THE SUBTERMINAL/SATELLITE ELEVATOR COOPERATIVE AND THE ROLE OF THE LOCAL COUNTRY ELEVATOR

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Highlights

The competitive and rapidly changing environment in the country elevator industry has led to the consolidation of many local elevators into "subterminal-satellite" cooperatives. Under this type of organizational structure, grain is trucked from outlying local satellite stations to a subterminal for subsequent unit train shipment. This consolidated form of organization has several advantages according to co-op general managers. These advantages include: greater access to unit train rail rates, greater financial stability from merged assets, better merchandising capabilities, better utilization of personnel and facilities, expanded patron services, and volume buying/selling power. Negative consequences of mergers include costs of double handling of grain (elevating grain twice and local trucking costs), patron acceptance of the larger firm, local road deterioration from increased local truck traffic, and coordination of inbound and outbound grain.

Activities at the local satellite stations change somewhat after consolidation. The two most predominant changes at co-ops participating in the study were that the local manager no longer had grain merchandising responsibilities, and that the co-op placed more emphasis on patron services after merging.

Patrons generally felt they had not been significantly affected by the elevator mergers, although some grain price benefit was perceived because of unit train rail rate savings.

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PREFACE

This report was conducted under the auspices of the Federal-State Marketing Improvement Program, Agricultural Marketing Service, U.S. Department of Agriculture. The study was funded through and administered by the North Dakota Department of Agriculture, Kent Jones, Commissioner. The report was prepared by the Upper Great Plains Transportation Institute.

A significant move toward concentration in the country elevator industry in the Upper Midwest has prompted questions regarding the viability and future of smaller single car local elevators. The intent of this report is to describe one alternative many local stations have chosen as a result of this concentration -- the consolidation of local stations into the "subterminal/satellite" cooperative. The report describes changes which occur as a result of consolidation, and provides background information for other country elevators which may be considering a similar type of organizational structure.

The author would like to thank the management and patrons of these cooperatives for their help in completing this project:

- Farmex Grain Cooperative, Wolf Point, MT
- Northwest Grain Cooperative, Williston, ND
- Southwest Grain Cooperative, Gladstone, ND
- Minot Farmers Union Elevator, Minot, ND
- Fessenden Cooperative Association, Fessenden, ND
- North Central Grain Cooperative, Egeland, ND
- Lake Region Grain Cooperative, Devils Lake, ND
- Western Consolidated Cooperative, Danvers, MN
- Consolidated Cooperatives, Worthington, MN

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INTRODUCTION

The country grain elevator industry in the Upper Great Plains continues to undergo significant structural change. The once numerous country elevators are becoming fewer in number, larger in size and handle more grain (Table 1). While near the turn of the century over 2,000 grain elevators operated in North Dakota, the number has dwindled to 563 licensed elevators in 1984.

TABLE 1. NUMBER, SIZE AND AVERAGE ANNUAL VOLUME OF COUNTRY GRAIN ELEVATORS, NORTH DAKOTA, SELECTED YEARS.

Year	Number of Elevators	Average Storage Capacity	Average Volume Handled
		----------bushels----------	
1915	2031	30,000	---
1922	1832	30,000	---
1952	936	68,000	---
1964	789	159,000	---
1969	663	188,000	460,000
1971	650	197,000	460,000
1973	636	207,000	647,000
1975	617	204,000	519,000
1977	600	229,000	598,000
1979	589	248,000	808,000
1980	592	263,000	678,000
1981	589	266,000	784,000
1982	578	288,000	851,000
1983	582	305,000	926,000
1984	563	316,000	909,000
1985	577	345,000	829,000
1986	573	411,000	997,000

Source: ND Grain Dealers Association, (1987); Dennis C. Ogg and Linda K. Schuster, (1986-87); and North Dakota Board of Railroad Commissioners (1916).

Similar circumstances exist in other Northern Great Plains states. South Dakota reports a current grain elevator population of 390, down from 1,092 in 1922. Minnesota has also experienced reductions in elevator numbers, currently 830 and down from over 1,200 in 1945. Montana has faced a similar decline, having 162 public warehouses in 1984.[1] Concurrent with reductions in elevator numbers has been a steady increase in the average storage capacity of elevators, as well as increases in average volume handled at each house.

Major structural changes in the grain elevator industry have been induced by competitive pressures from within the industry itself, and by regulatory and marketing considerations exterior, yet peripheral, to the grain elevators themselves (Wilson, et.al. 1984). Both of these phenomenon have contributed to growth in grain elevator size and volume handled, but also have brought about a reduction in number of firms.

The first of these competitive pressures has been the incentive to expand because of the economics to be gained from high throughput. As the volume handled at an elevator increases, average fixed cost (AFC) and average total cost (ATC) can be expected to decrease. This occurs because of the high proportion of fixed costs experienced by elevator operations. At an annual volume handled of 400,000 bushel, an ATC of 16 cents per bushel was experienced by North Dakota country elevators (Chase, et. al.

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[1]Personal contact with respective Minnesota and South Dakota state grain elevator trade associations, and the "Montana Directory of Commodity Dealers and Public Warehouseman, 1983-84."

1983). When volume increased to 1.1 million bushels, ATC decreased to 12 cents per bushel, attributed almost entirely to a decrease in average fixed cost. Similar reductions in per bushel costs were experienced in operation of new subterminal grain elevator facilities (Chase and Helgeson, 1983).

The second phenomenon which has contributed to elevator number reductions, size increases, and shifts in ownership structure is the recent changes in the transportation environment, particularly railroad rate structures. Although rate reductions for multi-car consignments have been in effect for many years in some grain producing states, they are relatively new to the northern Great Plains. In 1980, the Burlington Northern Railroad introduced the first of several multiple car rail rates for western North Dakota, Montana, and western South Dakota for commodities to Pacific Northwest (PNW) destinations. Several months later similar rates were introduced from the eastern Dakotas and Minnesota to the terminal markets of Duluth/Superior and Minneapolis/St. Paul (Griffin and Mielke, 1982). The implementation of these rates helped to propagate the most significant changes and rapid **rate** of change in the industry structure since the advent of price competition from motor carrier grain transport.

An additional change in the transportation environment has been the abandonment of unprofitable rail line segments. Grain producing regions of the northern Great Plains are inhabited by an inordinate share of "stub-end" branch lines, particularly in

North Dakota. Many of these branch lines have been identified as candidates for potential abandonment or have already been subject to a loss of rail service. Due to the heavy dependence of grain elevators on rail service for price competitive transportation and availability of transport capacity, loss of this service can lead to a severe competitive disadvantage for affected grain elevators. The ability of a grain elevator to remain price competitive without rail service is certainly questionable (Kuntz and Walton, 1985).

A number of developments have taken place as a result of these competitive pressures. First, many high-throughput "subterminal" elevators[2] have been newly constructed. Also, many more existing country elevators have upgraded their facilities to accommodate trainload shipments. In North Dakota alone, the number of subterminal elevators grew from virtually zero in 1980 to over 100 in 1986 (Table 2).

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[2]For purposes of this study, a subterminal elevator will be defined as one which is capable of accessing the rate savings associated with loading 24-27 car or 50-54 car trains. Specific consignment sizes for the "multi-car" (24-27 cars) or "trainload" (50-54 car) shipments vary among regions, railroads and commodities, however for purposes of this study the trainload shipment and multi-car shipments will be referred to as 52 and 26 car shipments, respectively. Both shipment sizes are commonly referred to (although somewhat incorrectly) as "unit train" shipments.

TABLE 2. NUMBER OF SUBTERMINAL ELEVATORS SHIPPING 24-27 OR 50-54 CAR TRAINS, NORTH DAKOTA, 1980-86.

Year	Number of Subterminal Elevators
1980	0
1981	52
1982	63
1983	71
1984	106
1985	86
1986	123

Source: North Dakota Public Service Commission.

Changes in the ownership structure of country grain elevators have occurred as well as the manner in which farmers and local elevators market their grain. Consolidation of smaller firms into a larger unit has become a common practice. Purchases of neighboring firms, mergers, and sales of grain to neighboring trainload shippers have also become commonplace. These have all led to a reorganization of local and regional grain shipment patterns away from the traditional farm-to-country elevator-to-terminal market movement.

One problem arising from this push for high throughput and utilization of trainload rates is that of over-capacity in elevation and over-investment in new facilities. Given that a finite quantity of grain is produced and marketed from the region, more and larger elevators will either have to split this production among themselves or capture additional grain from surrounding competitors. Not all elevators can upgrade or construct new facilities and expect to handle enough grain to

economically justify the investment. Hence, the problem arises as to where will subterminals be located, how large of a trade area will they serve, and what will happen to those elevators who do not or cannot invest to become a unit train shipper.

An apparent popular alternative for these elevators has been to become part of what has been termed a "subterminal/satellite" elevator system. Under this type of organization, grain is transshipped through the local country elevator to the subterminal for subsequent reshipment, presumably in unit trains. The participating elevators are generally reorganized as a new local cooperative, operating under a similar although larger organizational structure as each had individually before the consolidation.

This formal cooperative arrangement among country elevators is the primary focus of this study. In order to aid country elevator management and patrons in adjusting to the changes in the grain marketing system, an evaluation of this new marketing organization is necessary. Many country elevator managers and owners are still in the process of changing their operations to fit the changes taking place in the system.

STUDY OBJECTIVES

The general objective of this study is to provide a descriptive analysis of the subterminal/satellite form of organization and an evaluation of the advantages and

disadvantages of reorganizing local country elevators into this type of system. Specific objectives are:

1. To determine from a cooperative management viewpoint an overview of subterminal/satellite organization and operations, and the advantages and disadvantages of a subterminal/satellite cooperative organization.
2. To identify changes which can be expected to take place at the local country elevator after cooperative merger regarding grain handling and service to cooperative patrons.
3. To identify patron attitudes toward this new form of cooperative organization regarding grain handling and service.

STUDY PROCEDURES

The general procedure utilized to analyze the subterminal/satellite elevator system was a survey consisting of a combination of personal interviews, telephone interviews, and mail surveys. Three levels of nine different subterminal/satellite elevator cooperatives were analyzed including the general manager, local elevator (substation) managers, and cooperative patrons.

An overview of cooperative organization and operation was gained via personal interviews with the general managers of the nine participating cooperatives. The general managers were asked to describe their cooperative's organizational and operating characteristics to obtain a broader managerial perspective of this type of cooperative. Second, managers of each of the cooperatives' substations were interviewed by telephone and asked to describe how their operation had changed since merger with surrounding stations, what types of services were offered to

patrons, and specific information regarding capacity, employment, etc. Finally, a mail survey of cooperative patrons was conducted whereby patrons were asked to evaluate their cooperative before and after the merger regarding quality of service, types of services offered, etc. Copies of each of the three questionnaires are presented in Appendixes A, B and C, respectively. Specifics regarding each survey will be given in each of the three respective sections of this report.

ORGANIZATION OF THE REMAINDER OF THIS REPORT

The remainder of this report is organized into six sections. First, a general description of a typical subterminal/satellite operation is given. Cooperatives included in the project are introduced and described in the second section. Third, results of the co-op general manager personal interviews are presented. Characteristics such as initial co-op formation, organizational structure, and operational detail are described in this section. Fourth, results of the telephone survey of satellite (substation) managers are presented. This portion of the study focuses on changes that have taken place at the local substation since joining the larger co-op. Fifth, patrons of the cooperative were asked to evaluate their organization's quality of services, and what they felt were the advantages and disadvantages of the co-op re-structuring. Finally, a summary and general evaluation of the new type of cooperative organization is presented.

STRUCTURE OF SUBTERMINAL/SATELLITE COOPERATIVES

Consolidation of several local country elevators into a single cooperative organization has occurred more rapidly in recent years in the northern Great Plains. Although many of these cooperatives are relatively new, several similarities exist in their organizational and operational characteristics.

The initial impetus for forming this type of cooperative is generally in the form of some competitive pressure exerted on the individual local elevators. For example, price competition from a neighboring competitor who may be able to load unit trains may be one incentive for several local co-ops to consolidate and become unit train shippers collectively.

A typical operational structure for the subterminal/ satellite organization is shown in Figure 1.

The characteristic most exclusive to the subterminal/ satellite form of organization is the **transshipment** of grain from the local elevator (substation or satellite) to the main shipping station (subterminal). As noted earlier in this report, the general pattern of grain flow is as follows:

1. Farmers deliver grain to the substations,
2. Grain is stored, blended, dried or otherwise conditioned at the substation,
3. The cooperative trucks grain from the substation to the subterminal (either with owned or hired trucks),
4. Grain may be further conditioned at the subterminal (particularly blending),
5. Grain is loaded onto rail cars for unit train shipment or onto trucks for shipment to terminal markets.

