

MICHAEL L. COOK AND CONSTANTINE ILIOPOULOS

Beginning to Inform the Theory of the Cooperative Firm: Emergence of the New Generation Cooperative

The objective of this paper is threefold: 1) to introduce the recent emergence of a nontraditional form of collective action in rural United States, 2) to explore the path-dependent institutional environment from which this nontraditional-new generation of agricultural cooperative surfaced, and 3) to examine the unique organizational attributes – especially the property rights characteristics – of this form of cooperative by describing the case of Dakota Growers Pasta, a new generation cooperative from Carrington, North Dakota, U.S.A.

MICHAEL L. COOK, Robert D. Partridge Endowed Professor

Graduate Institute of Cooperative Leadership and Agribusiness Research Institute at the University of Missouri-Columbia

• e-mail: CookML@missouri.edu

CONSTANTINE ILIOPOULOS, PhD, Visiting Scholar

Graduate Institute of Cooperative Leadership and Agribusiness Research Institute at the University of Missouri-Columbia

• e-mail: IliopoulosC@missouri.edu

1. INTRODUCTION

Since the early 1990's, the agrifood sector in the United States has witnessed an explosive birth of a new form of institutional arrangement. The resultant organizational phenomenon is known as "cooperative fever" (Harris et al., *Patrie*). By the mid-1990's, numerous groups of agricultural producers had conceptualized, organized, and converted plans into action as expressed in the following quote by a senior officer with the St. Paul Bank for Cooperatives:

"the roots of the fever are in the Upper Midwest and encompass all types of commodities, including soybeans, durum, spring wheat, sunflower seeds, alfalfa, hogs, beef, fish and edible beans as well as corn and sugar beets. In Minnesota and the Dakotas the 1990s have generated in excess of 50 projects, most of them cooperatively structured, creating more than \$2 billion in capacity to convert farm commodities into food and non-food products." "This co-op fever is spreading," he said. "I've been communicating with farmers and businesses in approximately 20 states that have witnessed this co-op fever and want to transfer it to their commodities." ...Mr. Estenson noted that the new cooperatives were different from those that came into being from the 1920's into the 1940's, when the main thrust was defensive—"to keep the big boys honest."

The new cooperatives require closed membership. Once the stock offering is over, someone new cannot come in without purchasing a member's stock, he said. The new cooperative, unlike older entities, requires significant up-front investment and a pooling arrangement in which members share equitably on a per-unit basis in the revenue stream that has been created. Farmers are required to deliver according to plan regardless of the open market. It is an offensive strategy, Mr. Estenson emphasized. "They are not simply trying to keep input prices and basic commodities fair. They are trying to share in more of the food system revenue stream..." (*Milling and Baking News*, pp. 16-18.).

Recent estimates suggest that more than 125 new entities and numerous traditional cooperatives are currently adopting organizational attributes of the "new generation" cooperatives.¹

2. BACKGROUND

Most U.S. agricultural cooperatives originated in the early 1900's because of a combination of economic, farm organization, and public policy factors. The two most common economic jus-

¹ In this paper we use the term "new generation cooperative" although this new organizational form has been referenced in the media as "new wave cooperatives", "defined membership association", "value added marketing cooperatives", and "closed cooperatives".

tifications for forming cooperatives were: a) individual producers needed institutional mechanisms to bring economic balance under their control, usually because of excess supply-induced prices. This was particularly the case immediately following World War I, when an agricultural depression was particularly severe; and b) individual producers needed institutional mechanisms to countervail opportunism and holdup situations which were common in the late 1800's and early 1900's in the U.S.. In general, the incentive for U.S. producers to act collectively was in the nature of reaction – usually for defensive purposes – to depressed prices and/or market failure. Twelve thousand agricultural cooperatives were formed in the subsequent ten years.

During the ensuing sixty years, U.S. farmer cooperatives, which survived the difficult first years, slowly but consistently increased their aggregate market shares of inputs handled, farm marketings and services provided. By 1982 U.S. farmer cooperatives' shares of farm marketings and farm production expenditures reached 30 and 28% respectively. The organizational form which emerged is now described as the "traditional U.S. agricultural cooperative". The characteristics of this "traditional" organizational form included: a) open membership, b) growth capital primarily generated from patronage-generated earnings, c) illiquid and ill-defined ownership rights, d) residual claims conflicts between active and inactive members, and e) residual right of control based on one member, one vote (Cook and Iliopoulos).

