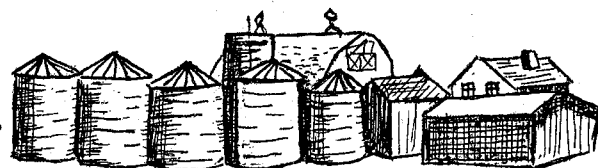


Grain Marketing Strategies of North Dakota Grain Farmers



GARY M. BEDKER
and
DONALD E. ANDERSON

Department of Agricultural Economics
North Dakota Agricultural Experiment Station
North Dakota State University
Fargo, North Dakota

FOREWORD

The basic objective of this report is to discuss the factors considered and the methods that are used by small-grain farmers in the marketing of their products.

The figures and discussions which appear in this report are not meant to be an inclusive average of all farmers in North Dakota, but rather a consensus of specific groups of farmers engaged primarily in producing small-grains with limited income from other sources.

It is hoped that this report will serve as a useful reference in helping North Dakota small-grain producers identify possible marketing alternatives and strategies available.

The authors wish to extend their appreciation to the small-grain producers who were interviewed. Without their help, this study would not have been possible.

This study was a part of a North Central Regional Grain Marketing study. Similar data have been collected and analyzed for other states in the region by the NC-104 Grain Marketing Committee.

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Highlights

The results of the study indicate the importance of the local elevator to North Dakota small-grain farmers. Local elevators received over 99 percent of the total wheat sold by farmers interviewed.

Convenience and knowing the person the farmer was dealing with were considered the main advantages the local elevator had over other marketing channels in the selling of grain. Some of the local elevator characteristics which were felt to need improvement were the storage capacity and customer services provided by local elevators. The primary factors considered important in selecting a marketing outlet, in order of importance, were: price, convenience, grading practices, loyalty to firm or manager, credit provisions for purchases, and the availability of farm supplies.

The majority of farmers interviewed felt that by using the marketing practices of: providing uniform quality, selling in large volume, or selling grain for seed, they could increase their net price per bushel of grain sold. The major portion of farmers anticipated no change in their marketing strategies in the next five years. Twenty-four percent of the farmers, however, responded that they were going to try to ship grain directly from the farm to the terminal market or processor.

The major factors considered by farmers interviewed, in determination of timing of their grain sales, were price and availability of labor. Income tax considerations, the need for ready cash, and farm storage shortages also affected the time in which they chose to sell grain.

Farmers interviewed were planning to increase in storage capacity an average of approximately 16 percent in the near future. The majority of the storage facilities anticipated to be added is steel bins and quonsets. The addition of these storage facilities is anticipated to increase marketing flexibility of farmers and, thereby, strengthen their marketing position.

GRAIN MARKETING STRATEGIES OF NORTH DAKOTA GRAIN FARMERS¹

By

Gary M. Bedker and Donald E. Anderson*

The agricultural marketing system has undergone a rapid change due to technological improvements in transportation and communications.² Traditionally, the agricultural market system developed around the mode of transportation and communications existing at the time.

The railroad in the early Twentieth Century played a large role in the marketing system. Farmers delivered grain at harvesttime by wagons and small trucks to country markets located within a few miles of production. Each country market served a small geographic area and was practically the only market outlet for farmers located within the area.

The use of larger, more efficient trucks; improved roads; communications; and farm storage has resulted in farmers being able to gain access to more alternatives in selling their grain.³ The market system began to take on a new dimension as the ability of farmers to deal with markets in other geographic areas increased.

Farmers who formerly sold grain strictly to the local country elevator now have the options of selling direct to the terminal market or processor, through marketing associations, or other direct contract selling. These practices require that the farmer often take on the added responsibility of transportation and handling normally done by the local elevator. There is an apparent trade-off between the monetary gain and in the taking on of these added responsibilities. As a result, it is becoming increasingly difficult to evaluate the best marketing channel to sell grain based on price alone.