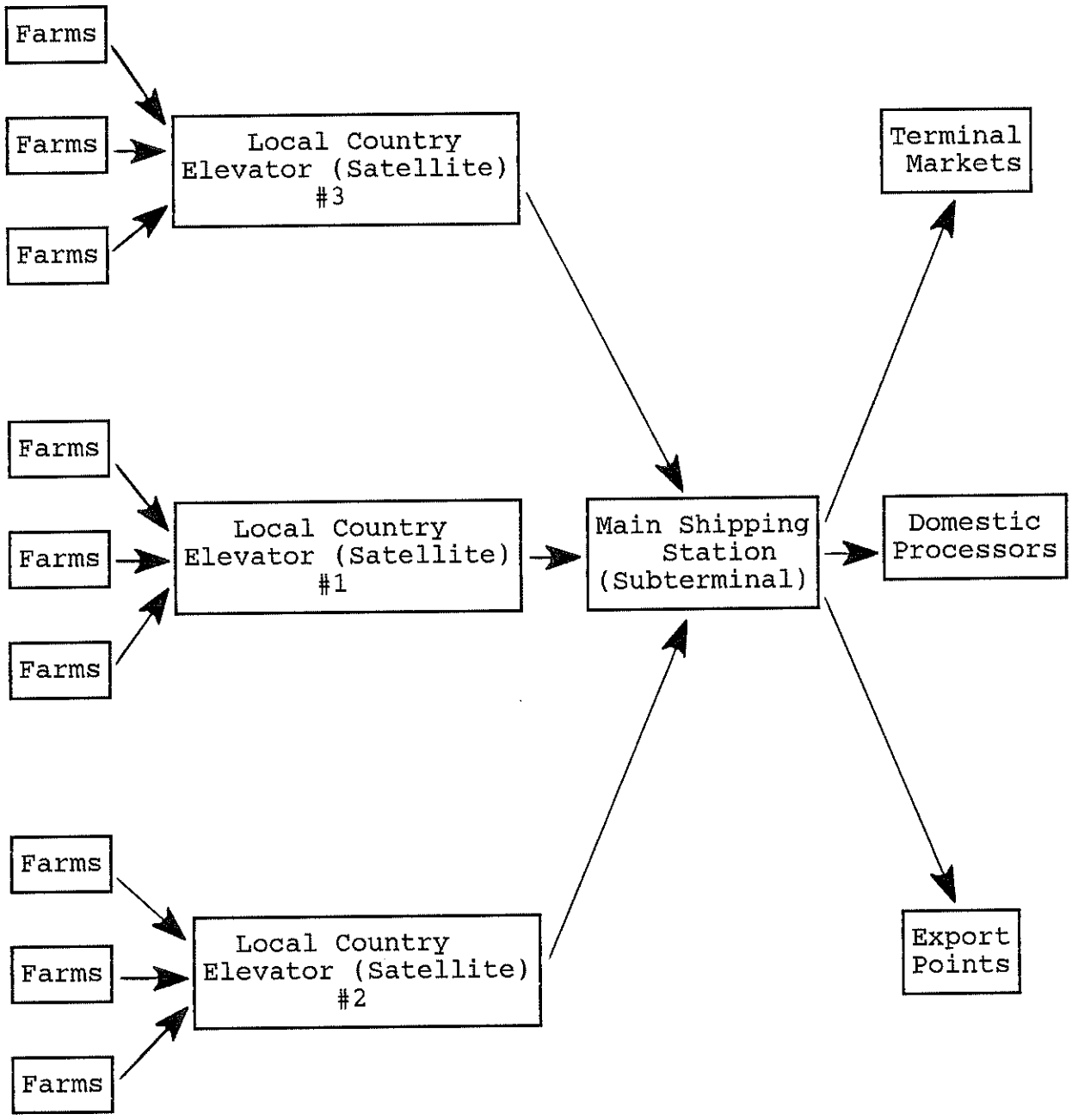


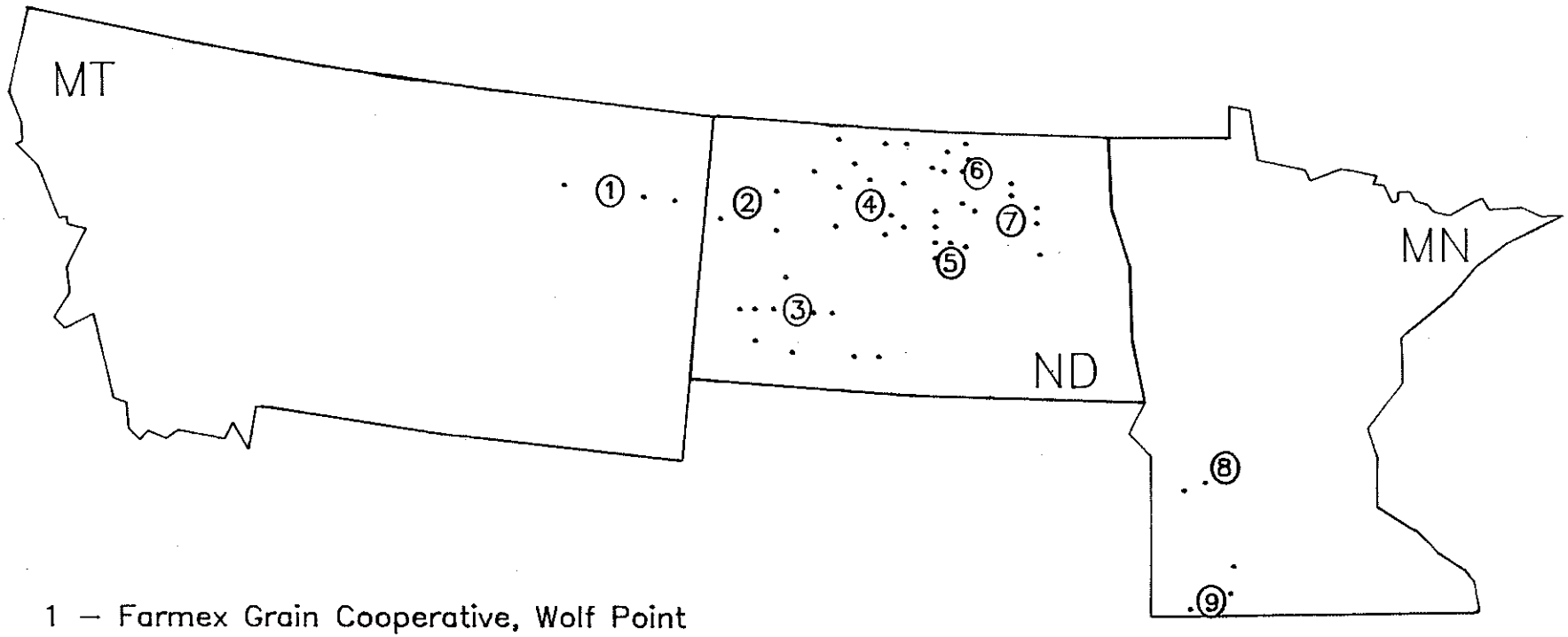
FIGURE 1. Model of Country Grain Marketing Under the Subterminal/Satellite Elevator Organization.

The size and scope of these cooperatives varies tremendously across the northern Great Plains states. One cooperative in North Dakota has 13 local substations, two million bushels of storage at the subterminal, and over 4.5 million bushels of total storage capacity at all stations. This same cooperative serves over 4,000 farmer patrons. These larger cooperatives cover a large geographic area and ship millions of bushels of grain each year. Several smaller scale operations also exist. One company has actually constructed an open pit facility with a conveyor belt for rail car loading. Grain is trucked from surrounding elevators and unloaded into a pit for immediate loading into a unit train. These facilities possess no storage, and are unable to condition grain. Local elevators selling grain to this facility perform all conditioning and storage functions.

COOPERATIVES PARTICIPATING IN THE STUDY

Nine farmer-owned cooperatives were selected for interviews for this study. These co-ops are located in North Dakota, Minnesota, and Montana. Locations of each cooperative's main subterminal and substations are presented in Figure 2. Six of the cooperatives are located in North Dakota, two in Minnesota, and one in Montana. It should be noted that these co-ops represent a wide geographic area, encompass thousands of patrons and handle millions of bushels of grain each year. However they are only a few of many companies involved in a variety of cooperative shipping arrangements throughout the Upper Midwest.

The nine cooperatives included in this report vary in terms of grain volume, patrons, number of substations and other measures. Characteristics of the individual cooperatives are presented in Table 3. Probably the most significant variance among the cooperatives is in subterminal storage capacity, ranging from 110,000 to 2.0 million bushels. Number of patrons also varies among co-ops, ranging from 425 to over 4000. The number of substations varied from 3 to 13. These data give an indication of the variety in the size and scope of these types of operations, as well as the rapid growth of some of the individual firms.



1 – Farmex Grain Cooperative, Wolf Point
2 – Northwest Grain Cooperative, Williston
3 – Southwest Grain Cooperative, Gladstone
4 – Minot Farmers Union Elevator, Minot
5 – Fessenden Cooperative Association, Fessenden
6 – North Central Grain Cooperative, Egeland
7 – Lake Region Grain Cooperative, Devils Lake
8 – Western Consolidated Cooperative, Danvers
9 – Consolidated Cooperative, Worthington

Each dot represents a satellite elevator.

FIGURE 2. Locations of Study Cooperatives' Subterminals and Substations.

TABLE 3. SELECTED CHARACTERISTICS OF NINE COOPERATIVES INCLUDED IN STUDY.

Cooperative	Storage Capacity		Number of Patrons	Number of Substations	Year Consolidated
	Subterminal	All Substations			
	-------bushels-------				
1) North Central Grain Co-op	110,000	1,220,000	1,200	6	1984
2) Southwest Grain Co-op	450,000	2,423,000	4,061	11	1981
3) Lake Region Grain Co-op	340,000	917,000	1,150	8	1985
4) Farmex Grain Co-op	255,000	360,000	650	3	1982
5) Consolidated Co-ops	650,000	1,543,000	1,800	4	1968
6) Northwest Grain Co-op	757,000	695,000	1,500	3	1982
7) Fessenden Co-op Assn	800,000	1,034,000	1,500	6	1983
8) Western Consolidated Co-ops	0	2,945,000	425	3	1983
9) Minot Farmers Union	2,000,000	2,514,000	4,000	13	1981

COOPERATIVE GENERAL MANAGER SURVEY RESULTS

The first step in analyzing the subterminal/satellite organization was a personal interview of the general manager of each of the nine cooperatives. Each interview was conducted at the cooperative headquarters and lasted between two and four hours. Discussion topics included in the interviews were initial co-op formation, financing, organizational structure, operational characteristics, physical plant characteristics, substation activities, and a qualitative analysis of cooperative performance by the general manager.

COOPERATIVE FORMATION

Most of the nine cooperatives included in this study were formed after 1980, very likely as a result of unit train rate implementation in the Upper Midwest. The initiative to form some kind of consolidated organization came generally from both the existing co-op management and boards of directors of individual cooperatives. The manager of the oldest co-op was unaware of organizational details due to the age of the company. On the average the cooperatives spent about 18 months in the organizational stage, between initial discussions of merger and the time of formal co-op organization. The time between formal co-op organization and commencement of business ranged between zero and 18 months, with an average of six months start-up time.

All of the cooperatives formed some type of organizational committee prior to actual consolidation. This committee was

charged with investigating all aspects of a potential merger of local co-ops. The make-up of this committee varied only slightly among cooperatives. For all but one of the firms, this committee consisted of the entire board of directors from each of the affected local co-ops. For the other co-op, the tentative new organization involved several individual firms, so to make the committee more manageable, either one or two board members plus their manager were representatives on the committee.

Two types of merger arrangements generally occurred among the local cooperatives. The most common merger arrangement was a simple consolidation of assets, liabilities, accounts, etc. into the new, larger organization. Forty-five of the 57 local cooperatives were consolidated under this type of agreement. Eleven of the local firms were purchased by the newly consolidated cooperatives. These were outright purchases from another company, rather than a merger. In most cases the purchase was from Harvest States Cooperatives for one of their company-owned line elevators. Most of the local cooperatives were doing business independently prior to the merging with surrounding firms. Twenty-nine of the firms had no former arrangements with other firms prior to merging. For the remaining local co-ops, a variety of cooperative agreements were in place prior to forming the larger organization. As mentioned previously, several of the stations were Harvest States Cooperatives line elevators, actually owned and operated by that company. Some of the local firms were members of a multi-plant co-op, usually two or three plant firms with no joint-

shipping agreements or unit train capabilities. Some of the firms did have cooperative multi-car train loading agreements in place, but on a smaller scale than the new larger cooperatives.

In most of the cooperatives included in this report the local elevators merged simultaneously into the larger organization. Fourteen of the stations, however, were brought into the larger co-ops after the initial mergers. Reasons for these local elevators merging after the initial consolidation varied, but generally centered around the competitive factors created by the new, larger neighboring cooperative. Specifically, these stations decided to join forces with the larger co-ops for the following reasons:

1. To gain access to rail rate savings associated with multi-car and trainload shipments.
2. To improve their financial condition through consolidation of resources.
3. To improve overall services offered to patrons.
4. To avoid duplication of services in the region.
5. To improve the general competitive position of the local co-op.

Several of the local cooperatives who joined the larger organizations after the initial merger were forced to merge under different conditions than those involved in the initial consolidation. The most prevalent difference involved the structure of the board of directors. A common organizational thread among the larger co-ops is that each local substation has one member representative on the co-op board of directors. Many of the local co-ops joining the organization subsequent to the initial merger were not granted a seat on the board. (Structure of management is discussed in more detail in a later section.)

Also, patrons of several of the co-ops were forced to accept a reduction in their local co-op equity prior to merger. This was generally due to the financial condition of the local co-op or condition of its physical facilities. Many of the co-ops involved in the initial mergers were able to transfer their equity intact to the new organization, as were some of the co-ops joining later. Some requirements were necessary for some initial consolidations as well. Some equity reductions were required, as well as some cash up front for specific physical facilities required locally. In one case, local debentures were sold as one source of capital and to fulfill a requirement of one creditor.

Organizational costs of forming the new cooperative were generally small for most of the firms. Total costs of organization averaged approximately $17,000. Specific costs incurred by the co-ops in organization are presented in Table 4. Five of the firms had conducted some type of formal feasibility study prior to start-up of operations. Only two of these, however, actually hired a private contractor to perform the study. The remaining three were conducted either by one of the organization's creditors (Bank for Cooperatives) or by Harvest States Cooperatives. The only other primary organizational cost incurred by the co-ops were legal fees (included in the "other" category in Table 4).

TABLE 4. ORGANIZATIONAL COSTS INCURRED BY SUBTERMINAL/ SATELLITE COOPERATIVES.

Cost Item	Average Expenditure
Feasibility Study	$ 7,250
Engineering Costs	1,250
Travel/Incidentals	1,300
Other	7,100
Total	$16,900

One critical decision in formation of a large cooperative shipping organization is location of the main shipping station (subterminal). Because of the cost of shipping grain by any mode and the need for cost minimization in the competitive country grain business, location of the subterminal may be a key factor in success of the organization. Cooperative general managers cited several considerations in locating their subterminal:

1. Access to more than one railroad
2. Central location in trade area
3. Room to expand trackage and plant
4. Access to suitable road system
5. Proper topography for track construction
6. Location relative to other facilities (members' and competitors' facilities)
7. Main line rail access
8. Truck hub center
9. Co-loading with existing facilities

Not all of the co-ops participating in the study were required to build new facilities for trainload shipments. Six of the co-ops, however, did build at least part of their main shipping station concurrent with formation of their cooperative. For the remaining co-ops, the decision as to where to locate the subterminal was predetermined.

For those building new facilities and having some choice as to where to locate the subterminal, three criteria were cited most often as influencing their location decision. Access to adequate rail facilities was cited as one critical factor. This included access to main line or high quality branch line service, and access to two competing railroad companies. Access to quality trackage by competing railroads was rated highly because of the potential to more favorably negotiate rail rates. Also considered important to subterminal location was some site central to the expected trade area. This central location would minimize local trucking costs as well as serve local patrons more equitably. Choosing a site with sufficient space to expand facilities was the third criteria cited frequently by co-op managers. Both storage and office space can occupy significant square footage, however the most important space requirement is for rail trackage. A 52 car train will occupy approximately 3,000 feet of track. Adding space to spot empty cars and room to manuever cars can require 6,000 to 8,000 feet of trackage for a trainloading elevator. It is important to allow adequate space for track, especially if expansion is within the planning horizon of the cooperative.

There were several reasons that the participating cooperatives considered the subterminal/satellite concept initially, primarily focusing on transportation. Reasons cited by co-op managers for organizing in this type of business structure are ranked in Table 5.

TABLE 5. REASONS CITED FOR ORGANIZING UNDER SUBTERMINAL/ SATELLITE STRUCTURE.

Rank	Reason for Subterminal/Satellite Organization
1	Gain access to trainload/multi-car rail rate savings
2	Insufficient volume for each station to operate profitably alone
3	Potential/actual loss of rail service through abandonment
4	Poor rail service
5	Reaction to competition from other elevators
6	Reliable shipping capacity needed
7	Age of existing facilities

The incentives for formation of this type of cooperative were primarily related to rail transportation. Access to rail trainload rate savings, rail line abandonment, and generally poor rail service were given as three of the top four reasons for organizing under the subterminal/satellite system. These reasons given by co-op managers are a further indication of the impact that the changing rail transportation environment is having on the country grain marketing system.

The desire to form this type of cooperative can come from several sources, but most of the nine consolidated cooperatives were formed because of the initiatives of the local boards of directors and managers. Two managers stated that the managers themselves were the initiators of the idea of consolidation, while at one co-op the board members were the first to support the merger. Five managers stated that the idea came jointly from board members and managers.

Although these co-ops have centralized management structures for handling day to day operations, each is governed by a member elected board of directors. This board directs general co-op policy and is responsible for long term planning and decision-making. After (and during) co-op consolidation, each organization was left with the decision to choose a board which would represent the needs and wants of the cooperative patrons.

The nine co-ops involved had an average of 8.9 members serving on the board of directors, ranging from 7 to 12. The board members were elected for three year terms in all cases except one, where four year terms were in effect. Board members can serve a maximum of three terms at six of the co-ops; two had no limit on number of terms.