In 1983, an agricultural depression, as severe as the 1920's economic setback, struck the U.S. agricultural sector. Global excess supply, highly leveraged producers, and slow growing – mature domestic markets plunged independent farmers and ranchers and their related agribusiness firms into economic depression. Four years later, as the depression eased, U.S. agricultural cooperatives found themselves with reduced market shares and a hardened and skeptical membership. Aggregate market shares had dropped to 25 percent in marketings and purchased inputs respectively. Producers, disenchanted with the inability of their traditional cooperatives to assist them during their economic despair, developed an increasingly negative attitude toward their own organizations. Their disillusionment turned to disdain as they verbally attacked their organizations as having "too much cooperative baggage". Their business behavior correlated with their attitudes as they pursued the "deal of the day" short-term solutions during an extremely rivalrous excess capacity period. This concept of "cooperative baggage" included accusations about cooperative organization structure of fostering "too much politics", "decision making too slow", "apathy", "equity capital returned too late", "organizational inefficiencies" and "bloated management".

Cooperative scholars (Centner, Cotterill, Cook, Staatz) concluded that this was a rational reaction and observed that the defensive nature of cooperatives – ameliorating the negative economic impacts of market failures – had successfully modified the strategic behaviors of

investor-owned competitors. And, because of this competitive yardstick role, prices now differed little between cooperatives and their rivals. Consequently, the short-run costs of transacting with a cooperative became more scrutinized by its member-owners. These transactions and influence costs, seldom recognized in the start-up fervor of "combating opportunistic monopsonists/monopolists" suddenly emerged carrying the distinctive negative label of "cooperative baggage". Shortly we will argue that these costs are a result of an organizational shortcoming of cooperatives – the lack of clarity in defining property rights – which leads to conflicts over residual claims and decision control, especially as cooperatives become increasingly complex in their organizational structure. But first, we briefly review the importance of the definition of property rights when designing organizations.

Property rights are defined as a socially and legally enforced right to select uses of an economic good. Practically speaking, property rights give owners claim to the residual returns of the firm and a part in the decision process. Legal constraints regarding the asset's use or the assignment of rights to others through contracts prevent the owner from exercising all the rights associated with ownership of an asset. Fundamental contracts within an organization specify 1) the nature of the residual claims, and 2) the allocation of the steps of the decision process among agents (Fama and Jensen). Since "contracting man" is limited in foresight, knowledge, skill and time and displays opportunistic tendencies, contracts are incomplete (Williamson). It becomes impossible to construct a contract *ex ante* that accounts for every possible future event, determines how each party will respond and divides any net income resulting from the event. The costs involved to monitor and enforce these contracts become considerable as well.

Determining who receives the residual property rights, which are the rights not specified in a contract, becomes critical. The transaction cost school of economics argues that clearly defined, enforceable and tradable property rights produce a socially efficient outcome. In fact, "If no one clearly owns a valuable asset, then no one has an incentive to guard its value properly. If property rights are not tradable, then there is little hope that assets will end up with those people who can make the best use of them and so value them most. If property rights are not secure, then owners will not invest great amounts in assets that they may lose with no compensation, or they may sink valuable resources into protecting their claims" (Milgrom and Roberts, p. 294). Vaguely defined property rights create losses in efficiency because the decision maker no longer bears the full impact of his or her choices.

Numerous scholars of cooperative theory (Peterson, Centner, Cook, Iliopoulos, Staatz, Porter and Scully) have observed and identified organizational limitations in traditional cooperatives. These limitations, they suggest, are the result of vaguely defined property rights. According to these authors, the five major vaguely defined property rights cooperative problems

include: the free-rider problem, the portfolio problem, the horizon problem, the control problem, and the influence problem.