The intent of this study is to identify prevailing farm characteristics and attitudes of farmers in selling cereal grains. Selling patterns used by farmers will be described and attitudes toward alternative markets will be analyzed.

Research which aids in analyzing how farmers make their decisions in the selling of farm products is useful to both parties in the market. The grain merchant may use the information to improve his buying effectiveness

*Bedker is a former Graduate Assistant and Anderson is a Professor of Agricultural Economics, Agricultural Economics Department, North Dakota State University, Fargo, North Dakota.

¹This study was a part of the North Dakota contributing project to the North Central Regional Research Project NC-104.

²Futrell, Gene A. and Geoffrey S. Shepard, Marketing Farm Products, The Iowa State University Press, Ames, Iowa, 1969, p. 78.

³Ibid., p. 79.

in obtaining a larger share of the market. The farmer may use the information to improve his techniques so that he may select the best combination of services and price offered. This study is anticipated to give insight into changes which are expected to come in the farm product marketing industry.

Procedure

Three counties in east central North Dakota--Griggs, Steele, and Barnes, located in Crop Reporting District 6--were selected for study. District 6 is one of the most highly concentrated small grains producing areas in the state.

The farms used in the study were selected from the 1968 North Dakota Wheat Commission mailing list.⁴ The farms were broken down into three size categories based on total acres operated. The sample farms were stratified as follows:

<u>Farm Size</u>	<u>Acres Operated</u>
Small	160 - 800
Medium	801 - 1,600
Large	1,601 - and Over

Farms with less than 160 acres were deleted from the population. It was thought that farms below this acreage do not make typical commercial marketing decisions because a substantial amount of their income usually comes from other sources.

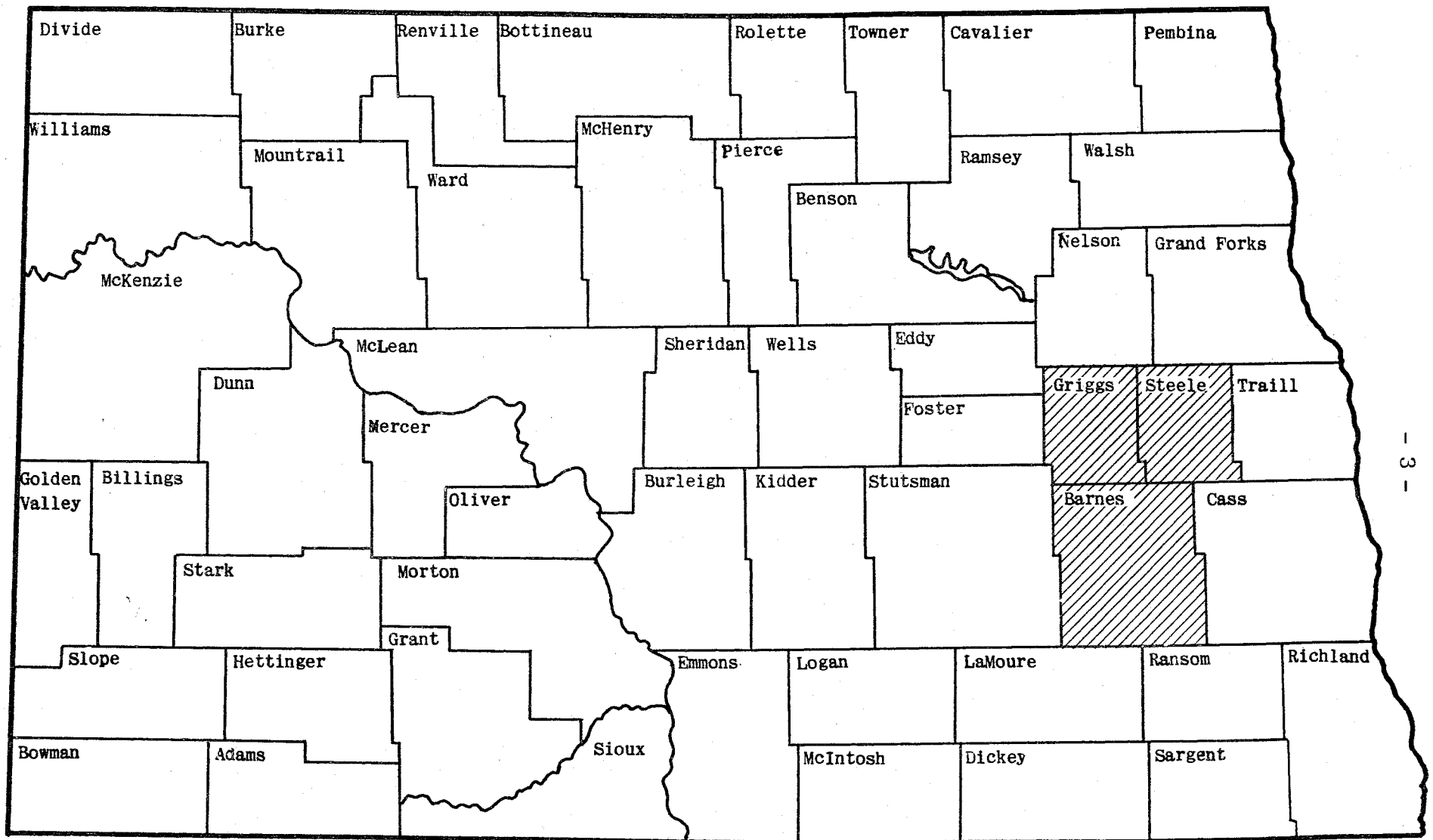
In July, 1972, the personal interviewing of the farmers was conducted. A total of 75 usable schedules was obtained.