Each of the cooperatives had set up some type of system whereby the various regions in the co-op trade area were represented on the board of directors. A variety of specific plans were followed to accomplish this objective, however they generally attempted to represent each substation's trade area on the board. Some variations included:

1. One board member from each substation and one additional member elected at large.
2. Two board members from larger substations (higher volume or more patrons) and one elected from smaller substations.
3. One board member elected from each substation and one each from larger "regions" identified by the co-op.

Each of these arrangements were most often detailed in the cooperative by-laws, however in some cases the territorial or

substation representatives were followed only by virtue of an informal agreement.

Relatively few other organizational problems were identified by the cooperative general managers. In several cases the managers indicated that reorganization appeared to be a very attractive operational and financial alternative for the local co-ops, so very little resistance was met. However, three areas of concern did arise for some of the co-ops:

1. Some patrons were not receptive to the idea of the larger, more centralized organization. They felt that loss of local control would not be beneficial.
2. Getting the patrons, board of directors and managers from several organizations to work together and form a decision-making group of manageable size was sometimes difficult.
3. For some of the local stations where equity reductions were necessary, patrons were less receptive to merger agreements.

COOPERATIVE FINANCING

One potentially critical factor in the success of these and other agribusiness firms is the availability and cost of capital. The sheer size and scope of operations of some of these cooperatives may necessitate a substantial capital requirement for physical plant, machinery, or working capital.

None of the participating cooperative general managers indicated that individual local co-ops had to provide initial cash or credit for the organization. No borrowing was required by any of the cooperatives to finance organizational costs, but eight of the nine indicated that financing for construction costs was necessary; the ninth firm did not require significant facility

expansion. Eight of the nine firms also borrowed regularly to finance working capital requirements.

Cooperative mangers were asked to describe what types of problems were encountered in obtaining credit for operations. None of the managers indicated that financing the consolidation had been a problem. In fact, some indicated that creditors were somewhat eager to be involved in the consolidation because of the creditors' financial interests in some of the individual local cooperatives.

A variety of types of financing packages were utilized by the cooperatives. Both long- and short-term credit were used on both fixed and variable interest rates. The Bank for Cooperatives was the most often cited creditor, however some co-ops also utilized local sources for financing including local banks and bond sales to local residents and patrons. Financing of some equipment by two of the cooperatives was under a lease-purchase agreement. These co-ops pay an annual lease cost and own the equipment at the end of the lease term.

COOPERATIVE ORGANIZATIONAL STUCTURE

Due to the substantial change in the overall organization, patrons and co-op employees may expect a considerably larger and different personnel structure after consolidation. Employees may be assigned to new areas and responsibilities of each person may change. Among the nine cooperatives included in the study, a similar organizational structure was noted for all the co-ops.

This general structure is presented in Figure 3. A description of this structure and variations are discussed below.

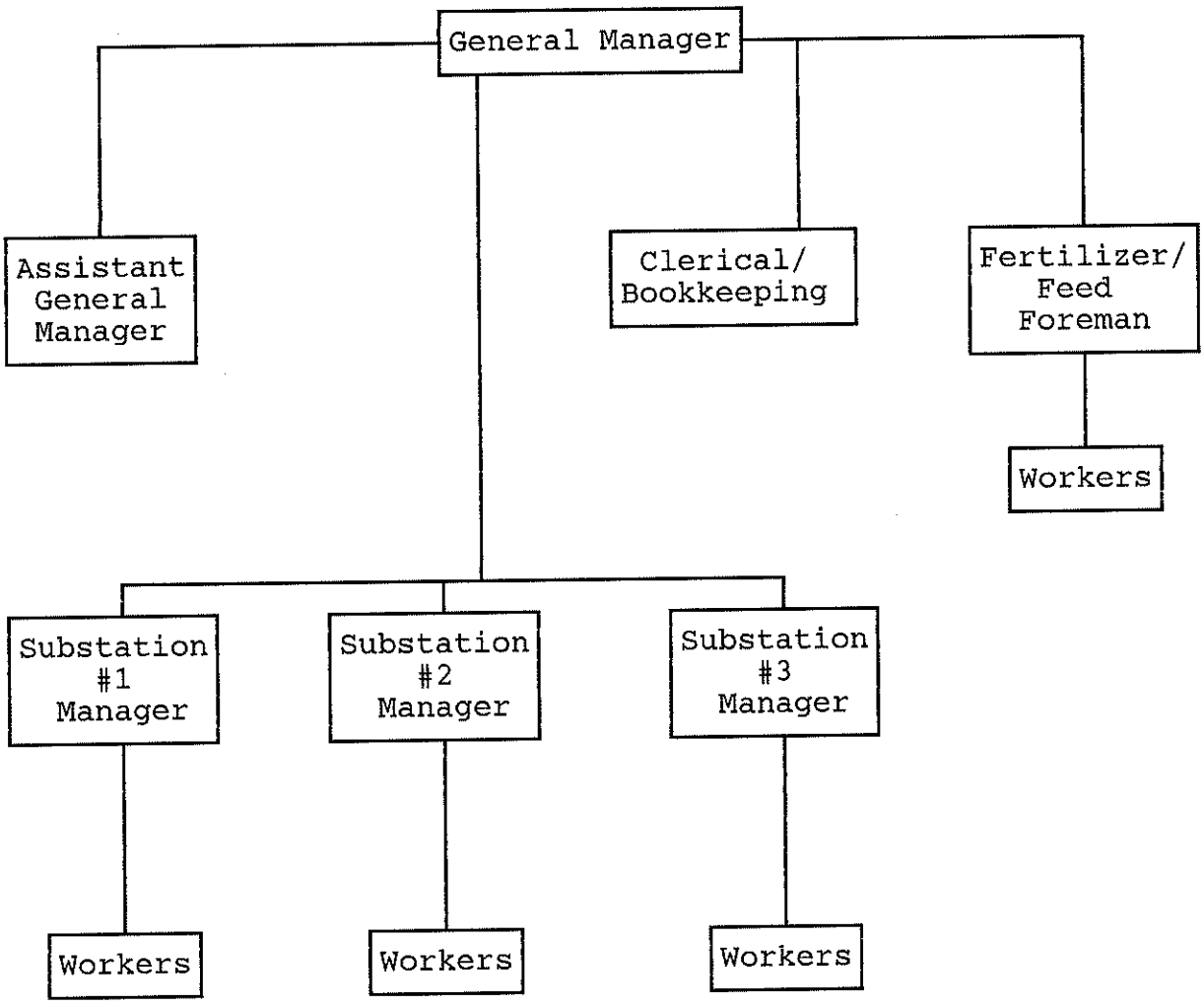


FIGURE 3. Typical Subterminal/Satellite Organizational Structure.

The general manager of each cooperative oversees all administrative details and operations of the firm. Specific general manager responsibilities include employee management (hiring, salaries, placement), overseeing all marketing activities including grain merchandising, dealing with some patron problems (usually on a more general basis), financing, capital improvements, dealing with the board of directors, and monitoring the profitability of the cooperative.

The general managers of the cooperatives were generally former employees of one of the member local co-ops. Six of the nine were hired from within the new organization, while three were hired from outside the cooperative. All of the nine managers had considerable experience in the grain elevator industry and grain merchandising. The average number of years of management experience was 18, ranging from 8 to 37.

All but one of the cooperatives had an assistant manager position where responsibilities mirrored closely those of the general manager. Assistant managers were generally charged with the following activities:

1. grain merchandising,
2. scheduling, loading and billing trains,
3. patron relations,
4. farmer supplies administration,
5. arranging for truck shipments,
6. plant foreman activities (at subterminal)
7. administrative activities in absence of general manager.

One of the cooperatives had moved to a departmentalized system of management rather than having one assistant manager. Other co-op

general managers had partially gone to the departmental form or had considered such a move.

The general manager and assistant manager handled all administrative activities with the assistance of clerical and accounting personnel. The manager and assistant manager were, in all cases, located at or near the subterminal itself, and could therefore oversee incoming and outgoing grain shipments. In addition to the management and clerical/bookkeeping staff at the subterminal, co-ops typically had other workers at the subterminal charged with unloading trucks, train loading, and other plant operations tasks.

As mentioned earlier in the report, the nine cooperatives had an average of six substations, ranging from three to thirteen. Some of the substations were actually loading trains, while others were used only for storage and therefore not even open at all times. The duties of the substation managers and number of employees therefore varied depending on the level and type of business activity at the station. Substation managers were generally in charge of all activities related to movement of grain into and out of their local station. These activities included receiving grain from farmers, blending and grading grain, maintaining the quality of grain inventory, servicing customer accounts and public relations with patrons, managing merchandise sales and customer services such as drying grain, maintenance and repair of the physical plant, some bookkeeping, and some authority

in personnel matters. None of the substation managers were given authority on merchandising or pricing grain.

Each of the cooperatives' subterminal or main offices also had clerical and bookkeeping employees who handled a variety of tasks including payments to patrons, all record keeping and accounting, patron relations, and other office management activities. Also, one cooperative had a full-time maintenance person who conducted repairs and maintenance on co-op physical plant facilities.

Most of the cooperatives were also required to hire additional part-time or temporary help during peak seasons such as harvest. Some of the co-ops also retained legal or accounting firms for professional assistance on an as-needed basis. Other employees hired by some of the co-ops included semi-drivers, fertilizer applicator drivers, and maintenance/repair personnel. Two of the co-ops also hired grain marketing/merchandising specialists.

Several of the co-ops had also acquired or developed merchandise sales or services programs administered by a separate department manager. The cooperatives sold primarily fertilizers, livestock feeds and agricultural chemicals. Other services performed included grain drying, cleaning, fertilizer application, and educational programs for patrons.

PHYSICAL CHARACTERISTICS OF THE SUBTERMINAL

All eight of the subterminal facilities of the co-ops included in the study had been constructed after 1975, with an average age of approximately five years. (One co-op did not require significant facilities expansion and utilized two of the participating local stations for loading trains.) Five of the co-ops had constructed their subterminal specifically in conjunction with consolidation into the larger organization, while three of the facilities existed before the mergers.

A considerable capital outlay was required for construction and upgrading of facilities by the co-ops. Seven of the nine co-ops were required to construct a new plant or significantly upgrade existing facilities to accommodate trainload shipments and inbound trucks from substations. The two remaining co-ops did relatively minor upgrade work on facilities prior to start-up, and were required to spend less than $250,000 each to begin operations. The seven newly constructed or upgraded facilities required an average of $2.0 million invested in buildings, machinery, rail trackage and land in order to meet patron and management needs. The main elevator structure was the most expensive component, averaging approximately one million dollars and ranging from $600,000 to $1.4 million. Elevator machinery and rail trackage were the other major cost components, averaging $573,000 and $383,000 respectively. Averages of these and other incidental costs incurred by the co-ops in facility construction are presented in Table 6.

TABLE 6. SUBTERMINAL FACILITY CONSTRUCTION COSTS, BY GENERAL COST CATEGORY, SEVEN UPPER MIDWEST COOPERATIVES.[1]

Cost Category	Average Acquisition or Construction Cost
	--------dollars-------
Main Elevator Structure/Driveway	1,000,000
Elevator Machinery	573,000
Rail Trackage	383,000
Land	31,000
Site Preparation	50,000
Other	17,000
Total	2,054,000

[1]Facilities were constructed primarily between 1981 and 1985. These costs are estimates provided by co-op managers, and are not adjusted for inflation. For detailed itemized economic-engineering estimates of subterminal construction costs see Chase and Helgeson (1983).

Most of the cooperatives' subterminal facilities consisted of a high concentration of upright concrete storage. Two of the stations had no concrete upright storage but the remaining seven had an average of 477,000 bushels, ranging from 255,000 to 1.2 million bushels. Five of the co-ops had additional storage in upright steel or cribbed (wood) bins or in flat (quonset-type) bins. This additional storage averaged 300,000 bushels, ranging in capacity from 50,000 to 800,000 bushels. The average total storage capacity of the eight co-ops with subterminal storage was 630,000 bushels, ranging from 110,000 to 2,000,000 bushels.

In order to receive, store, and load out grain effectively, each of the subterminals possessed some combination of large and small bins in the structure. The sizes and number of storage and working bins at the subterminals is presented in Table 7. As shown in the table, the average bin configuration consisted of about four larger bins of over 50,000 bushels capacity and two medium capacity bins (10,000-49,000 bushels) for storage of higher volume commodities. These larger bins are necessary to store the high volume of grain necessary to load 26 or 52 car trains. The co-ops also have a larger number of smaller bins for blending purposes. These smaller bins are desirable because of the specific grade and quality requirements of trainload shipping. The larger number of smaller bins allows the elevator manager to load precisely the grain quality desired by blending grain from several small bins with larger bins to obtain the specified quality most economically. As shown in Table 7, the eight co-ops with storage at the loading site had an average of 22 bins with storage capacity less than 10,000 bushels.

TABLE 7. NUMBER OF STORAGE BINS AT PARTICIPATING SUBTERMINALS, BY BIN CAPACITY.

Bin Capacity	Number of Bins
----bushels----	
0 - 9,000	22.2
10,000 - 49,000	2.5
50,000 & over	4.2

The current bin configuration at the co-ops was deemed acceptable for storage, blending and shipping requirements by five of the nine participating co-ops. The remaining four expressed dissatisfaction with their bin configuration and their ability to effectively receive grain from satellite stations and load trains. Almost all managers, however, expressed some need for additional storage capacity.

To effectively receive grain from farmers and co-op substations and to load trains quickly, several characteristics may be necessary. These are related to receiving/loading machinery speed, rail car storage capacity, rail car moving capabilities and truck/rail car loading capacity. The nine co-ops included in the study had a variety of types and capacity of equipment for their loading and unloading operations.

Harvest period rush and the need to truck grain from substations to fill a train can cause periodic peaks in inbound truck shipments. Farm trucks and larger semi-trucks bringing grain into the subterminal can cause congestion problems if the facility is not properly equipped for receiving large volumes of grain quickly. High capacity "legs"[3] and sufficient storage capacity can alleviate these problems. The nine co-ops could unload a farm truck in an average of 4.3 minutes, or unload a semi-truck in an average of 6.5 minutes. In spite of these fast unloading times, several of the co-ops had experienced problems

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[3]"Leg" is the term used referring to the vertical elevating machinery which augers grain from the elevator driveway (dump site) upward into overhead and larger bins.

with truck waiting lines during peak activity periods such as harvest time. None of these were deemed serious since trucks did not have to wait for long, but even with fast machinery, waiting lines of up to one hour had been experienced. Each co-op had an average of two receiving legs (truck unloading) with an average capacity of 10,000 bushels per hour each. Several of the plants utilized the same machinery (legs) for load-out (train-loading) as for unloading. However, the average capacity of load out machinery was higher at 13,000 bushels per hour; each co-op had an average of 1.5 load-out legs. Also, each co-op had equally fast truck loading capacity, usually by gravity feed, of 13,000 bushels per hour. Only two of the co-op managers expressed dissatisfaction with their loading/unloading machinery--both had less than 15,000 bph **total** leg capacity. All of the nine co-ops, however, were equipped with sufficient capacity to load trains within the time allotted to achieve trainload or multi-car rate savings.

Once rail cars are spotted at the subterminal's rail siding, the elevator is then responsible for moving the cars for loading. Elevator managers used a variety of methods for moving rail cars, but the most common was a trackmobile purchased specifically for this purpose. Seven of the nine co-ops owned a trackmobile, and had paid between $56,000 and $110,000 for used and new units between 1980 and 1984. According to managers, these machines can move up to 20 loaded cars at one time. One of these seven also owned a four-wheel-drive tractor for car-moving at their second

train-loading station. The remaining two stations used either a payloader or a tractor for car-moving. Some subterminal elevators have purchased their own railroad locomotive for car-moving at prices competitive with trackmobiles or other machines.