How might each of these problems be overcome or corrected? Jensen and Meckling (pp. 307–308) argue that “specification of individual rights determines how costs and rewards will be allocated among the participants in any organization). Hence, the free-rider and horizon problems require a solution that aligns members’ investments with their level of patronage. These investments must also reflect changes in the value of the cooperative’s current and future cash flows. An answer to the portfolio problems on the other hand, must align members’ investment with their preferred level of risk and reward. To correct the control problem, a vehicle must be designed that reduces the agency problem and permits the board of directors to oversee management’s performance without costly monitoring and enforcement measures. The bottom line is: solutions to these problems necessitate a clearer specification of each member’s property rights.

In our theoretical analysis we hypothesize that a cooperative business structure that reduces the efficiency-robbing effects of vaguely defined property rights would possess some of the following characteristics:²

1. Transferable equity shares.
2. Appreciable equity shares.
3. Defined membership.
4. Legally binding delivery contract or a uniform grower agreement.
5. Minimum up-front equity investment requirement.

These organizational characteristics provide the skeleton of a new type of agricultural cooperative. Cooperatives possessing these attributes meet the aforementioned definition of a new generation cooperative. Thus, a new generation cooperative is a defined membership organization requiring an up-front equity investment in equity shares possessing both tradable and appreciable properties. Investment in the cooperative is based on a member’s anticipated level of patronage and all members adhere to a legally binding uniform marketing agreement.

In the late 1980’s and early 1990’s, as researchers and cooperative scholars were identifying organizational inefficiencies in traditional cooperatives and the framework for a new cooperative architecture, a renewed interest in collective action in the Upper Midwest area of the U.S. began to emerge.

New forms of collective action appeared to be more offensive – more interested in extracting rents from value added activities up- and down-stream in the food chain. The most

² For empirical analysis of these hypotheses see Iliopoulos, Cook and Iliopoulos, and Iliopoulos and Cook.

popular, the more capital intensive new generation cooperative, suggested a more clearly defined set of property rights in order to create investment incentives to producers. Empirical work confirmed the connection between theory and practice. In a 1996–1997 survey of all rural or agricultural-related cooperative formations in the Upper Midwest between 1988 and 1996, Cook and Tong made the following observations:

1. More than 80 percent of cooperative formations in the Upper Midwest adopted non-traditional cooperative organization characteristics.
2. Why? According to the results of the survey – to solve for a set of problems caused by vaguely defined property rights.
3. A coordinated set of simple organizational policies to solve for vaguely defined property rights: transferable and appreciable equity shares, defined membership, uniform grower agreements, and a minimum upfront equity investment requirement were identified.
4. Ninety-six percent of the cooperatives in the survey reduced the free-rider problem by linking member investment to use.
5. Ninety-four percent allowed members the ability to adjust their asset portfolio to meet their risk preferences by allowing the transfer of equity shares.
6. In addition, 93.6 percent of the cooperatives allowed producers to realize changes in the cooperative's value upon divestment of their equity shares.
7. Defined (closed) membership policies were popular among newly organized agricultural cooperatives with 98 percent of the survey cooperatives implementing a defined membership structure.
8. Direct investment through the sale of nonvoting equity stock was the primary method employed to raise producer equity in these cooperatives. Nearly 98.7 percent of equity raised from producers took this form.

The following story or minicase describes an example of a cooperative that "fits" the aforementioned theoretical framework and the empirical findings.

3. A BRIEF DESCRIPTION OF THE INTERNAL ORGANIZATION OF A NEW GENERATION COOPERATIVE: DAKOTA GROWERS PASTA COOPERATIVE

Dakota Growers Pasta Company (DGP) is a North Dakota agricultural cooperative founded in 1992 to mill durum wheat delivered by its approximately 1,100 members into high quality semolina, which DGP then processes into premium pasta products. The cooperative owns and

operates a state-of-the-art milling and production facility in Carrington, North Dakota and has two production facilities and a distribution center in the Minneapolis, Minnesota metropolitan area. The cooperative produces over 1,500 different stock-keeping units (SKUs) for its customers, as well as DGP's own pasta brands (Pasta Growers, Zia Briosia and Pasta Sanita).