There are approximately 100 farms with over 1,600 acres and approximately 1,000 farms with less than 800 acres in the study area. A stratified random sample design was used because the number of small farms greatly outnumbered the large farms. By the use of a stratified sample design, more emphasis was placed on the larger farms than would be possible with the simple random sample design. With the design used, it is possible to study each farm group individually rather than to obtain estimates for the entire population of farms in the study area.

In evaluating the results of this study, consideration must be given to the method employed in the collection and method used in the analysis of the data. The average farm size in 1969 was 760 acres in the study area.⁵ This study is primarily concerned with the differences between and within extremely large farms, farms with above acreage, and farms with below average acreage.

⁴North Dakota State Wheat Commission Mailing List, Bismarck, North Dakota, 1968, unpublished and not available for general use.

⁵North Dakota Crop and Livestock Statistics, 1971, Agricultural Statistics No. 26, Statistical Reporting Service, United States Department of Agriculture, and Department of Agricultural Economics, North Dakota State University, cooperating, Fargo, North Dakota, May, 1972.




 Study Area

Figure 1. Location of Sample Area for Marketing Study in East Central North Dakota, 1971

Farm size in gross acres was used as the stratifying variable. This stratification is based on the premise that larger farms are capable of adopting new marketing strategies more rapidly than are operators of smaller farms.

Marketing Channels Used

Out of the 75 farmers interviewed, five sold small grains in marketing outlets other than the local country elevator. One farmer sold wheat to a subterminal market located 45 miles from his farm and four farmers sold barley through the National Farmers Organization (NFO). The average barley sale to the NFO was 2,227 bushels and the grain, in all cases, was picked up at the farm by truck.

Importance of Local Elevator

In all cases in which the farmers sold through market outlets other than the country elevator, a substantial amount of grain was also sold to the country elevator. During the calendar year 1971, 99.3 percent of the total wheat sales by farmers interviewed was sold to the local elevator. This reinforces the importance placed on the local elevator as a marketing outlet in the area under study.

In looking at the importance of the local elevator, farmers were asked to give the advantages of selling through the local elevator over other market outlets. Table 1 illustrates the type and frequency of responses from farmers in the study area.