The amount of rail trackage and therefore the number of cars able to be stored at an elevator is one of the primary factors in its ability to utilize multi-car or trainload shipments. Eight of the nine co-ops included in the study were able to load 50-54 car shipments, while the ninth utilized 26 car shipments. Each subterminal loading 50-54 cars possessed enough rail trackage to load this many cars, although four relied on the serving railroad to split the train while dropping empty cars at the elevator. None were assessed any charges for this service, however. The trainloading elevators (50-54 cars) had an average of 6,040 feet of track (ranging from 3,200 to 8,000 feet), while the 26 car loading station possessed 1,550 feet of rail siding.

Overall the co-op managers rated their physical facilities as very capable, yet eight of the nine managers wished for at least some modifications or additions. Additional storage capacity was the most frequent response when managers were asked what modifications would make their operation run more smoothly. Better scale equipment was also mentioned by managers, as was more leg capacity and expanded driveway unloading space.

SUBTERMINAL COOPERATIVE OPERATIONAL CHARACTERISTICS

Pricing Practices

One key decision when forming a subterminal/satellite cooperative is how to price grain to farmers at the satellite stations compared to the subterminal. Given the extra cost of trucking grain from outlying stations to the subterminal, one common method is to offer a base or bench mark price at the subterminal, and deduct truck freight to the substations to arrive at each substation's respective price to farmers. However, other philosophies occasionally prevail.

The most common pricing mechanism used by the nine co-ops included in this study was:

Subterminal price - truck freight = Substation price

Some variations on this method also were used. Seven of the nine co-op managers stated that they used the strict pricing mechanism above, with some minor adjustments. One of the co-ops charged 75% of the truck cost to the substation, and the cooperative absorbed the remaining 25 percent. Two of these seven co-ops had a second station which could load or partially load unit trains, and some adjustment on price was made for their ability to load trains.

A similar pricing system was used by the remaining two cooperatives. Rather than explicitly deducting truck cost to the substations, the co-ops set a flat price at all substations and offered a per bushel incentive to deliver to the trainloading

stations. The net effect of this pricing policy is very similar to the previous one--outlying substations prices are "adjusted" for truck freight due to their distance from the loading station, and farmers have the choice of delivering either to a substation or to the subterminal. The amount of the incentive given for delivery to the subterminal and the farmers distance from the loading station are the key variables in the producer's decision. One difference is noted with this pricing policy, however. No distinction is made for differences in distance to the subterminal. The two co-ops practicing this policy, however, were in primarily high-yielding corn and soybean producing regions and their trade areas were small relative to co-ops located in the wheat producing areas.

Several of the cooperative managers altered their pricing policies occasionally for primarily competitive reasons. Three of the managers stated that if competitors were affecting their ability to attract grain at a substation, the price was adjusted at that station to meet the competition. Also, one manager stated that prices were sometimes adjusted at particular stations if grain from that area was needed to fill a train.

Farmer Deliveries

All nine of the cooperatives had established policies whereby farmers were allowed to deliver grain directly to the subterminal. This was especially true for the more high volume commodities such as wheat, or corn and soybeans at Minnesota cooperatives. Some of

the managers did express some dismay at some of the problems caused by small truck delivery, such as waiting lines and not enough storage space for the variety of grains and qualities delivered by farmers. The low volume commodities such as flax and rye were not handled at the subterminal, but were shipped through one or more of the substations. Also, some commodities were segregated between houses to avoid contamination.[4]

Non-Grain Cooperative Services

As is the case for most country elevators in the Upper Midwest, all nine of the co-ops included in this study provided services for patrons other than grain merchandising. Providing these services such as sales of farm inputs and grain conditioning is administered by the co-op's central offices and physically conducted either from the subterminal or substation(s).

The highest volume product provided by the subterminal cooperatives and other country elevators is very likely fertilizer. Large quantities of dry and liquid fertilizer are used by farmers each year, and elevators often act as dealers for dry fertilizer and anhydrous ammonia (nitrogen). Eight of the nine co-ops included in this study provided fertilizer sales and services (such as fertilizer application) for their patrons.

Because of the differing size and scope of the subterminal co-ops, management used a variety of distribution programs to get

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[4]For example, mixing small quantities of sunflower with malting barley or milling durum can substantially reduce its quality and therefore value.

the fertilizer products to patrons. However, the most common pattern was to receive fertilizer by rail or truck at one or two of the co-op stations, then distribute to farmers from these stations by truck. Nineteen of the cooperatives' 55 substations provided fertilizer sales to farmers (Table 8).

TABLE 8. NUMBER OF COOPERATIVE SUBSTATIONS PROVIDING SPECIFIED SERVICES TO FARMER PATRONS.

Type of Service	Number of Co-op Substations Providing Service[1]
Seed Sales	38
Fertilizer Sales/Application	19
Ag Chemicals	21
Feed	39
Grain Drying	11
Grain Cleaning	48
Fuel	1
Other Farm Supplies	4

[1]The nine co-ops included in this study had a total of 55 substations. These data show the number of co-ops of this total which provided the particular service.

The co-ops provided several services to patrons other than fertilizer sales. As shown in Table 8, a large percentage of the substations provided seed for patrons, processed or sold feed for livestock, cleaned grain, and sold agricultural chemicals such as herbicides and insecticides. Other services included grain drying, fuel sales, and sales of other farm supplies.

Several of the cooperative general managers felt that they had achieved several advantages in farmer services because of the cooperative's size and centralized management. The primary

advantage cited was in volume purchases of materials. Because of the size of the co-op and number of patrons, management was able to negotiate better purchase prices on larger quantities of materials, especially fertilizer and agricultural chemicals. One of the co-ops had actually purchased dry fertilizer by the bargeload, thereby achieving substantial savings compared to traditional purchasing channels. Also, all but one of the co-op managers who felt they were able to achieve these savings stated that the individual local co-op stations were not able to get these same savings prior to merger.

Trucking Activities

Because of the huge grain volumes shipped among elevators at subterminal-satellite cooperatives, availability and utilization of trucking capacity is important to their successful operation. The nine cooperatives included in this study used a variety of trucks to transport grain from local stations to the subterminal. Two of the nine co-ops owned large semi-trucks and transported up to 95 percent of their substation grain with their own trucks. In addition, all but one of the co-ops owned smaller single or tandem axle trucks for use in their operations. The co-ops owned between one and nine of these smaller trucks, and used them more as utility vehicles than for actually transporting high volumes of grain. Some of these utility functions include transporting fertilizer to patrons or substations, shuttling feed to and from

the feed plant, or shipping seed from the cleaning house to storage bins.

The preponderance of grain shipped among co-op stations was done by truckers hired by the cooperatives. A combination of part-time and full time truckers were typically hired, and were normally independent owner-operators. Six of the nine co-ops hired at least one part-time trucker, and had between two percent and fifty percent of all substation shipments hauled by these part-time truckers. One co-op used approximately 125 part-time truckers to supplement its full time local hired fleet.

Most of the co-ops relied more heavily on full time owner-operators than part-time truckers. Seven of the nine co-ops had full-time hired truckers at their disposal. The co-ops used between 1 and 11 full time truckers, and used them for 50 to 100 percent of their intra-elevator movements.

The cooperatives generally used a similar policy when determining a price to charge for trucking grain from substations to the subterminal. Whether the trucks used were owned or hired, the co-op usually paid a fixed rate for each substation shipment, and normally set these rates at a level equal to about $0.90 to $1.00 per running mile. Two of the co-op managers did indicate that both truck rates and availability of trucks were seasonal, with the peak harvest demand putting upward pressure on rates. Also, the managers indicated that spring weight restrictions on some roads occasionally forced them to pay higher rates to local truckers.

Local truck rates paid by the co-ops for substation to subterminal shipments are presented in Figure 4. Rates are expressed in cents per bushel and are generally reflective of distance. The same rates expressed in dollars per running mile are presented in Figure 5. Rates (in dollars per running mile) were higher in the zero to 30 mile range, demonstrating higher loading/unloading costs, but were more stable at $0.90 to $1.00 per mile above 30 miles.

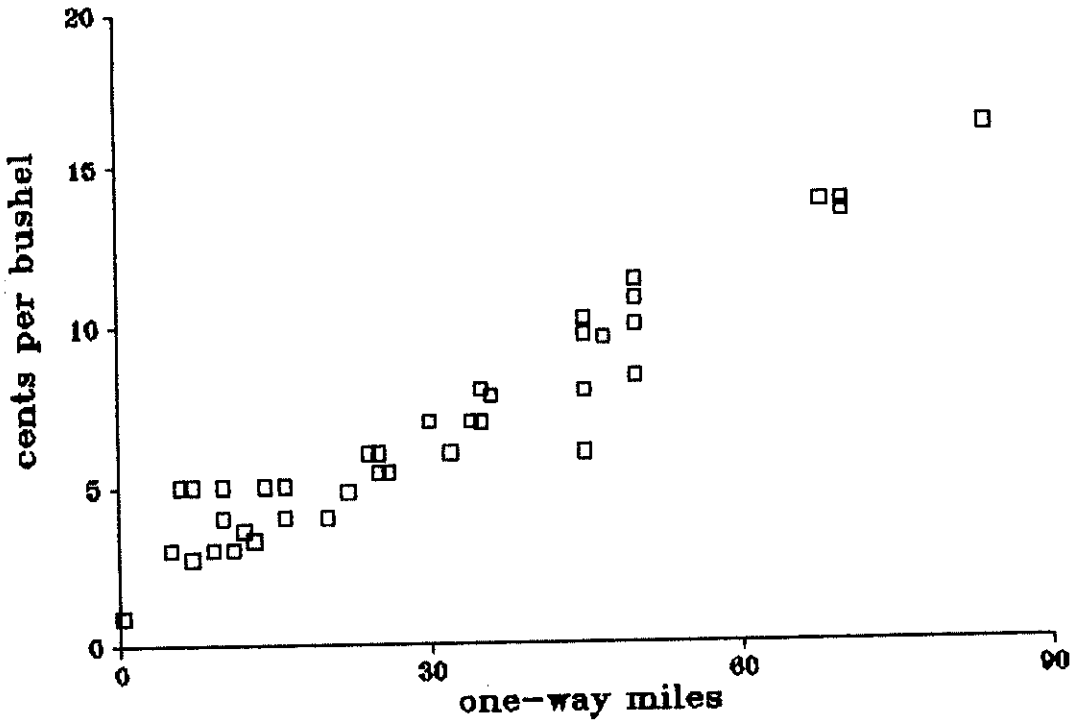

FIGURE 4. Local Truck Rates, Expressed in Cents per Bushel.

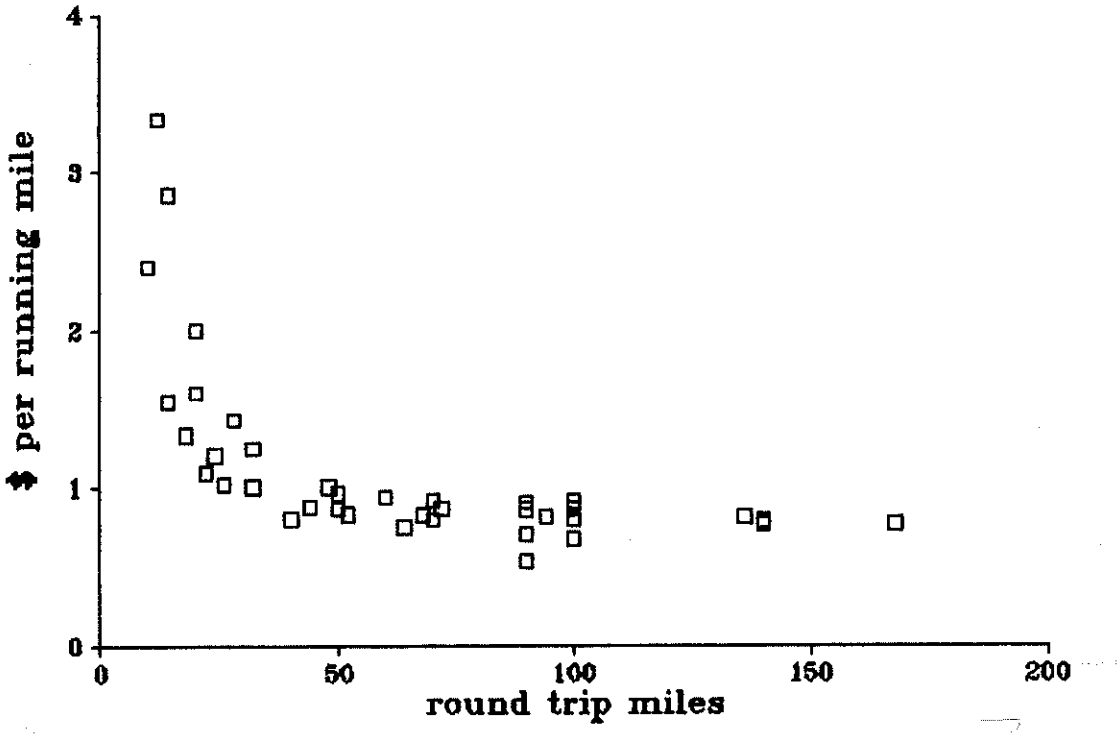

FIGURE 5. Local Truck Rates, Expressed in Dollars per Running Mile.

The nine cooperatives differed substantially in the proportion of their total annual volume that was delivered to the subterminal from outlying substations. One of the cooperatives received 99 percent of its annual volume from its substations, and only one percent directly delivered from farms. Another cooperative received only 25 percent of its volume from substations and 75 percent directly from farms. On average, the co-ops received approximately half of their grain from substations and half directly from farmers. In addition, some of the co-ops shipped grain directly from their substations to terminal markets. This movement was mostly by truck, but one co-op did ship 23 percent of its annual volume from substations by rail. Two co-ops

shipped 20 percent of their annual volume from substations to terminal market by truck. On average, however, less than 7 percent of total volume was trucked from substations to terminal markets, and less than 4 percent was railed from substations to terminal markets. The remainder was shipped through the subterminal.

QUALITATIVE EVALUATION OF SUBTERMINAL/SATELLITE COOPERATIVES

As a final part of the survey of cooperative general managers, several aspects of the operation were rated by the managers as to improvements or deterioration before and after merger of the individual cooperatives. Each manager was asked to rate the co-op's performance in several areas related to its operation, including blending opportunities, shipping capacity, negotiations with railroads and grain buyers, market opportunities, cost effectiveness through specialization, grain merchandising, and seasonality of shipments.

Positive Aspects of Subterminal/Satellite Organization

According to the cooperative general managers, the opportunities for blending were considerably greater under the new cooperative organization than before merger. All nine of the managers felt that at least some benefits accrued to the co-op because of blending different qualities of grains to achieve desired lots for sale. This was especially true at the co-ops handling hard wheat, durum wheat, and barley. Two primary reasons

were given for the enhanced blending opportunities. First, most of the co-ops had constructed or acquired sufficient storage capacity to handle the higher volume of commodities associated with the merged cooperatives. This additional space (at the subterminal **and** substations) provided the physical capability to store and blend several different qualities of a grain for eventual blending. Second, because of the larger geographic territory included in the cooperative trade area after the merger of surrounding stations, the possibility exists to draw various qualities of a grain from different sections of the trade area to blend for optimum shipping lot characteristics.