DGP's production volume has experienced average annual growth of 38% since the cooperative began operations, making it one of the three largest pasta producers in the United States. In fiscal year 1998, pasta sales totaled over 254 million pounds, of which approximately 55% was sold to retail customers, 25% to food service distributors and 20% to food manufacturers as ingredients in finished food products.

Brief Operating History. Dakota Growers Pasta began full operations on January 1, 1994.³ Dakota Growers is a nonexempt cooperative. As a nonexempt cooperative, DGP is allowed a deduction for and is not taxed on amounts of patronage sourced income withheld from its members in the form of qualified per-unit retains, on amounts distributed to its members in the form of qualified written notices of allocation, or on money or other property distributed to its members. Consequently, such amounts are taxed directly to the members. However, revenue attributable to non-patronage sourced income is taxed at the cooperative level and again upon distribution to its members. If DGP were not entitled to be taxed as a cooperative or if a significant portion of its revenues are from non-patronage sourced income, its revenues would be taxed when earned and the members would be taxed when dividends are distributed.

The cooperative's shareholders provide Dakota Growers' main raw material. Durum wheat growers have essentially a two-fold incentive for supplying wheat to DGP. First, as durum wheat is used almost exclusively for pasta production, the growers are assured a buyer for their product. Second, the growers enjoy the incremental profit from DGP's conversion of wheat into finished pasta. For each of the last 3 fiscal years the cooperative has returned approximately 70% of net earnings to members in the form of patronage dividends. Historically, the DGP's board of directors at its October meeting has determined what portion of the cooperative's net earnings for the previous fiscal year will be distributed as a patronage dividend.

All members of DGP are obligated to deliver durum wheat to the cooperative in proportion to the amount of equity stock (delivery rights) owned by that member. If a member is unable to grow and deliver the durum wheat required to be delivered to the company pursuant to the growers agreement, the member must purchase the required quantity of durum wheat from other agricultural producers or other owners of durum wheat for delivery to the cooperative. As a result, a member not able to produce durum wheat for delivery to DGP would be

³ For detailed history of Dakota Growers Pasta see Zueli et al.

exposed to the risk that the price of acquiring durum wheat for delivery would be in excess of the price to be paid for durum wheat by the cooperative under the growers agreement.

Under the growers agreement, DGP may, depending on its marketing needs, reduce on a pro rata basis the quantity of durum wheat each member is obligated to deliver in any given year. For fiscal year 1998, the delivery obligation has been one bushel of durum wheat per share of equity stock owned. In fiscal years 1997 and 1996 the delivery obligation was slightly less than one bushel of durum wheat per share.

The purchase of equity stock and membership stock is considered a long-term investment decision by each prospective purchaser. There is a limited private market for the equity stock and no market for the membership stock. The cooperative has no current plans with respect to developing a general public market for its securities. Shares of equity stock may be transferred only with the consent of the cooperative's board of directors. Any transferee of the equity stock must (i) satisfy the membership eligibility requirements described in the bylaws, (ii) be approved for membership by the board of directors, (iii) own one share of membership stock, and (iv) execute a growers agreement. The cooperative has no legal obligation to repurchase any membership stock or equity stock at any time, even if the cooperative terminates a member's membership. However, the cooperative has consistently repurchased shares of membership stock from a member desiring to transfer all of the member's equity stock to a qualified third party.

DGP conducts its patronage business on a cooperative basis. The quantity of durum wheat delivered by any member is used in determining that particular member's patronage business with the cooperative and the member's share of DGP's net proceeds. The board of directors has absolute discretion to determine the manner and amount of payment of patronage equity credits.

As a means of raising capital, an agricultural cooperative may retain a portion of the payments otherwise due members for their crops. This is called a "unit retain" or "unit retention capital." A qualified unit retain is not taxable income to the cooperative under federal law, but is available for the general business purposes of the cooperative, including debt service. The cooperative's board of directors may determine on an annual basis the amount of unit retains to be applied to all members on a uniform basis. Unit retains may be retained by the cooperative indefinitely. To date, Dakota Growers has not withheld a unit retain but has paid the full price of durum wheat to the growers, less applicable transaction fees established by the board of directors.