TABLE 1. ADVANTAGES OF SELLING THROUGH A LOCAL ELEVATOR BY FREQUENCY OF FARMERS RESPONDING IN THE STUDY AREA, 1972

Response	Frequency of Response* percent
Convenience	60.0
Know the Person Who You Are Dealing With	18.0
Freedom to Sell When You Want	14.7
Information	11.5
Patronize the Local Community	9.8
Certain of Price Before Selling	9.8
Fair Prices	9.8
Continuous Market	8.2
Availability of Time	8.2
Premiums and Fair Grading	6.5
Blending Grain	4.9
Certain of Grade Before Selling	3.2
No Problems with Road Restrictions	3.2
Dividends	1.6

*Many farmers listed more than one advantage of the local elevator. The frequency is based on the number of farmers interviewed and not the number of responses received.

Approximately 60 percent responding stated that convenience was the primary advantage the local elevator had over other market outlets. The average distance from the farm site to the local elevator patronized was approximately 6.5 miles. In addition to convenience, 18 percent of the responses noted that knowing the person they are dealing with is to an advantage when selling their grain.

The local elevator has the advantage of providing a continuous market where a farmer can sell his grain when he has time and labor available. Some farmers noted that the information provided by the local elevator was a considerable advantage. The idea of patronizing the local community and also receiving dividends was considered as an incentive to market at the local elevator. The certainty of a price and grade of the grain being sold before it leaves the farm site is an advantage which was considered important. This is made possible by having samples evaluated by local elevators.

A question was also included as to the disadvantages of dealing with the local elevator over other market outlets. Approximately 35 percent of the farmers listed a price disadvantage in dealing with the local elevator.

A convenience disadvantage was noted by 27 percent of the farmers. Many of these farmers feel that it is much more convenient to have a trucker come to the farm site and load grain than to haul to the local elevator. Others responding to the question feel that they do not have the labor available to haul grain when they would like to sell. They feel that by using market outlets where transportation is provided, the problem of labor availability would be decreased greatly.

Attitudes About the Local Elevator

Table 2 illustrates the percentage of farmers in each farm size group that feels the characteristics listed are provided by their local elevator in a satisfactory manner.

The percentage of responses by the farmers relating to the adequacy of storage, unloading efficiency, and modern appearance shows that perhaps at least some of the elevators are lacking in these factors. The short-coming of the local elevators in these areas can best be explained by the elevators' inability to economically provide up-to-date handling and storage facilities.⁶

An attempt was made to measure the importance of factors influencing the farmer's decision as to choice of grain marketing outlet. A list of factors believed to influence the choice of marketing outlet was presented in the questionnaire. Farmers were asked to check the factors believed to influence their choice of outlet. Table 3 illustrates the factors and percent of the responses in each farm size category which farmers feel has an influence on the choice of marketing outlet.

⁶Taylor, Fred R., and Paul D. Velde, The Organization of Country Markets for Grain in North Dakota, Agricultural Economics Report No. 49, Department of Agricultural Economics, Agricultural Experiment Station, North Dakota State University, Fargo, p. 44.

TABLE 2. CHARACTERISTICS OF LOCAL ELEVATORS AND THE PERCENT OF FARMERS FEELING THE CHARACTERISTIC IS PRESENT IN THEIR LOCAL ELEVATOR BY FARM SIZE GROUP, 1972

Characteristics	Farm Size		
	Small	Medium	Large
Friendly Helpful Personnel	96	96	100
Fair Prices, Grades, and Discounts	88	92	100
Grain Handling Ability Satisfactory	92	88	100
Storage Capacity Adequate	68	76	40
Grain Unloading Efficiency	48	76	76
Modern Up-to-Date Facility	72	76	88
Pays for Grain Within Reasonable Time	100	100	100
Provides Needed Services	24	28	24
Pays Premium on Large Lots	12	32	52
Provides Credit for Purchase	84	88	92
Has Farm Supplies Available	84	92	92
Protein Tests Can Be Taken	0	8	16