All nine of the cooperative managers also felt that their organization as a subterminal/satellite cooperative provided for better availability of shipping capacity when needed. The combination of local cooperatives into a centralized organization and the ability to load unit trains both contributed to more capacity-effective shipping characteristics. Because of this type of organization, most of the managers also felt that they were able to more effectively negotiate with railroads for better rates and service. Two of the nine managers, however, felt that the lack of competition for the railroad and their ability to ship on only one railroad prohibited them from negotiating effectively for lower rates or better service. Three areas where better negotiations with the railroads had occurred were related to car supply, contract rate levels, and multi-origin train loading. Eight of the nine managers also felt that they were more

successful at negotiating sales to grain buyers because of their size and type of organization. The primary reason cited was that trainload sales of grain were attractive to buyers because of their convenience over single cars and relative consistency in quality. Also, six managers felt that their larger organization and trainloading abilities allowed them to penetrate new markets, especially feed markets and distant Midwest and Gulf port markets.

Some savings due to specialization of management and other activities had been achieved, according to seven of the co-op managers. The primary area of savings occurred in the area of salaries. Although several stated that employees may be better paid, the reduction in numbers and benefits from specialization compensated. Also, on a per bushel basis, most of the managers felt that average costs per employee had gone down due to volume increases since the merger. Seven of the managers also felt that co-op substations were operated at a lower cost since merger. The primary reason cited for this cost reduction was salary savings due to reductions in number of employees at the substation.

Specialization had also been achieved in grain merchandising activities, according to the cooperative managers. All of the managers felt they were able to do a better job of merchandising because of the increased amount of time spent at merchandising activities and because the sheer volume of grain handled forced them to become better merchandisers. Some of the cooperatives had actually hired a specialist who was in charge of all grain merchandising activities. At one co-op, this specialist also

directed programs aimed at educating patrons in various grain marketing activities. The managers also indicated that they had employed new or different merchandising techniques since reorganization. These included no-price established (NPE) contracts, options trading, more hedging activities, and more blending of various grain qualities.

The seasonality of grain production and marketings can often cause logistical headaches when trying to arrange for adequate storage and shipping capacity. This is particularly true during peak shipping seasons such as harvest time. The subterminal/ satellite form of organization, however, has alleviated this problem somewhat, according to seven of the nine managers interviewed. The ability to use the subterminal's storage and the storage at the various satellites had created a "buffer" for the grain shipment/storage activity. The ability to use local truck shipments and trainload rail shipments had helped to relieve some of the logistical pressure created by this typical seasonality of shipments.

Negative Aspects of Subterminal/Satellite Organization

The nine cooperative general managers were also asked to comment on any negative aspects of their operation which were a result of the reorganization. These generally related to patron views on the new co-op, coordination of inbound and outbound grain, and road problems created by the increased local truck traffic.

According to several of the co-op managers, many patrons viewed the new form of organization as a negative for their local co-op due to the loss of local control over management decisions. This was especially true for the time period immediately after the consolidation. For most of the co-ops, however, this feeling among patrons became less as the co-op aged and began providing patron services. Also, some managers stated that a good public relations program which informed patrons about the benefits and nature of the new organization was extremely helpful in "selling" the new cooperative.

The individual interests of substations can also be a potential problem, according to managers. Because of the geographic separation of the substations and the individual physical facilities at each, patrons and management sometimes wish to protect the interests of that station. It seems that this could be expected because of simple historical patron loyalty, and the fact that many farmers patronize only one of the stations and want to maintain the best quality level of services possible. Some managers stated that a good program specifying co-op policies on capital expenditures and other items can help dispel some of these problems.

All of the co-op managers indicated that the overall logistical process of trucking grain from substations and shipping out by rail posed no chronic coordination problems. Each manager, however was asked to cite any minor coordination problems which had occurred, and where they thought the first "bottleneck" may

occur if shipping activity increased. Several points were noted by managers including (in order of frequency cited):

1. availability of trucking capacity
2. subterminal unloading capacity
3. rail car availability/capacity
4. subterminal loading capacity
5. subterminal storage capacity.

None of the managers indicated that the local substations had any problem "keeping up" with the overall transshipping activities.

State and local road officials have indicated that the increase in local trucking activity at subterminal cooperatives may cause substantial deterioration in local road conditions. Although local road maintenance is not a cost that must be internalized by the cooperative, adequate roads will probably benefit cooperative interests as much as any other. Therefore, road conditions should be of substantial concern to co-op management and patrons. Five of the nine managers indicated that at least some local road deterioration had occurred within their co-op trade area. One co-op had witnessed substantial road surface quality damage on a local truck route and were seriously considering re-routing trucks or looking for public funds to upgrade the road.

Cooperative Policies Affecting Local Stations

One important consideration for elevator patrons and managers considering a subterminal/satellite form of organization is the policies regarding facility replacement and addition. Patrons may want to be aware of policies that will affect the future of their

elevator. For example, if patrons consider it essential that certain services such as grain drying be maintained, it should be clear as to what policies will be in place regarding grain drying services at substations. The nine cooperative managers were asked to comment on what their company policies were regarding the following situations:

1. Major equipment wears out such as elevating legs or grain dryer;
2. Addition of capacity or enterprise at a substation;
3. Replacement of entire facility after fire, wearing out,etc.; and,
4. Buying new facilities/adding new co-ops to the organization.

Replacing equipment such as elevating legs, grain dryers, etc. can be a major capital expenditure. Elevator cooperatives will therefore give due consideration before replacing these types of equipment. The managers generally felt that the current and potential volume at the station in question was the primary consideration, as well as the overall contribution to the cooperative. Utilization of the machinery and duplication of facilities were also cited as considerations. Three of the managers indicated that their policy was to generally repair or replace equipment automatically if problems arose.

Many of the same decision criteria were cited when managers were asked to state their policies regarding adding capacity or enterprises[4] at substations. Most managers stated that feasibility of the addition must be proven and will be affected by

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[4]Enterprise refers to a particular portion of the operation or business, such as grain drying, fertilizer sales, merchandise sales, etc.

volume/sales potential, benefit to the entire co-op, and the level of local demand for the particular service.

Policies were not as straight-forward regarding replacement of an entire substation if, for example, it was destroyed by fire. Several factors were cited as influencing this decision. Most of the managers again stated that potential volume and overall co-op contribution would be considered. But with an investment with a life of several decades, other factors are also important:

1. Competition for grain due to location of the facility. If competing firms will move into the trade area of the co-op,the decision may be influenced.
2. Patron sentiment. If patrons feel strongly that a facility is necessary in the area, co-op management may feel impelled to replace the structure.
3. Larger volume facilities may be easier to justify replacing than low volume houses.
4. Duplication of facilities may be considered if two substations were formerly relatively close to each other.

Finally the nine managers were asked to comment on what their policies were regarding buying new facilities and adding new substations to the existing subterminal/satellite cooperative. Many of the same considerations were stated. The decision would generally depend on the facility's volume potential, location, financial condition, potential contribution to co-op profitability, and the overall needs of the cooperative.

Role of Substations and Substation Managers

In the final portion of the interview, general managers were asked to comment on how they felt the position of substation manager had changed since reorganization, and what they thought

the primary role of substations was after the consolidation. The co-op general managers had three general conclusions as to how substation manager positions had changed:

1. Grain merchandising responsibilities had been transferred from the local station to the general manager.
2. Substation managers spent more time focusing on patron services compared to before the consolidation.
3. The overall level of responsibility at the substation had been reduced.

Because of the shift in responsibilities from the local station to the organization's subterminal, several management priorities were not maintained by the local manager. The substation managers no longer dealt with the Board of Directors or made management policy decisions. They also had much less authority in personnel matters such as hiring/firing and salaries. On the other hand, the local managers were now freer to deal with patron services and customer relations. Most of the managers viewed this as a positive result of reorganization. The increased time spent serving customer needs was viewed as enhancing the image of the co-op and promoting merchandise and service sales.

The overall role of the substation itself had not changed as much as the job of the manager, according to the cooperative general managers. The local station was still a delivery point for farmers' grains, although pricing and logistics was viewed as superior to before the merger. The service aspect of the substation's role was emphasized by most of the managers, again citing the fact that the local station management was able to spend more time on patron services. Several managers stated that

the dual roles that the substations played, feeding grain to the subterminal and providing patron services, were equally important and that both were emphasized by the cooperative.

SUBSTATION MANAGER SURVEY RESULTS

The second major portion of the study involved a survey of cooperative substation managers. The purpose of the local substation manager survey was to determine, from a local perspective, how the overall role and activities at the substation had changed since consolidation with other stations. Also, the survey was intended to ascertain how the role of the substation manager had changed since merger. It was hoped that information could be obtained regarding changes in services, prices, operations and policies.

The nine subterminal cooperatives included in the study had a total of 58 substations operating under their management. In some cases it was difficult to determine the number of substations because some were open for only part of the year, some were used only for storage, and some dealt only with feed or other services. The above number (58) is based on those stations that were providing at least some farmer services throughout the entire year. Three of these 58 were not able to provide information or were missed in the survey process. The remaining 55 were provided a copy of the questionnaire to fill out, then were contacted by telephone to discuss answers on the survey instrument. This combination of mail/telephone contact provided for a high response rate and properly completed questionnaires. A copy of the substation manager survey is presented in Appendix B.

PROFILE OF SUBSTATION MANAGERS

Most of the managers of the cooperative substations had worked for one of the local co-ops prior to the consolidation. Of the 55 local managers interviewed, 44 had been employed by the local co-op before merger, while 11 were hired from outside the cooperative. The nine co-ops had a wide range of management experience at their substations. One of the cooperatives' substation managers had an average of seven years of elevator management experience, while another co-op had over 19 years average management experience among its managers. Overall, the 55 substation managers averaged 12 years of elevator management experience, ranging from less than one year to 37 years. Two-thirds of the local managers stated that they had at least some formal training in grain trading and merchandising, again supporting the contention that many managers had considerable elevator management experience.

PROFILE OF SUBSTATION PHYSICAL FACILITIES

The nine cooperatives participating in the study had a variety of facilities at their substations. This may be attributed to the age of the co-op itself, the types of commodities handled, types of services offered, and other factors. Main elevator facilities at the substations had an average age of 40 years, ranging from four years to 80 years (Table 9). Substantial differences in average substation age existed among cooperatives, however. One co-op's substations averaged 29 years

old, while another's averaged 50 years old. The substations were an average of 28 miles from their respective subterminals, ranging from less than one mile to almost 90 miles. The average distances to subterminal also varied widely among the nine cooperatives. Two of the co-ops' stations averaged less than 10 miles from the subterminal, while the remaining seven averaged at least 23 miles, ranging from 23 to 41 miles from the subterminal.

TABLE 9. AGE OF SUBSTATION MAIN HOUSES AND AVERAGE DISTANCE OF SUBSTATION TO SUBTERMINAL.

Cooperative	Average Age of Substation Main House	Average Distance of Substation from Subterminal
	----years----	------miles-----
1	29	8.3
2	46	23.3
3	33	25.7
4	50	24.8
5	39	41.4
6	41	27.2
7	32	29.0
8	42	36.3
9	35	9.3
All Substations	40	27.7

The co-op substations themselves had similar capabilities regarding unloading and loading trucks. Both of these characteristics can be extremely important for effective operation of a subterminal/satellite cooperative. Without the ability to unload incoming farm trucks and load outgoing semi-trucks quickly, the entire logistical flow within the subterminal/satellite

network will be interrupted. The 55 substations were able to unload an average of 81 farm trucks per day, ranging from 30 to 175. The variation among co-op averages was much smaller, ranging from 66 farm trucks per day to 126 per day. Similar characteristics were noted for semi-truck loading at substations. The 55 substations could load an average of 25 semi-trucks in one day, ranging from 10 to 85 trucks. The variation among co-op averages was less, ranging from 15 semi-trucks to 51 trucks per day.

TABLE 10. MAXIMUM TRUCK LOADING AND UNLOADING CAPACITY PER DAY.

Cooperative	Average Maximum Farm Trucks Unloaded/Day	Average Maximum Semi-Trucks Loaded/Day
1	76	28
2	83	24
3	71	24
4	79	23
5	80	28
6	72	17
7	67	15
8	78	22
9	126	51
All Substations	81	25

SUBSTATION EMPLOYMENT PRE- AND POST-MERGER

Employment levels at local elevators before and after consolidation can be an important consideration from several perspectives. The cooperative would like to operate at the lowest cost possible in order to be competitive with surrounding

elevators. One way to accomplish this is to economize on salaries and labor costs through centralized management. On the other hand, a community where a local elevator is considering joining forces with a larger co-op may also be concerned about future employment levels at their elevator. In general, the nine cooperatives included in this study operated after merger with slightly fewer employees at substations than before merger (Table 11).

Six of the nine co-ops have fewer full-time employees after consolidation than before, one co-op had more, and one co-op's full-time employment remained the same. Three of the co-ops had at least a 33 percent decline in average substation employment after merger. Part-time employment did increase for most of the firms, however. Five of nine co-ops employed more part-time or seasonal help at substations after merger.

TABLE 11. CHANGES IN SUBSTATION EMPLOYMENT LEVELS PRE- AND POST-MERGER.

Cooperative	Average Substation Employment Before Merger	Average Substation Employment After Merger	Percent Change
	Full Time		
1	3.5	1.5	-57
2	2.3	2.2	-4
3	2.3	1.3	-43
4	1.7	1.7	0
5	2.6	3.1	19
6	2.5	2.2	-12
7	3.0	2.0	-33
8	2.8	2.6	-7
9	NA	NA	NA
All Substations	2.5	2.3	-8
	Part-Time		
1	0	1.5	-
2	0.2	0.3	50
3	0.7	1.0	43
4	0.2	0.8	300
5	0.7	0.7	0
6	0.7	0.3	-57
7	1.7	0.7	-59
8	0.3	0.4	33
9	NA	NA	-
All Substations	0.5	0.7	40

GRAIN, MERCHANDISE, AND SERVICES VOLUME PRE- AND POST-MERGER

One reason cited earlier for a local elevator to consider joining a subterminal/satellite cooperative was for simple economic survival. An elevator experiencing competitive pressure from nearby trainloading stations may view consolidation as a defensive move which will help maintain its competitive position. After consolidation, the local station would hope to maintain or

increase its grain volume and patron services. Substations of the nine co-ops studied generally were able to maintain or increase the volume of grain handled after merger compared to before consolidation. Substations of six co-ops increased their average grain handled, while two co-ops' substations averaged small reductions in volume (Table 12). Overall, the substations increased their annual volume by an average of 50 percent after consolidation.

Merchandise sales[5] also increased on the average for all substations. Four of the co-ops had average increases in merchandise sales, while three had average decreases (Table 12). Overall, the substations experienced a 22 percent increase in merchandise sales after consolidation. Feed, agricultural chemicals, and fertilizer comprised the majority of merchandise handled by the 55 substations (Table 13).

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[5]Merchandise sales may include fertilizer, chemicals, feed, seed, other farm inputs and supplies.

TABLE 12. CHANGES IN AVERAGE ANNUAL SUBSTATION GRAIN AND MERCHANDISE VOLUME PRE- AND POST-MERGER.

Cooperative	Volume Before Merger	Volume After Merger	Percent Change
		Grain Volume	
	----------bushels----------		
1	NA	NA	-
2	506,000	658,000	30
3	483,000	500,000	3
4	518,000	559,000	8
5	457,000	1,173,000	160
6	683,000	638,000	-7
7	617,000	583,000	-5
8	435,000	837,000	92
9	2,167,000	2,900,000	34
All Substations	623,000	931,000	50
		Merchandise Sales Volume	
	----------dollars----------		
1	NA	NA	-
2	14,000	42,000	203
3	91,000	106,000	16
4	235,000	419,000	78
5	384,000	297,000	-23
6	39,000	26,000	-33
7	168,000	118,000	-30
8	237,000	347,000	46
9	NA	NA	-
All Substations	190,000	231,000	22

TABLE 13. MERCHANDISE HANDLED AT SUBSTATIONS OF SUBTERMINAL/ SATELLITE COOPERATIVES.