4. OPERATIVE PERFORMANCE

According to the data in Table 1, durum wheat prices have increased since the inception of Dakota Growers. Grain professionals and economic development leaders credit the pasta plant

TABLE 1. Marketing Year Average Price for Durum Wheat (\$/bu.)

	1987	1991	1992	1993	1994	1995	1996
CENTRAL DISTRICT*	3.72	2.95	3.02	4.60	4.36	5.50	5.12
NORTH DAKOTA	3.38	2.84	3.00	4.68	4.67	5.75	N.A.
U.S.	3.18	2.82	3.05	4.48	4.62	5.65	4.45

Sources: NDAS and USDA, *Agricultural Statistics, 1997*.

* This is the district in which Carrington is located.

for boosting these prices. It is important to remember that DGP is the first cooperative to enter the pasta sector. According to Bill Patrie, "The pasta plant is having a profound effect on durum prices and the economic vitality of the area—it's putting more money in the pockets of growers." Previously, most farmers had been selling their wheat at the Grain Exchange in Minneapolis. The wheat would then be purchased by other mills, primarily in Minnesota. The pasta plant is not, however, the only contributing factor. Small durum harvests since 1993 have also lead to higher durum prices. The 1997 harvest is the smallest since 1993 and the fourth smallest in the last 15 years.

In October 1998, the board of directors of DGP declared a qualified patronage allocation and distribution of \$1.00 per bushel delivered by members in fiscal 1998 (Table 2). This is in addition to the price paid for the durum wheat. The allocation is more than a 100% increase from the year before which had more than a 50% increase from the previous year. In 1996 the first dividends were declared after the first full year in operation. The original delivery right price was \$3.89 per bushel. At the time of the writing of this paper, equity shares (delivery rights) were being sold between \$7.50 and \$11.50 (this is the limited market which consists of only active durum farmers). The original plans which included a semolina plant and a vertically integrated pasta plant have now expanded to three plants and revenues, costs, and liabilities reflect those changes in the 1998 data (Table 2).

5. SUMMARY AND CONCLUSIONS

The aforementioned arguments and the Dakota Growers Pasta description hypothesize that the internal organization of a cooperative is an important determinant of collective action performance. Improving an organization's efficiency by eliminating or ameliorating property rights constraints might be the first step in designing more efficient, offensive, rent seeking collective

TABLE 2. Financial Data for Dakota Growers (in thousands of dollars).

	1998	1997	1996	1995 ¹
Revenue	119,621	69,339	49,558	40,441
Cost of Product Sold	-	58,357	43,318	35,789
Net Income	9,374	6,926	2,618	1,436
Total Assets	124,537	68,739	49,894	47,842
Long-term Debt	66,056	30,218	19,752	29,097
Working Capital	22,813	6,329	8,184	2,400
Property and Equipment Additions		17,837	1,489	1,309
Members' Investments	36,875	29,956	24,866	13,497
Total Patronage Distributions	-	1,800	935	0
Patronage Dividends per Share Distributed ²	1.00	0.485	0.300	0.0

1. Although data exist for 1993 and 1994, the plant only commenced with full operations in January 1994 and the fiscal year ends July 31. Since only seven months of operations could be calculated for the 1994 year, certain financial comparisons should not be made with those years.
2. The patronage dividend reported represents the amount allocated from the previous year. In 1998, the Board allocated a distribution of \$1.00 per bushel which will be distributed in FY 1999.

Source: Edgar, 1999 10-K, and S-1/A Securities Exchange Commission.

organization structures and strategies. It is argued that resolution of hold-ups defined the success of traditionally structured agricultural cooperatives in the United States. The emergence of the new generation cooperatives may be a recognition that cooperative firms are more than a new means to deal with the hold-up problem faced by agricultural producers in an increasingly complex and dynamic global economic environment. If examined in greater detail, we may find this new organizational form aiding in the further development of the theory of the cooperative firm.