TABLE 3. FACTORS INFLUENCING CHOICE OF MARKET OUTLET AND PERCENT OF FARMERS BY FARM SIZE GROUP WHO FEEL THESE FACTORS HAVE A SIGNIFICANT INFLUENCE ON THE CHOICE OF MARKET OUTLET

Factor	Farm Size			Average
	Small	Medium	Large	
Loyalty to Firm or Manager	60	76	76	70.6
Lenient Grading Practices	72	88	72	77.0
Higher Prices	96	96	96	96.0
Farm Supplies Available	52	60	64	58.6
Convenience	96	88	96	93.0
Firm Provides Credit for Purchases	60	60	80	66.6

As illustrated in Table 3, convenience and price received the largest percentage of responses. Lenient grading practices and loyalty to the firm or manager received a substantial percent of responses.

Opinions on Selling Strategies

Although the marketing outlets available to the farmers are somewhat limited, marketing practices between farmers and the market outlets may differ. In the farm survey a question about marketing practices and their affect on increasing the price for the farmers' product was posed. Table 4 lists the marketing practices which were included in the schedule and the percentage of farmers, according to farm size, who feel that the market practice could provide a higher price in the selling of their grain.

TABLE 4. MARKETING PRACTICES AND PERCENT OF FARMERS FEELING THAT THE PRACTICE COULD PROVIDE A HIGHER PRICE, BY FARM SIZE GROUP, 1972

Marketing Practice	Farm Size			Average
	Small	Medium	Large	
			percent	
Selling in Large Volume	60	60	68	62.6
Dealing with Terminal Elevator	12	24	32	22.6
Dealing with the Processor	20	32	44	32.0
Dealing with Local Elevator	36	40	52	42.6
Providing Uniform Quality	48	80	76	68.0
Delivery to Purchaser	16	20	28	21.3
Selling at Harvest	8	4	8	6.6
Selling to Another Farmer	8	16	8	10.6
Selling Through a Marketing Assn.	32	36	32	33.3
Selling for Seed	64	80	76	73.3

These marketing practices reflect the type of strategies open to some of the farmers in the market area. By the responses of the large-size farm group (1,601 acres and over), it can be seen that more farmers in this group feel that they are able to gain added premiums in almost any of the marketing practices listed. The smallest farm size group has the lowest percentage of responses in all but two of the ten marketing practices listed.

Farmers were asked to indicate the amount of the price increase believed possible by using the various marketing practices identified in Table 4. In Table 5 the average premiums in cents is given for each farm size category.

TABLE 5. AVERAGE PREMIUMS IN CENTS PER BUSHEL BELIEVED TO BE PROVIDED BY EACH MARKETING PRACTICE BY FARM SIZE GROUP, 1972

Marketing Practice	Farm Size			Average
	Small	Medium	Large	
			cents	
Selling in Volume	3.75	3.42	3.31	3.49
Dealing with Terminal Elevator	4.80	3.90	3.56	3.90
Dealing with Processor	3.58	3.80	3.50	3.61
Dealing with Local Elevator	2.11	2.15	2.57	2.31
Providing Uniform Quality	3.24	3.41	3.23	3.30
Delivering to Purchaser	4.97	4.18	3.21	3.95
Selling at Harvest	3.50	2.00	3.25	3.10
Selling to Another Farmer	3.75	1.75	3.00	2.56
Selling Through Marketing Assn.	4.42	4.11	3.56	4.03
Selling for Seed	17.18	15.90	9.36	14.02

It should be remembered--the opinions on the advantages of various marketing practices are conjecture on the farmer's part. However, from the breakdowns in Tables 4 and 5, it is evident that farmers feel they can obtain sizable premiums by employing different marketing practices.