Type of Merchandise	Substations Handling Merchandise	
	Number	Percent
Feed	48	87
Seed	25	45
Ag Chemicals	30	55
Fuel	1	2
Coal	2	4
Twine	26	47
Dry Bulk Fertilizer	19	35
Dry Bagged Fertilizer	14	25
Liquid Fertilizer	6	11
Ammonia Fertilizer	12	22

The 55 substations also experienced a small increase in income from services after consolidation. These services may include grain drying, storage, fertilizer application, grain cleaning, and others. Overall the substations averaged a one percent increase in service income after consolidation (Table 14). Among the nine co-ops, however, significant changes did occur. One co-op experienced a 156 percent increase in service income, while another had a 59 percent decrease. Services provided by the substations after consolidation are presented in Table 15.

TABLE 14. CHANGES IN AVERAGE ANNUAL SUBSTATION INCOME FROM SERVICES.

Cooperative	Average Service Income		Percent Change
	Before Merger	After Merger	
	----------dollars----------		
1	NA	NA	-
2	14,000	19,500	39
3	9,300	15,200	63
4	50,000	20,750	-59
5	33,995	18,228	-46
6	23,280	13,480	-42
7	15,000	38,333	156
8	32,000	34,889	82
9	250,000	212,500	-15
All Substations	52,249	52,707	1

TABLE 15. PATRON SERVICES PERFORMED BY SUBSTATIONS AFTER CONSOLIDATION.

Service	Substations Performing Services	
	Number	Percent
Grain Drying	18	33
Grain Cleaning	43	78
Spreading Fertilizer	12	22
Bagging	2	4
Soil Testing	9	16
Feed Grinding	20	36

SUBSTATION MANAGEMENT CHANGES PRE- AND POST-MERGER

An important consideration in the decision to consolidate with a larger cooperative is the degree of change in employee activities, especially for the manager. The 55 substation managers interviewed were asked to describe how their job had

changed since the merger. The managers were asked to comment specifically on changes in their position in three areas: grain merchandising, merchandising of other materials (feed, chemicals, supplies, etc.), and physical operation of the plant. In addition, each manager was asked to comment on any other ways in which their position had changed since merger.

Comments made by substation managers regarding grain merchandising responsibilities mirrored those of the co-op general managers. Fifty of the 55 substation managers stated that their responsibilities had changed in the grain merchandising area while five stated that their position had not changed relative to merchandising of grain (Table 16). The overwhelming response was that grain pricing and merchandising responsibilities had been transferred from them to general management at the subterminal. Many commented that they maintained their responsibilities of grading and buying farmers' grains, but the actual prices to offer were pre-determined.

Substation managers' responsibilities had changed less in the area of merchandise sales and farmer service. Twenty-five managers stated that their position had changed in this area, while 30 said no changes had occurred (Table 16). When asked what changes had taken place in their merchandise sales responsibilities, most managers stated that although purchasing and pricing of merchandise such as fertilizer was handled by the main office, an increased emphasis had been placed on providing quality services to farmer patrons. Whereas before consolidation

grain handling was the primary role of the local elevator, providing products and services to patrons received more attention of the manager. The managers had more time to spend on patron matters and concentrated more of their efforts in this area.

TABLE 16. CHANGES IN SUBSTATION MANAGER JOB RESPONSIBILITIES SINCE MERGER.

Cooperative	Responsibilities Have Changed Regarding:					
	Grain Merchandising		Merchandising Sales		Plant Operation	
	Yes	No	Yes	No	Yes	No
1	4	0	4	0	3	1
2	6	0	4	2	2	4
3	2	1	0	3	1	2
4	6	0	3	3	3	3
5	10	1	2	9	4	7
6	5	1	1	5	3	3
7	3	0	3	0	2	1
8	10	0	5	5	7	3
9	4	2	3	3	2	4
All Substations	50	5	25	30	27	28

Operation of elevator physical plant also had not changed as much as grain merchandising. Half of the 55 managers had experienced some changes, mostly in that some modifications, additions, or new enterprises had taken place at the plant. Most managers stated that the physical movement of grain (unloading trucks, storing/conditioning grain and loading trucks) had not changed. Several substations had added fertilizer plants or other

facilities to enhance patron services or speed up the entire grain logistical system.

Substation managers were asked to also comment on any other changes that had taken place since consolidation. The most frequent response was that the managers no longer dealt directly with a board of directors. Instead, they received instructions directly from the co-op general manager. Several substation managers stated that because grain merchandising responsibilities had been transferred to general management and they no longer dealt with the board that many of the pressures of daily elevator management had been removed. Many of the managers reiterated that they now spent more time with patron services because of their shift in responsibilities.

TYPES OF SUBSTATION SERVICES OFFERED PRE- AND POST-MERGER

Substation managers were also asked to identify services at their substation which had been dropped since consolidation, as well as those services or functions which had been added since joining the new organization. Several of the managers indicated that some specialized services had been eliminated since consolidation. Some of these services included fertilizer sales and application, feed grinding and delivery, grain cleaning, seed treating, and soil testing. Substantially more of the managers, however, indicated that more services were offered at their station since merger. Many of the same services mentioned above were also added after merger, possibly indicating that some re-

prioritizing in the location or type of services offered was experienced. Some of the services mentioned by managers that had been added since consolidation included:

1. Feed grinding and sales
2. Fertilizer sales and applications
3. Soil testing
4. Seed cleaning and sales
5. New or expanded ag chemical sales/service
6. Animal health product sales
7. New grain pricing opportunities such as delayed price contracts and options
8. Co-loading trains with other stations.
9. Grain drying
10. Grain storage services

ROLE OF THE LOCAL SUBSTATION UNDER SUBTERMINAL/SATELLITE ORGANIZATION

Finally, substation managers were asked to state what they thought the primary role of their substation was currently, and how that role was different than prior to merger. The substantial majority of the substation managers stated that their role was twofold: (1) serve as a transshipment facility to receive grain from farmers and feed grain to the main shipping subterminal, and (2) act as a farm service center, providing merchandise sales and services for co-op member-patrons.

Managers generally felt that the first of these roles was still the most important, given the fact that the entire co-op was a unit train shipper and needed high grain volumes to support the investment in trainloading facilities. Also, farmers still generate a larger share of their revenues from crops production, and need a reliable and competitive outlet to market those crops. Many of the managers felt that their station did a better job of

performing this grain transshipment function now compared to before merger. Some of the reasons given for this perceived improved grain handling ability include:

1. The substation can handle more grain and is not "plugged" due to the overall expanded shipping capacity provided by the subterminal and unit train shipments.
2. The co-op and therefore substations were able to offer better prices to patrons due to trainloading capabilities.
3. The substation was more price competitive with surrounding, competing stations and was thereby able to draw more grain and more fully utilize facilities.
4. The substation was able to offer farmers more marketing alternatives (no-price-established contracts, options) due to the enhanced marketing alternatives offered by the co-op.
5. The co-op was able to offer new markets for specialty crops because of the enhanced marketing expertise.

Although the role as a farm service center was usually rated as secondary to the grain transhipment functions, many managers also stated that the service aspect of their substation had gained considerable importance since consolidation. In general, the expanded scope of the new larger co-op gave each substation the capability to offer new or better services. This was accomplished by one of two methods. First, some of the stations had added new services such as fertilizer plants right at their station since consolidation. Second, many services not offered at each substation were offered by the co-op main station or other substation, and were thereby available to all patrons from somewhere within the cooperative. Several of the managers actually stated that patron services offered at their station were minimal, and that the entire cooperative constituted the complete farm service center, rather than individual substations. Some of

the larger stations did offer quite a variety of services by themselves, while others were grain-only facilities who relied on the other portions of the co-op for expanded farmer service functions.

PATRON SURVEY RESULTS

The final portion of the survey process consisted of a mail survey of patrons of the cooperatives participating in the study. One of the cooperative general managers chose not to participate in the patron survey portion of the study due to the prevailing patron attitudes regarding surveys and the general economic climate in the trade area. Another cooperative had only been formally organized in the past few months, and patrons had not had a chance to experience the new organization's operations. The result was that seven of the nine cooperatives participated in the patron survey portion of the study.

A one-page questionnaire was sent to patrons to identify their attitudes and experiences with the new cooperative form of organization. The number of questionnaires mailed and responses are presented in Table 17. A copy of the questionnaire is presented in Appendix C. As shown in Table 17, a high degree of variation in response to the survey was noted. This may reflect several factors, including the overall state of the agricultural economy.

TABLE 17. QUESTIONNAIRES MAILED AND RESPONSES RECEIVED FROM COOPERATIVE PATRONS.

Cooperative	Number of Questionnaires Sent	Usable Questionnaires Returned
1	300	124
2	300	46
3	300	44
4	300	26
5	300	32
6	300	62
7	300	40
Total	2100	374

PATRON CHARACTERISTICS

In order to give an idea of the types of farms and customers patronizing the co-ops included in the study, several characteristics of patrons and their farms are presented. These characteristics include farm size, distance to co-op and other elevators, and degree of patronage.

The variation in sizes of farms patronizing the co-ops participating in the survey are presented in Table 18. Sixty-eight percent of the responding patrons indicated they had less than 1,000 acres of cropland on their farms. Over 92 percent stated they had less than 2,000 cropland acres. A substantial amount of variation existed among the co-ops; almost 60 percent of one co-op's patrons had less than 500 cropland acres, while 63 percent of another co-op's patrons had over 1,000 cropland acres. Farm size among the seven co-ops participating in the patron survey was indicative of the cropping patterns in the three

states. The smallest average farms were noted in the corn and soybean Minnesota cooperatives. Average farm size increased in the wheat and barley producing regions of North Dakota and Montana.

TABLE 18. DISTRIBUTION OF FARM SIZE FOR PATRONS OF PARTICIPATING COOPERATIVES.

Cooperative[1]	Farm Size (cropland acres) 0-500	501-1000	1001-1500	1501-2000	2000+	Total Respondents
	percent					
1	59	26	13	-	2	46
2	3	36	33	8	5	39
3	30	30	23	15	7	44
4	13	25	22	22	19	32
5	27	23	15	12	23	26
6	24	38	16	10	12	58
7	34	50	13	-	2	122
All Co-ops	31%	37%	18%	7%	8%	367(100%)

[1]For purposes of confidentiality the cooperatives are identified throughout this report by only numbers. The numbering sequence here or elsewhere in this report does not necessarily coincide with the order of the co-ops listed on any other page.

Differences among cooperatives were also noted regarding distances from patrons farms to their co-op and other elevator markets. Patrons were asked to give the one-way mileage from their farm to the co-op station they patronized most often, to the co-op subterminal, and to the next closest competing elevator. Results are presented in Table 19. Average distance from farm to co-op substation varied from 6.6 miles to almost 14 miles, while the distance to the next closest elevator ranged from 7.9 miles to over 20 miles. It is noteworthy that the next closest competing

station was in all cases farther away than the co-op substation, averaging 35 percent further for all seven cooperatives. The main cooperative subterminal was also farther from farms than the satellite station usually patronized. The average distance from farm to subterminal ranged between 10.5 miles and 37.2 miles. This wide range is indicative of the different crop production densities, sizes of farms and concentration of elevator facilities exhibited within the trade areas of the participating cooperatives.

TABLE 19. DISTANCE FROM FARM TO CO-OP AND OTHER ELEVATORS, BY COOPERATIVE.

	One-Way Miles from Farm to:		
Cooperative	Satellite	Next Closest Elevator	Subterminal
1	6.7	7.9	13.8
2	6.6	9.5	19.5
3	12.2	14.4	31.0
4	6.3	9.4	20.2
5	13.9	20.2	28.6
6	13.0	15.8	37.2
7	7.1	11.6	10.5

The data presented in Table 19 may have significant implications for the future and viability of local substations of subterminal cooperatives. For some patrons, the cooperative subterminal is not much farther away than the local substation. Also, some patrons have the option of patronizing a nearby competing elevator. For these patrons, the importance of having

the local co-op station operating may not be as critical to their marketing opportunities. These patrons may simply be more concerned that the subterminal is operating in order to receive benefits of multi-car rate savings. Patrons of co-ops located in areas where distances among stations is greater may feel differently towards their local co-op substation. The distance to the subterminal and competing market outlets is greater, thereby making it less practical to haul directly to the subterminal. Also, patrons may rely on their local station for non-grain services such as farm inputs. The importance of this station becomes even greater to patrons if they rely on co-op substations for a variety of grain and non-grain activities. This will have implications for the long-term retention of satellite stations when decisions such as facility replacement must be made.

The decision to reorganize or consolidate several local stations into one organization ultimately rests with the cooperative patrons. Although the impetus to merge with other co-ops may have come from managers or boards of directors, patrons have the final vote because of the ownership structure of the organization. Cooperative patrons who responded to the survey gave a variety of reasons why their membership had voted to join some consolidated form of organization (Table 20). The predominant reason for reorganizing was to gain access to the rail rate savings associated with shipping grain in multi-car or trainload lots. Patrons also cited competitive reaction and improving the co-op financial position as reasons for

consolidating. Abandonment of rail lines and generally poor rail service were also given as relatively important reasons for making the decision to merge.

TABLE 20. REASONS FOR PARTICIPATING IN SUBTERMINAL/SATELLITE COOPERATIVE CONSOLIDATION, AS INDICATED BY PATRONS.

Reason for Participating in Cooperative Consolidation	Number of Times Cited as One of Top Three Reasons
Abandonment of Rail Lines	72
Poor Rail Service	77
Unit Train/Multiple Car Rail Rate Savings	270
Reaction to Competition from Other Elevators	130
Improve Financial Position of Local Co-op	124
Increase Elevator Capacity	49
Age of Existing Facilities	19
Government Storage Programs	8
Other	11

COOPERATIVE PERFORMANCE RATING BY PATRONS

Cooperative patrons were also asked to comment on several areas of their co-op's performance since the merger compared to before consolidation. Patrons were asked to rate their co-op on prices, facility utilization, and services pre- and post-merger.

When discussing the attributes or drawbacks of these types of cooperative organizations, several key questions are often asked, including: "Do higher farmer prices result from consolidation?" "Is the extra cost of trucking, transhipping, subterminal construction, etc. worth it in rate savings or operating

efficiencies?" Patrons were asked to state whether they thought they had benefitted from the co-op consolidation in the form of higher grain prices. Results are presented in Table 21. Approximately twice as many respondents indicated that they received higher prices than lower prices as a result of the merger. However, 41 percent of the patrons felt that the consolidation had no effect on farmer prices. Nineteen percent indicated that the consolidation had a negative effect on prices.

TABLE 21. PATRON PERCEPTION OF EFFECTS OF COOPERATIVE MERGER ON GRAIN PRICES PAID TO FARMERS.

Merger Effect on Prices	Number Responding	Percent
Higher Prices	139	39.38
Same Prices	146	41.36
Lower Prices	68	19.26

Patrons were also asked to comment on how the merger had affected their co-op's ability to utilize its capacity more effectively. The ability to move grain quickly through the logistical system may be critical, especially during harvest or other times when large volumes of grain are being marketed. During these times, an elevator's ability to continuously receive grain from farmers and ship to markets without plugging or shut-down will affect farmers' shipping operations and ultimately the price he receives for grain. More patrons felt that capacity was

utilized better since merger (Table 22). Thirty-nine percent indicated that capacity was utilized better since merger, while about 10 percent felt that capacity problems were more prevalent since merger. Over half, however, felt that no noticeable change in capacity utilization had taken place since merger.

