food system. By means of federated structures, marketing agencies in common and alliances with sundry partners, U.S. agricultural cooperatives have formed complex networks and supply chains (*netchains*) connecting farmers with input providers, food processors, and ultimately consumers. In doing so, they were able to leverage existing

resources to achieve economies of scale and scope, operational efficiency in agricultural input manufacturing and food processing, access to risk capital and effective agri-food chain coordination. In other words, U.S. cooperatives have adapted to the evolving business environment by forming complex inter-organizational collaborations without losing sight of their role as farmers' "integrating agency."

References

Barney, J.B. *Gaining and Sustaining Competitive Advantage*, Reading: Addison-Wesley, 1997.

Bonus, H. The cooperative association as a business enterprise: a study in the economics of transactions. *Journal of Institutional and Theoretical Economics*, v. 142, n.2, p.310-339, 1986.

Burt, R. *Structural Holes*, Cambridge, MA: Harvard University Press, 1992.

Chaddad, F.R.; Cook, M.L. Understanding New Cooperative Models: An Ownership-Control Rights Typology. *Review of Agricultural Economics*, v.26, n.3, p.348-360, 2004.

Cook, M.L. The Future of US Agricultural Cooperatives: A Neo-Institutional Approach. *American Journal of Agricultural Economics*, v.77, n.5, p.1153-1159, 1995.

Cropp, R.; Ingalsbe, G. Structure and Scope of Agricultural Cooperatives. In *Cooperatives in Agriculture*, Cobia, D.W. (ed.), Englewood Cliffs, NJ: Prentice-Hall, 1989.

Doz, Y.L.; Hamel, G. *Alliance Advantage: The Art of Creating Value through Partnering*, Boston, MA: Harvard Business School Press, 1998.

Dussauge, P.; Garrette, B. *Cooperative Strategy: Competing Successfully Through Strategic Alliances*, New York, NY: John Wiley & Sons, 1999.

Dyer, J.H.; Singh, h. The relational view: cooperative strategy and sources of inter-organizational competitive advantage. *Academy of Management Review*, v.23, n.4, p. 660-679, 1998.

Frederick, D.A., Crooks, A.C., Dunn, J.R., Kennedy, T.L., Wadsworth, J.J. Agricultural Cooperatives in the 21st Century, *Cooperative Information Report 60*, Washington, DC: USDA Rural Business Cooperative Service, 2002.

Fulton, J.R.; Popp, M.P.; Gray, C. Evolving Business Arrangements in Local Grain Marketing Cooperatives. *Review of Agricultural Economics*, v.20, n.1, p.54-68, 1998.

Gomes-Casseres, B. *The Alliance Revolution: The New Shape of Business Rivalry*, Cambridge, MA: Harvard University Press, 1996.

Granovetter, M. The strength of weak ties. *American Journal of Sociology*, v.78, p.1360-1380, 1973.

Hamel, G.; Doz, Y.L.; Prahalad, c.k. Collaborate with your Competitors and Win. *Harvard Business Review*, v.67, n.1, p.133-139, 1989.

Hansmann, H. *The Ownership of Enterprise*, Cambridge, MA: The Belknap Press of Harvard University Press, 1996.

Hillier, L. Cooperatives and Strategic Alliances. *The World of Cooperative Enterprise*, p. 49-55, 1996.

Hogeland, J.A. The Changing Federated Relationship Between Local and Regional Cooperatives. *Research Report 190*, Washington, DC: Rural Business Cooperative Service, 2002.

Hudson, D.; Herndon, C.W. Factors Influencing Probability and Frequency of Participation in Merger and Partnership Activity in Agricultural Cooperatives. *Agribusiness: An International Journal*, v.18, n.2, p.231-246, 2002.

Lazzarini, S.G.; Chaddad, F.R.; Cook, M.L. Integrating Supply Chain and Network Analyses: The Study of Netchains. *Journal on Chain and Network Science*, v.1, n.1, p.7-22, 2001.

Liebrand, C.B.; Spatz, K.J. DariMac: An Export Marketing Agency in Common for Dairy Cooperatives, *Research Report 126*, Washington, DC: Rural Business Cooperative Service, 1993.

Merlo, C. When Cooperatives Combine. *The Cooperative Accountant*, p.40-47, Spring 1999.

Mulrony, B.R.; Chaddad, F.R. A Survey of Strategic Alliances in the U.S. Beef Supply Chain. Article presented at the *WCC-72 Research in Agribusiness Annual Meeting*, Las Vegas, Nevada, USA, June 7, 2004.

Nohria, N.; Eccles, R.G. *Networks and Organizations*, Boston, MA: Harvard University Press, 1992.

Porter, M.E. *Competitive Advantage*, New York, NY: The Free Press, 1985.

Powell, W.W. Neither market nor hierarchy: network forms of organization. *Research in Organizational Behavior*, v.12, p.295-336, 1990.

Reynolds, B.J. Cooperative Marketing Agencies in Common, *Research Report 127*, Washington, DC: Rural Business Cooperative Service, 1994.

Reynolds, B.J. Specialization Networks Offer Alternative to Consolidation of Local Cooperatives. *Farmer Cooperatives*, February 1995.

Rodriguez-Alcalá, M.E. *Strategic Alliance Theory and Practice: Analyzing the Cenex-Land O'Lakes Joint Venture*, M.S. Thesis, University of Missouri, 2000.

Simchi-Levi, D.; Kaminski, P.; Simchi-Levi, E. *Designing and Managing the Supply Chain: Concepts, Strategies, and Case Studies*, New York, NY: Irwin McGraw-Hill, 2000.

Staatz, J.M. The Structural Characteristics of Farmer Cooperatives and Their Behavioral Consequences. In *Cooperative Theory: New Approaches*, J.S. Royer (ed.), Washington, DC: Agricultural Cooperative Services, pp. 33-60, 1987.

Thompson, J.D. *Organizations in Action: Social Science Bases of Administrative Theory*, New York, NY: McGraw-Hill, 1967.

Torgerson, R.E. Strategic Alliances Revisited: A Cooperative Perspective. *American Cooperation*, p.151-159, 1993.

U.S. Department of Agriculture. Farmer Cooperative Statistics 2002, *Service Report 62*, Washington, DC: Rural Business Cooperative Services, 2004.

Vitaliano, P.W. Cooperative Enterprise: An Alternative Conceptual Basis for Analyzing a Complex Institution. *American Journal of Agricultural Economics*, v.65, n.5, p.1078-1083, 1983.

Van Someren, R.; Dahlgren, J.J. Joint Venturing Made Easier and Safer. *The Cooperative Accountant*, p. 43-47, Winter 1998.

Wasserman, S.; Faust, K. *Social Network Analysis*, Cambridge, MA: Cambridge University Press, 1994.