In looking at the various marketing practices, the majority of the farmers feel that premiums can be obtained by selling in large volume, providing uniform quality grain, and selling grain for seed. Although the attitudes about the advantages of the various marketing channels are approximately the same, a look at anticipated changes in marketing may show some hesitation on the part of certain farm groups to actually try to use a different marketing practice or strategy.

Anticipated Changes in Marketing

A question was asked about changes anticipated in their marketing or production practices within the next five years. The question was posed in an attempt to see if and how farm groups are changing their marketing strategy.

Table 6 lists the types of responses received and the percentage of responses within each farm size group. A cumulative percentage of all size farms are listed at the right of the table.

TABLE 6. PERCENT OF FARMERS ANTICIPATING CHANGES IN MARKETING PRACTICES WITHIN THE NEXT FIVE YEARS BY PRACTICE AND FARM SIZE GROUP, 1972

Changes in Marketing Practice	Farm Size			Percent of Total Responses
	Small	Medium	Large	
None	72	44	48	54.67
Contract Selling	0	4	4	2.67
Ship Direct to Processor or Terminal Elevator	20	28	24	24.00
Add Storage	8	4	4	5.33
Market to Larger Local Elevator	0	0	4	1.33
Ship Through Local Elevator	0	4	4	2.67
Large Volume Selling	0	12	8	6.67
Market at Different Time Periods	0	4	0	1.33

Approximately 55 percent of all the farmers interviewed anticipated no change in the way in which they will market their grain. One farmer in the small size category stated that he was satisfied with his marketing practices and that any price advantage he would secure would not be worth the trouble of changing his practices.

The practice which received the most response was that of selling directly to the processor or terminal elevator. Almost one-fourth of the farmers anticipated trying this practice in the marketing of their grain. Some of the farmers expressed that by eliminating the middle man a higher price could be attained.

Only 6.67 percent of the farmers anticipate making large volume sales within the next five years, while 62.6 percent of them feel that added premiums may be obtained by this type of market practice.

Factors Considered in Choosing When to Sell

A list of the reasons given by farmers as to why they sell when they do is included in Table 7. Many of the farmers have more than one criteria for their choice in the timing of their grain sales.

TABLE 7. PERCENT OF FARMERS LISTING MAJOR FACTORS IN CHOOSING TIME OF GRAIN SALE, 1972

Response	Farmers Listing Responses percent
Price	84.0
Availability of Labor	49.3
Income Tax	30.7
Need Money	17.3
Farm Storage Shortage	13.3
Seasonal or Weather Restrictions	9.3
Availability of Local Elevator Storage	4.0
Protein or Grade Premiums Available	2.7

Price and availability of labor, both which seem to be typically unfavorable during the harvest period, are the most frequent responses listed by farmers for choosing when to sell grain. The need for ready cash, income tax purposes, and farm storage shortages is also an important consideration used by many farmers in the timing of grain sales.

Farmers were further asked to choose the single most important factor considered in the timing of their grain sales. Grain price was listed by about three-fourths of the farmers as the single most important factor considered in determining when to sell grain. The remaining 25 percent of the farmers listed either availability of labor or time, the need for ready cash, income tax, or local elevator storage shortages as the most important factor which influences their decision when to sell grain.

By increasing storage, it seems the farmer could gain flexibility in the marketing of his grain. It is very likely that farm labor is scarce during harvest; thus, on-farm storage can be used to expedite the movement of grain from the field. Also, without storage, farmers would be forced to deliver grain to the elevator regardless of the price. This would appear to be the case if local elevator storage was unavailable.

Farm storage has become an important strategy in the marketing of small grains. Grain storage capacity in North Dakota has been increasing rapidly. Storage has risen, in part, due to the increased yields attained

by more efficient methods of weed and insect control, improved varieties, and increased use of commercial fertilizer.⁷ The profitability of on-farm storage and the government storage programs has increased the percentage of stocks held on farms.⁸ The inability of local elevators to increase storage capacity⁹ has also placed the responsibility of storage directly on the farmer. This would indicate that farmers could increase their comparative advantage by the mere physical possession of stocks. The increased volume desired by processors and terminal elevators may place the farmer in an advantageous position to bypass local outlets.