TABLE 22. PATRON PERCEPTION OF EFFECTS OF COOPERATIVE MERGER ON CAPACITY UTILIZATION.

Merger Effects on Capacity Utilization	Number Responding	Percent
Better Capacity Utilization	137	38.70
Same Capacity Utilization	179	50.56
Poorer Capacity Utilization	38	10.73

Finally, patrons were asked to comment on how cooperative services had been affected by consolidation. Several individual services were rated by patrons, as well as the overall quality of co-op services. Patrons rated their cooperative services overall as slightly better since merger. Twenty-six percent stated that services were better since merger, while 19 percent said services were poorer after consolidation. The majority of the patrons, however, felt that services had not changed due to merger. Fifty-five percent indicated that no change was noticeable (Table 23).

TABLE 23. PATRON RATING OF SELECTED COOPERATIVE SERVICES SINCE CONSOLIDATION.

Cooperative Service	Service Rating Frequency		
	Better Service	Same Service	Poorer Service
	percent		
Grain Handling	44	48	8
Grain Storage	24	66	11
Feed Services	22	67	11
Fertilizer Sales	22	66	12
Herbicide Sales	20	70	10
Grain Drying	26	70	4
Fertilizer Spreading	15	75	10
Other	20	14	67
ALL SERVICES	26	55	19

Similar patron responses were noted for the majority of the individual co-op services. Grain storage, livestock, feed services, fertilizer sales, herbicide sales, grain drying, and fertilizer spreading had improved slightly, according to patrons. The overall grain handling ability of the co-op was rated as more significantly improved. Forty-four percent of patrons indicated grain handling was better since merger, while eight percent felt grain services were poorer.

SUMMARY AND CONCLUSIONS

The purpose of this study was to provide a descriptive analysis of the subterminal/satellite form of organization and an evaluation of the advantages and disadvantages of reorganizing local country elevators into this type of consolidated system. Nine farmer-owned cooperatives located in North Dakota, Minnesota, and Montana were included in the study. A combination of surveys of the co-op general managers, substation managers, and patrons was used to gather information regarding formation and operation of the firms.

Country elevators in the Northern Plains are in the midst of a state of accelerated change. Elevators are becoming fewer and larger, a change that has been taking place since the turn of the century. This process seems to have hastened in the most recent decade, with the smaller local elevators looking for alternatives in their highly competitive environment. Much of the recent trends have taken place due to changes in grain transportation, specifically the increased utilization of so-called "unit-train" shipments. One popular alternative recently has been for local elevators to consolidate into a larger organization ("subterminal/satellite") with capabilities to ship unit trains from a main shipping terminal. Under this type of organization, grain is shipped from the local elevators (substations or satellites) to the main subterminal for shipment by unit train.

General managers of the nine cooperatives indicated that very few organizational problems were encountered in the formation of the new cooperative. For many of the local co-ops, reorganization appeared to be a positive solution to competitive pressures on the firm. Therefore, there was little resistance to the merger in many of the cases. The co-op general managers cited several reasons behind the consolidations, but the predominant motivation was to gain access to the rate savings and capacity associated with unit-train shipments. Other reasons included gaining financial resources by merging, reaction to competition from other elevators, and generally poor rail service.

The cooperative general managers noted several positive and negative aspects of organizing under the consolidated structure. On the positive side, managers state that blending opportunities were greater due to greater storage facilities and higher volumes. Also, the size of the organization gave more shipping capacity to the firm in times of peak shipment such as harvest. More successful negotiations with both railroads and grain buyers had been achieved due to the organization's increased size. Other areas of benefit included specialization of management, expanded patron services, better purchasing power due to volume buying, and a smoother logistical grain flow from farm to terminal market. The nine cooperative general managers also commented on negative aspects of the new type of organization. These generally related to patron acceptance of the new co-op, coordination of inbound and

outbound grain, and road problems created by the increased local truck traffic.

A survey of the cooperative substation managers was also conducted to obtain a perception of changes at the local satellite elevator. Eighty percent of the substation managers had been employed by the local co-op prior to merger with the larger organization. The local facilities themselves varied considerably in size, age, volume of grain and services handled, and distance from the main subterminal. Very little change was noted regarding employment levels before merger compared to after joining the larger organization. Grain volume and merchandise sales volume, however, did increase substantially on the average for the substations, although a large variation existed in pre- and post-merger volumes. Income from services such as grain drying, fertilizer application and grain cleaning remained virtually the same. The most noticeable changes at the substation were: (1) the obvious switch from rail or truck shipment to terminal markets to strictly truck shipment to the main subterminal, and (2) a general reduction in some of the responsibilities of the substation manager, particularly grain merchandising. Also, some services had been added or dropped at the substation since merger. According to substation managers the central focus of their activity at the local elevator had changed from being primarily a grain facility to being a combination grain elevator/patron service center since consolidation with the larger firm.

The final portion of the study involved a mail survey of the patrons of the nine cooperatives. Patrons cited unit train rate savings as the primary reason for joining the larger organization. Patrons were asked to rate their cooperatives in the areas of grain pricing, services and utilization of capacity. They felt that grain prices were slightly higher since merging, although 40 percent noticed no change in prices due to the consolidation. Many patrons felt that their local station's facilities were utilized better since merger, but over half stated that no change was noticeable. Regarding overall cooperative services, only a slight improvement was noticed.

All indications are that unit train shipments, concentration of grain shipments through fewer elevators, and competitive pressures within the country grain elevator industry will continue. Each elevator owner and manager must therefore evaluate what the future may hold for their particular stations. They may want to consider one of many alternatives including some type of affiliation with other shippers to have access to savings associated with unit train shipments, either by merger or simply selling grain to a neighboring trainload shipper. Several other options may exist, but one of the more popular recently has been through formal merger with other stations.

The general management of consolidated or subterminal cooperatives seems to have made this type of operation workable. The organizations are formed with relative ease -- managers noted very few major problems in the initial organizational stages. The

overall shipping arrangements involving grain transshipment from local station to subterminal appear to be workable, in spite of the additional trucking costs and impacts on local roads. In addition, many existing facilities are being utilized by the cooperative which may not have had hope for long term survival under their previous organization.

Although the operational characteristics of the subterminal/satellite cooperative appear to be workable, the financial feasibility and performance is still being tested (Clow, 1987). While the simple formula for success of these operations may seem to be only to balance the rail freight savings with the extra cost of double handling grain and local trucking, much more is involved. Astute management and realistic expectations for the utilization of facilities, coupled with a business approach to management may be just as critical to survival of the new cooperative.

The patrons, boards of directors, and management of these cooperatives will determine the eventual fate of each individual local satellite station. The longevity of a particular station will depend on each's degree of contribution to (or drain on) co-op profitability, patron attitudes, necessity of a station to smooth operations, duplication of facilities, competitive pressures, and many other factors. In any event, the Northern Plains is likely to see continual decline in elevator numbers and more concentration of grain shipments through larger shippers. Consolidation of smaller stations into a larger group will

probably not stop altogether the demise of small shippers, but may slow the rate of attrition, at least in the near term.

APPENDIX A

Cooperative General Manager Questionnaire

GENERAL MANAGER QUESTIONNAIRE

Name of Cooperative

_____

Name of General Manager

_____

Telephone Number

( ) -

Location of Substations

1. _____ 7. _____

2. _____ 8. _____

3. _____ 9. _____

4. _____ 10. _____

5. _____ 11. _____

6. _____ 12. _____

(This questionnaire is a condensed version of the original--content is the same.)

Survey of Cooperative General Manager

SECTION A. ORGANIZATION OF THE COOPERATIVE

1. When was your cooperative formally organized? _____/_____
(month/year)

2. How long was the group in the planning stages?

   A. Time from initial meeting to formal coop organization?
   _____years _____months

   B. Time from formal coop organization to commenced business? _____years _____months

3. Was a preliminary board of committee organized prior to formal merger to handle organizational duties?
Yes _____ No _____

   How was this committee chosen?

4. In the following table, please detail for each substation when it joined the coop, whether it was new construction, a purchase, or merger, and whether or not any of the substations were part of any other formal coop arrangement prior to merger.

	Subterminal	Subst. 1	Subst. 2	Subst. 3	Subst. 4	Etc.
Year joined cooperative?	_____	_____	_____	_____	_____	____
Build (B), Purchase (P), or Merge (M)?	_____	_____	_____	_____	_____	____
Any former cooperative arrangements? (Yes or No)	_____	_____	_____	_____	_____	____

5. What were the reasons for some substations joining the cooperative <u>after</u> the initial merger?

6. Did stations who joined later merge under different conditions than the original members?
Yes _____ No _____

   If yes, under what conditions?

7. Were any special conditions necessary for the coop merger? (Example: Cash up front from patrons?) Yes ____ No ____
(please specify)

8. What types of organizational costs did the coop have and approximately how much was each (not including construction and site costs)?

Examples:
- Feasibility study $_____
- Engineering estimates $_____
- Travel and other incidentals $_____
- Other (please specify) $_____

9. What factors did you consider when selecting the location for construction of the subterminal?

10. What were the reasons for considering this type of organization initially?
(Please rank: 1 = most important, etc.)

A. Abandonment of rail lines ____
B. Poor rail service ____
C. Unit train/multi-car rail rate savings ____
D. Insufficient volume for each station to operate profitably alone ____
E. Increased production putting pressure on available elevator capacity ____
F. As a reaction to increased competition from other elevators ____
G. Age of existing facilities ____
H. Reliable shipping capacity needed ____
I. Government long-term storage agreements ____
J. Other (please specify) ____

_____

11. How is the current cooperative board organized?

A. Number of board members. _____
B. Length of term. _____
C. One elected from each substation area? _____

12. How many member-patrons do you have? _____

13. Did you have any particular organizational problems which had to be overcome before merger or construction?

FINANCING

14. Did individual member coops have to provide cash or credit initially? Yes _____ No _____

A. What was the source of this original "up front" money? (Bond sales, working capital from existing locals, etc.?)
B. Was each local coop's member equity transferred to the new coop intact?

15. The following table relates to financing of the cooperative.

	Was financing required for:		What was your source of financing (B.C., local, retained earnings, etc.)
Organization Costs	Yes ____	No ____	_____
Construction Costs	Yes ____	No ____	_____
Working Capital	Yes ____	No ____	_____

16. Did you experience any problems obtaining credit?
Yes _____ No _____
If yes, what types of problems were encountered?

17. How was financing structured?

A. Term of loan.
B. Fixed rate?
C. Separate loans, rate, and terms for individual parts of credit?

ORGANIZATIONAL STRUCTURE

18. Please diagram your organizational structure including number of employees at each level.

19. Were you (general manager) employed by the coop (or member coops) prior to the formal merger or were you hired from outside of the existing management?

20. Who was the driving force behind the original idea and organization of the coop?

Management _____
Board Members _____
Patrons _____

21. How many years of grain elevator management experience have you (general manager) had? _____ years

22. What was your highest level of formal education:

1. Less than 12 years ____
2. High school diploma ____
3. Some college ____
4. Two year (associate) degree ____
5. Four year degree ____
6. Graduate degree ____

23. What incentive programs do you have and how are bonuses established?

24. As manager, how much formal training in the use of futures markets have you had?

A. No training _____
B. Some training _____
C. Considerable training _____
D. Extensive training _____

25. Detail the responsibilities of each of the coop employees (be as specific as possible).

A. General Manager:
B. Assistant General Manager:
C. Substation Manager:
D. Substation Workers:

26. Are substation managers or other coop personnel given authority or autonomy on merchandising grain?

27. Does the coop hire any other personnel on a full- or part-time basis? (Example: peak season help, accountant, legal counsel, marketing consultants, truck drivers, maintenance personnel, etc.)

28. When was the main shipping station (subterminal) constructed?

29. Was the subterminal constructed specifically for the coop merger or organzation or did the physical facility exist before the merger?

A. If new construction, approximately how much in construction and site costs did the coop have?

1. Elevator/driveway structure $_____
2. All elevator machinery $_____
3. Trackage $_____
4. Land $_____
5. Site preparation $_____
6. Other (please specify)
_____ $_____

B. If already existing, what alterations or upgrading was necessary?

1. Elevator/driveway structure $_____
2. All elevator machinery $_____
3. Trackage $_____
4. Land $_____
5. Site $_____
6. Other (please specify)
_____ $_____

30. What is the total storage capacity of the subterminal?

A. Upright, concrete _____bu.
B. Upright, steel _____bu.
C. Upright, cribbed _____bu.
D. Flat storage _____bu.
E. Total storage _____bu.

31. What does your bin configuration consist of:

Example: 4 bins 40,000 bu. each
2 bins 10,000 bu. each

No.	Size

A. Does this bin configuration accommodate your storage, blending and shipping requirements well?
Yes _____ No _____

B. If not, what changes or additions have you made or would you like to see? (please be specific)

32. How many receiving and load out legs does the subterminal have?

Receiving	bph

Load Out	bph
A. Rail Load Out	
B. Truck Load Out	

Is this sufficient receiving and load out capacity at the subterminal?

33. On the average, how long does it take to load:

A. 1 truck _____
B. 1 rail car _____
C. 26 rail cars _____
D. 52 rail cars _____

34. How do you move rail cars for loading?

A. What is the maximum number of cars you can move at once? _____ cars
B. How may do you normally move at one time? _____ cars

35. Does the railroad have to split the train when delivering or picking up cars? Yes _____ No _____

A. Are you assessed any switch charges by the railroad? Yes _____ No _____
B. If yes, how much per car?
$_____ per car on _____ cars

36. How many feet of track do you have?

A. Total _____
B. Feet on each side _____

37. How long does it take to unload trucks at the subterminal?

A. Farm trucks _____ minutes
B. Semi-trailers _____ minutes
C. Do you ever reach capacity at either of these and experience waiting lines?
1. Farm trucks Yes _____ No _____
2. Semi-trailers Yes _____ No _____

38. What physical modifications would you like to make at the subterminal that would make your operation run smoother?

SECTION C. OPERATIONAL CHARACTERISTICS

39. How is grain priced at the substations?

A. Subterminal price less direct truck costs to substation?
B. Subterminal price less [truck and handling costs]? (Differentiate among operating costs of substations)
C. Are any of the truck costs to outlying stations higher than the board price differences, effectively subsidizing that substation? If there is some subsidy to a station, is it constant throughout the year or does it vary, for example, as competitors are able to get lower truck rates at time, or as a competitor is loading trains during harvest, etc.

40. Do you receive grain from farmers at the subterminal? Yes _____ No _____

If yes, what benefits or problems do you incur by receiving grain from farmers? How is the farmer's price determined when delivering to the subterminal by farm truck?

If no, why not and what methods are used to discourage it?

41. Do you work through a commission firm? Yes ____ No ____

If yes, to what extent?

42. What methods do you use to purchase grain from farmers (exclude government stored grain)?

A.	Cash purchase	%
B.	Forward contract	%
C.	No price established (NPE)	%
D.	Minimum price contract (via options)	%
E.	Other (please specify)	%
F.	Total	100 %

43. What percent of your grain sales are made by the following methods?

			% Hedged
A.	Spot market	%	%
B.	To-arrive	%	%
C.	F.O.B. country	%	%
D.	Other (please specify)	%	%
E.	Total	100 %	100 %

44. Which of the following grains do you handle at the subterminal?

			Method of Shipment to Terminal Markets (%)			
Grain	*% of Total*	*Truck*	*1-3 Car Rail*	*24-27 Car Rail (M.O.)*	*24-27 Car Rail (S.O.)*	*50-54 Car Rail*
HRS wheat	%	%				
Durum	%	%				
Barley	%	%				
Oats	%	%				
Sunflower	%	%				
Corn	%	%				
Soybeans	%	%				
Other (specify)	%	%				
_____	%	%				
_____	%	%				
TOTAL	*100%*					

45. Are there any commodities that you will not handle at the subterminal because of bin space restrictions, insufficient volume, etc.?