The authors observe that the unique ownership patterns in the new generation cooperative not only contribute to an understanding of the importance of clearly defined property rights in designing efficient organizational structures but also inform debates on agency problems, transfer of knowledge difficulties, and market monitoring benefits – all hypothesized elements in a more complete theory of the firm (Holmstrom and Roberts). ■

REFERENCES

- CENTNER, T.J.**, 1988 "The Role of Cooperatives in Agriculture: Historic Remnant or Viable Membership?", *Journal of Agricultural Cooperation* 3:94-106.
- COOK, M.L.**, 1995 "The Future of U.S. Cooperatives: A Neoinstitutional Approach", *American Jo. of Agricultural Economics* 77:1153-1159.
- COOK, M.L. and C. ILIOPOULOS**, 2000 (forthcoming) "Ill-defined Property Rights in Collective Action: The Case of U.S. Agricultural Cooperatives", *Institutions, Contracts and Organizations: Perspectives from New Institutional Economics*, ed. Claude Menard, Edward Elgar Publishing Ltd., London, U.K.
- COOK, M.L. and L. TONG**, 1997 "Definitional and Classification Issues in Analyzing Cooperative Organizational Forms", *Cooperatives: Their Importance in the Future Food and Agriculture System*, ed. M. Cook, R. Torgenson, T. Sporleder and D. Padberg, NCFC and FAMC, USDA, FAMC-1-97:113-118.
- COTTERILL, R.W.**, 1984 "The Competitive Yardstick School of Cooperative Thought", *American Cooperation*, pp. 41-56, American Institute of Cooperation, Washington DC.
- FAMA, E.F. and M.C. JENSEN**, 1983 "Separation of Ownership and Control", *Journal of Law and Economics*, 26:1:301-325.
- HARRIS, A., B. STEFANSON, and M. FULTON**, 1996 "New Generation Cooperatives and Cooperative Theory" *Journal of Cooperatives*, 11:15-29.
- HOLMSTROM, B. and J. ROBERTS**, 1998 "The Boundaries of the Firm Revisited", *Journal of Economic Perspectives*, 12:4:73-94.
- ILIOPOULOS, C.**, 1998 "A Study of the Property Rights Constraints in U.S. Agricultural Cooperatives" Theory and Evidence", unpublished Ph.D. Dissertation. Columbia, MO, Department of Agricultural Economics, Columbia, Missouri.
- ILIOPOULOS, C. and M.L. COOK**, 1999 "The Efficiency of Internal Resource Allocation Decisions in Customer-Owned Firms: The Influence Costs Problem: <http://www.isnie.org/ISNIE99/ISNIEPanels830.htm>
- JENSEN, M.C. and W. MECKLING**, 1976 "Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure", *Journal of Financial Economics* 3:305-360.
- MILGROM, P. and J. ROBERTS**, 1992 *Economics, Organization, and Management*, Englewood Cliffs, N.J., Prentice Hall.
- Milling and Baking News**, 1997 "Industry Activities - Colloquium Speakers See Corn Sweetener Imbalance into Future", March 11, pp.16-18.
- PATRIE, W.**, 1999 "Cloverdale Growers Alliance Cooperative: Creating a Bright Future by Connecting With the Past", *Journal of Cooperative Development*, Summer, Vol. 1, Number 4.
- PETERSON, W.C.**, 1992 "The Economic Role and Limitations of Cooperatives: An Investment Cash flow Derivation", *Journal of Agricultural Cooperation* 7:61-78.
- PORTER, P. and G. SCULLY**, 1987 "Economic Efficiency in Cooperatives", *Journal of Law and Economics*, 30:2:489-512.
- STAATZ, J.M.**, 1987 "The Structural Characteristics of Farmer Cooperatives and Their Behavioral Consequences", *Cooperative Theory: New Approaches*, J. Royer, ed., pp. 33-60, ACS Service Report No. 18, USDA, Washington DC.
- WILLIAMSON, O.E.**, 1985 *The Economic Institutions of Capitalism*, The Free Press, New York.
- ZEULI, K., R. KING, G. GOREHAM, E. VAN DER SLUIS**, Dakota Growers Pasta Company and the City of Carrington, North Dakota: A Case Study, <http://www.wisc.edu/uwcc/resourcescode.html>