Production and Storage of Small Grains

A general look at the production of small grains and its storage may give some insight as to the difference and similarities in farmers' attitudes about various marketing practices. The marketing practice of selling in large volume, as an example, may be out of the question for a farmer producing 2,000 bushels; but the same practice may be quite feasible for a farmer producing 20,000 bushels.

Table 8 illustrates the amounts of crop grown, average bushels harvested, off-farm storage used, and the percent of farmers using storage all listed by farm size category as of harvesttime, 1971. Other crops calculated into the "total crops grown" section include rye, flax, durum, and corn.

The figures in Table 8 on storage were taken as of harvesttime, 1971. The storage figures for barley and oats primarily reflect storage of the 1971 crop. There was very little carry-over on these two crops. In wheat, however, the carry-over was considerable. The total storage of wheat in on-farm and off-farm storage facilities was only about 500 bushels less than the average amount produced during 1971. The amount of wheat stored reflects the intentions of the farmers to hold wheat during the harvest period and sell at a time more advantageous to them.

Crops other than oats, barley, and wheat were inventoried in the schedule. Off-farm storage for those crops is used more extensively than with the primary crops. Of the farmers producing other crops, 34.6 percent utilized off-farm storage in the storing of their grain. Possibly the wide use in off-farm storage stems from the shortage of on-farm storage facilities. The bushels produced may not justify the use of a large storage bin in storing a small quantity of grain.

Wheat was produced by about 99 percent of the farmers interviewed compared to approximately 91 percent producing barley. Of those producing barley, 14 percent fed one-fifth of the barley produced to livestock.

⁷Futrell and Shepard, op. cit., p. 423.

⁸Anderson, Donald E., and Dennis Egge, An Analysis of the Profitability of Farm Storage of Grain, Bulletin No. 469, Department of Agricultural Economics, North Dakota State University, Fargo, North Dakota, October, 1967, pp. 23, 25.

⁹Taylor and Velde, op. cit., p. 43.

TABLE 8. PERCENT OF FARMERS AND AVERAGE BUSHELS OF GRAIN PRODUCED AND STORED IN CALENDAR YEAR 1971 BY FARM SIZE GROUP

Type of Grain, Quantity, and Storage Type	Farm Size			
	Small	Medium	Large	Average
<u>Wheat</u>				
Percent of Farms Producing	100	100	96	99
Average Acres Harvested	133	263	512	303
Average Bushels Harvested	4,912	11,108	21,148	12,389
Average Bushels Stored On-Farm	4,288	11,408	18,644	11,447
Average Bushels Stored Off-Farm	160	768	340	423
Percent of Producers Using On-Farm Storage	96	100	96	97
Percent of Producers Using Off-Farm Storage	4	12	9	8
<u>Barley</u>				
Percent of Farms Producing	84	96	92	91
Average Acres Harvested	56	140	372	189
Average Bushels Harvested	2,625	8,048	17,488	9,387
Average Bushels Stored On-Farm	2,184	7,028	16,160	8,457
Average Bushels Stored Off-Farm	N/A	N/A	280	93
Percent of Producers Using On-Farm Storage	95	96	100	97
Percent of Producers Using Off-Farm Storage	0	0	4	1
<u>Oats</u>				
Percent of Farms Producing	68	76	76	73
Average Acres Harvested	36	77	127	80
Average Bushels Harvested	2,244	5,804	8,604	5,551
Average Bushels Stored On-Farm	2,120	4,995	8,552	5,222
Average Bushels Stored Off-Farm	N/A	64	N/A	21
Percent of Producers Using On-Farm Storage	100	95	100	98
Percent of Producers Using Off-Farm Storage	0	5	0	2
<u>Total for All Crops Grown</u>				
Average Total Acres Harvested	245	528	1,080	618
Average Total Bushels Harvested	9,827	26,096	48,112	28,012
Average Total Bushels Stored on Farm	9,197	24,266	45,556	26,340
Average Total Bushels Stored Off Farm	316	1,036	804	719

Wheat sales are used as a basis for analyzing marketing strategies because the sample data were more complete for this grain than were the data for barley.