46. Do any of the substations specialize in any particular operations? (For example: storing particular commodities, sales of particular supplies, etc.)

	Substation											
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*
Seed sales												
Fertilizer												
Fuel												
Ag chemicals												
Feed												
Drying												
Cleaning												
Other farm supplies												
Other (specify)												
_____												
_____												

47. Does the coop purchase fertilizer and redistribute it to the substations? Is the fertilizer shipped to the subterminal for redistribution or is it shipped directly to each substation in smaller lots? Similar arrangements for other supplies? Does coop have a policy of redistributing inputs to <u>particular</u> substations or <u>all substations</u>?

48. Does the coop buy inputs in large lots thereby achieving economies in procurement (cost savings through quantity discounts on large lots)? Example: feed, seed, fertilizer, chemicals.

    A. Were the individual substations able to achieve these same savings prior to merger? Yes ____ No ____

49. The following table relates to truck movements from substations to the subterminal.

	Number	% of Substation Movements
Owned or Leased Trucks		
Semis	_____	_____
Tandem	_____	_____
Single-axle	_____	_____
Hired Trucks		
(Full-time)	_____	_____
(Part-time)	_____	_____
		100%

50. A. For owned trucks, how do you arrive at a specific price for hauling to each substation?

B. How are drivers paid?

51. How are for-hire truckers paid? (Per bushel-mile, flat rate per mile, per trip, etc.)

52. Is one particular truck assigned to a substation, or do they float?

53. Do employees double as truck drivers? Yes _____ No _____

54. Please list the mileage and the applicable truck rate to each substation.

	Substation	Miles (one-way)	Truck Rate
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____

etc.

55. A. What percent of your total volume is trucked from substations to subterminal? _____ %

B. What percent of grain is trucked from substation to substation? ____ % of total volume (discuss)

C. What percent of grain is trucked from substation to terminal market? ____ % of total volume (discuss)

D. What percent of grain is railed from substation to terminal market?

_____ % of total volume
_____ % 3-5 car
_____ % 26 car
_____ % 52 car
_____ % other

56. Has availability of trucks ever been a problem?
Yes _____ No _____

A. Is truck availability seasonal? Yes _____ No _____
If yes, when are trucks short?
Spring _____ Summer _____ Fall _____ Winter _____

B. Do truck rates also fluctuate? Yes _____ No _____
1. If yes, when are rates highest?
Spring _____ Summer _____ Fall _____ Winter _____
2. If yes, when are rates lowest?
Spring _____ Summer _____ Fall _____ Winter _____

SECTION D. SUBJECTIVE ANALYSIS OF SUBTERMINAL/SATELLITE SYSTEMS

57. What other subjective benefits to producers and the coop itself does this form of organization present?

A. Are opportunities for blending greater through substation specialization and drawing from all or particular substations?

B. Is shipping capacity more readily available when needed (peak periods) due to unit train shipments?

C. Are you able to negotiate more effectively with railroads (rates and service) due to size of organization and volume shipped (examples: contract rates)? Yes _____ No _____

If yes, please describe specifically some of your experiences.

D. Able to negotiate more effectively with grain buyers due to size of coop and volume shipped?

E. Have you been able to penetrate new terminal markets because of the size and high volume nature of your organization?

F. Does your coop experience lower costs per bushel due to specialization of management rather than one manager doing many different jobs? Example: lower total salary outlay than prior to merger? Efficiencies due to specialization (doing each job better)?

G. Do the substations operate at a lower cost per bushel now than before merger? Yes _____ No _____

If yes, where are areas of cost savings? Salaries (be specific), insurance, bond, taxes, clerical and bookkeeping, other?

H. Is the coop now able to devote more time to grain merchandising and therefore achieve better merchandising efficiencies?

I. Do you feel the coop does a better job of merchandising grain now because of the specialization of management in this area?

J. Does the coop employ different merchandising techniques since the merger? Please explain.

K. Does storage at substations (or elsewhere) even out seasonality of shipments and help avoid plugging at the subterminal? (Or does shipping capacity accomplish this?)

58. What problems have arisen due to the new form of organization?

A. Interelevator trucking causing road problems? (Get specific here)
-- gravel road deterioration -- bridge limits
-- road limits -- asphalt deterioration
-- circuitous routing

B. Loss of cooperative control at the local level? Do patrons view this as a problem?

C. Do specific interests of individual substations conflict?

D. Can substations "keep up" with subterminal when grain is needed to fill a train?

1. Is it difficult to coordinate incoming trucks needed to fill a train?
2. In this coordination process, where is the first place a bottleneck will occur, even if it has not occurred so far?
3. Is grain shipped regularly from substations to subterminal throughout the week or month, or is there a flurry of trucking when a train is expected?

E. In your view, what is the primary role of the substations today?

F. What other difficulties have arisen or what other areas will you be concentrating on to improve the efficiency of your operation?

59. What is the cooperative's policy regarding each of these topics?

A. Replacement of equipment at a substation when equipment wears out, etc.?

B. Addition of capacity or enterprise at a substation?

C. Replacement of entire facility after fire, wearing out, etc.?

D. Buying out of new facilities/adding new coops to the organization?

E. Pricing of large lots of grain from farmers vs. small lots?

60. How has the job of substation manager changed since merger?

APPENDIX B

Cooperative Substation Manager Questionnaire

SUBSTATION MANAGER QUESTIONNAIRE

Name of Cooperative: _____

Location of Substation: _____

Substation Manager's Name: _____

Substation Manager's Telephone Number: _____

Did you work at this station before the cooperative merger? Yes ___ No ___

How many years of grain elevator management experience have you had?
_____ *years*

What was your highest level of formal education? _____

1. *Less than 12 years*
2. *High school diploma*
3. *Some college*
4. *Two year (associate) degree*
5. *Four year degree*
6. *Graduate degree*

How much formal training in use of futures markets have you had? _____

a. *No training*
b. *Some training*
c. *Considerable training*
d. *Extensive training*

PROFILE OF SUBSTATION AT _____

1. *Approximately what is the age of your main house (years)?* _____ *years*

2. *When did your station merge with the coop?* _____/_____ *(month/year)*

3. *What is your total storage capacity?* _____ *bushels*

4. *At maximum capacity, how many semi-trucks can you load out in one normal work day?* _____ *trucks/day*

5. *At maximum capacity, how many farm trucks can you dump in one normal work day?* _____ *trucks/day*

6. *Distance from subterminal (one way)?* _____ *miles (one way)*

7. *Total number of employees before merger (including manager).*

   A. *Total number of full-time employees.* _____

   B. *Total number of part-time employees.* _____

8. *Total number of employees after merger (including manager).*

   A. *Total number of full-time employees.* _____

   B. *Total number of part-time employees.* _____

9. *What was your average annual grain volume before merger (3 year average, if available)?* _____ *bu/year*

10. *What was your average annual grain volume after merger (3 year average, if available)?* _____ *bu/year*

11. *What was your average annual merchandise sales (feed, fertilizer, supplies, etc.) before merger (3 year average, if available)?* _____ *$/year*

12. *What was your average annual merchandise sales (feed, fertilizer, supplies, etc.) after merger (three year average, if available)?* _____ *$/year*

13. *What was your average annual income from services before merger (storage, drying, grinding, spreading, etc.) - three year average, if available?* _____ *$/year*

14. *What was your average annual income from services after merger (storage, drying, grinding, spreading, etc.) - three year average, if possible.* _____ *$/year*

15. *In which of the following areas has your job as manager changed since the coop merger?*

	Has your job changed?	
A. *Grain merchandising.*	*Yes* / /	*No* / /
If yes, how has it changed?		
B. *Merchandising of other materials (feed, chemicals, seed, supplies, etc.)*	*Yes* / /	*No* / /
If yes, how has it changed?		
C. *Physical operation of the plant (loading and unloading trucks, blending, etc.)*	*Yes* / /	*No* / /
If yes, how has it changed?		
D. *Other ways your job has changed (please be as specific as possible.)*		

16. *Which of the following commodities do you currently handle and in approximately what proportions?*

Crop	Percent of Total
HRS wheat	_____ %
Durum	_____ %
Barley	_____ %
Oats	_____ %
Sunflower	_____ %
Corn	_____ %
Soybeans	_____ %
Other (specify)	_____ %
_____	_____ %
_____	_____ %
TOTAL	100%

17. *What merchandise do you handle?*

a. Feed /__/
b. Seed /__/
c. Ag chemicals /__/
d. Fuel /__/
e. Coal /__/
f. Twine /__/
g. Dry, bulk fertilizer /__/
h. Liquid fertilizer /__/
i. Anhydrous ammonia /__/
j. Dry, bagged fertilizer /__/
k. Other (please specify)
_____
_____

18. *What other services do you perform for patrons?*

a. Drying /__/
b. Cleaning and treating /__/
c. Spreading fertilizer /__/
d. Bagging /__/
e. Soil testing /__/
f. Grinding and rolling /__/
g. Other (please specify)
_____
_____

THE LAST THREE QUESTIONS RELATE TO CHANGES THAT HAVE OCCURRED AT YOUR STATION SINCE MERGER WITH THE COOP. WHEN ANSWERING THESE QUESTIONS, TRY TO KEEP IN MIND ALL AREAS OF ACTIVITY AT YOUR STATIONS INCLUDING GRAIN HANDLING, SERVICES FOR FARMERS, OTHER MERCHANDISE SALES, OR ANY OTHER CHANGES THAT MAY HAVE OCCURRED.

19. *What functions did your station perform before the merger that you no longer perform today?*

20. *What new functions does your station perform that you did not perform before the merger?*

21. *In your view, what is the primary role of your substation today, and how is that role different than prior to merger?*

THANK YOU!

APPENDIX C

Cooperative Patron Questionnaire

******** COOPERATIVE PATRON SURVEY

1. How many cropland acres do you farm? (please check one)

   a. 0-500 /__/
   b. 501-1000 /__/
   c. 1001-1500 /__/
   d. 1501-2000 /__/
   e. over 2000 /__/

2. What is the approximate age of the primary farm operator?

   a. Less than 20 years /__/
   b. 21-30 years /__/
   c. 31-40 years /__/
   d. 41-50 years /__/
   e. 51-60 years /__/
   f. More than 60 years /__/

3. Which substation of ******** Cooperative do you generally patronize and what is the one-way mileage to that substation?

   _____ substation

   _____ miles (one-way)

4. How many miles (one-way) would you have to haul grain to the main subterminal at ******** ?

   _____ miles

5. If your local coop elevator was not in operation, what would be the one-way mileage to the next closest elevator? _____ miles

6. What percent of your total grain produced do you sell to ******** Cooperative? _____ %

7. Why did your coop participate in the merger of ******** Cooperative? (Please rank, 1=most important reason, etc., not necessary to rank all of them.)

   a. Abandonment of rail lines /__/
   b. Poor rail service /__/
   c. Unit train/multiple car rail rate savings /__/
   d. As a reaction to increased competition from other elevators /__/
   e. To improve financial position of local coop /__/
   f. Increased grain production putting pressure on available elevator marketing capacity /__/
   g. Age of existing facilities /__/
   h. Government long term storage agreements /__/
   i. Other (please specify) /__/

   _____

   _____

8. Is the capacity of your local elevator better utilized now than before merger? (For example: not plugged, waiting lines, etc.)

   Capacity better utilized because of merger? /__/
   Why? _____

   _____

   Same capacity utilization after merger. /__/

   Poorer capacity utilization because of merger? /__/
   Why? _____

   _____

9. *Please rate the following services at your local coop as to whether you feel you receive better service or poorer service because of the coop merger (check the appropriate box).*

	Better service	No change in service	Poorer service
a. Grain handling	☐	☐	☐
b. Commercial grain storage	☐	☐	☐
c. Feed sales	☐	☐	☐
d. Fertilizer sales	☐	☐	☐
e. Herbicide sales	☐	☐	☐
f. Drying grain	☐	☐	☐
g. Spreading fertilizer	☐	☐	☐
h. Other services (please specify)			
_____	☐	☐	☐
_____	☐	☐	☐

10. *Considering all your coop services, do you feel you get better service now at your coop substation compared to before the merger with ****** Cooperative?*

Better service because of merger? ☐ *Why?* _____

_____

_____

Same service because of merger. ☐

Poorer service because of merger? ☐ *Why?* _____

_____

_____

11. *Do you feel you get higher or lower prices for grain at your coop substation compared to before the merger with ****** Cooperative? (check one and give reasons, if possible)*

Higher prices because of merger? ☐ *Why?* _____

_____

_____

Same prices because of merger. ☐

Lower prices because of merger? ☐ *Why?* _____

_____

_____

12. *What new problems, if any, have arisen due to the merger?*

13. *How have you as a producer benefitted from the merger?*

- -

If you would like a summary copy of the final report of this project please print your name and address below.

Name _____ *Address* _____

_____

Thank you!

REFERENCES

Chase, Craig A. and Delmer L. Helgeson, "Cost Analysis of Potential North Dakota Subterminal Systems," Agricultural Economics Report No. 156, North Dakota State University, Fargo, 1983.

Chase, Craig A., Delmer L. Helgeson and Terry L. Schaffer, "Statistical Cost Analysis of the Existing North Dakota Country Elevator Industry," Agricultural Economics Report No. 155, North Dakota State University, Fargo, 1983.

Clow, Bradley B., "Analysis of Financial Performance of Cooperative Unit Train Shippers in North Dakota," Unpublished M.S. Thesis, Department of Agricultural Economics, North Dakota State University, Fargo, August 1987.

Griffin, Gene C. and Jon H. Mielke, "A History of Multiple Car Wheat Rates in North Dakota," Staff Paper No. 23, Upper Great Plains Transportation Institute, North Dakota State University, Fargo, October, 1982.

Kuntz, Daniel S. and Ray H. Walton, Attorneys for Protestant, North Dakota Public Service Commission, "Argument and Verified Statements in Opposition to the Application," Application of Burlington Northern Railroad for Authority to Abandon the Linton, North Dakota to Eureka, South Dakota line before the Interstate Commerce Commission, Docket No. AB-6 (Sub. No. 236), March 15, 1985.

Montana Department of Agriculture, "Montana Directory of Commodity Dealers and Public Warehouseman, July 1, 1983 -June 30, 1984, Helena, Montana.

North Dakota Board of Railroad Commissioners, Annual Report to the Governor, for the Biennial period ending June 30, 1916.

North Dakota Grain Dealers Association, "Directory of Licensed and Bonded Country Elevators in North Dakota", Fargo, 1985.

Ogg, Dennis C. and Linda K. Schuster, "North Dakota Grain and Oilseed Transportation Statistics, 1986-87, Upper Great Plains Transportation Institute Report No. 63, Upper Great Plains Transportation Institute, North Dakota State University, Fargo, December, 1987.

Wilson, William W., Daniel Zink, Won Koo, David Cobia, Delmer L. Helgeson, Dennis Ming, and Gene Griffin, "The Grain Industry - Country Elevators, Grain Marketing and Transportation," North Dakota Farm Research Bimonthly Bulletin, Agricultural Experiment Station, North Dakota State University, Fargo, July-August, 1984.