The largest percentage (approximately 80 percent) of the wheat sold was secured from on-farm storage inventories. Approximately one-fifth of the wheat sold by the sample farmers in all farm size groups was sold at harvesttime, with the medium size farm group selling a slightly larger percent of their wheat at harvest (Table 9).

Table 10 indicates the storage situation of each of the farm size groups in calendar year 1971. A look at the available storage facilities

TABLE 9. AVERAGE QUANTITY AND PERCENT OF TOTAL WHEAT SOLD BY FARM SIZE AND TYPE OF STORAGE DURING CALENDAR YEAR 1971

Farm Size Group	Total Wheat Sold	Percent of Total Wheat Sold at Harvesttime	Percent of Total Wheat Sold from On-Farm Storage	Percent of Total Wheat Sold from Off-Farm Storage
	bu.	percent	percent	percent
Large	11,640	15.0	83.2	1.8
Medium	3,485	22.8	77.2	.0
Small	1,817	18.8	81.2	.0
Total Average	5,647	18.9	80.5	.6

TABLE 10. PERCENT OF STORAGE USED, PERCENT OF AVAILABLE STORAGE PER BUSHEL HARVESTED, BUSHEL OF STORAGE PER TILLABLE ACRE, AND PERCENT CARRY-OVER FROM PREVIOUS YEARS BY FARM SIZE GROUP, 1971

Type of Quantity or Percent Measured	Farm Size		
	Small	Medium	Large
Percent of Total Storage Used in 1971	78.25%	91.1%	89.5%
Percent Available Storage Per Bushel Harvested in 1971 ^a	127.00%	105.0%	109.0%
Bushels of Storage Per Tillable Acre	35.17	37.15	36.16
Percent of Carry-Over to Total Storage	16.19%	24.8%	10.5%

^aNote: Percent of available storage was calculated by subtracting carry-over bushels from the total grain storage space on the farms. This figure was then divided by the number of total bushels harvested in 1971 to arrive at the percent of available storage per bushel harvested.

for each farm group may help in explaining the reasons the farmers sold when they did.

The total bushels harvested in 1971 was used as a basis for calculating farm storage availability in Table 10. The calendar year 1971 appears to be a year which produced higher than average yields. The five-year wheat yield average from 1966 to 1970 was 29 bushels per acre for the study area. In 1971 the average yield per acre for the study area was approximately 35 bushels. Consideration should, therefore, be given to the percent of total storage used and the percent of available storage per bushel (presented in Table 10) as they probably are low estimates.

The medium size farm group, with approximately 105 percent of available storage capacity per bushel harvested, had the lowest available storage of the three groups. The highest percent of total storage used was for the medium size group--with 91.1 percent. It is believed that if farmers utilize

85 to 90 percent of their storage facilities, they are managing their storage facilities adequately. Approximately 10 percent of the storage in the medium size farm group was unused capacity. This unused storage capacity may be in the form of unfilled portions of large grain bins or in the form of older unrepaired storage facilities which were not adequately restored for storage during 1971. Farmers may also have unfilled storage which is usable, however, they may be employing the unfilled storage facilities as a long-range marketing strategy. By filling all storage facilities to capacity, they may not have the flexibility desired in the event the price of grain drops the following year. If a price drop should occur during that period, farmers would ultimately be forced to sell because of the lack of storage. By keeping some unused facilities on hand, the farmer may guard himself against cyclical price changes.

By comparing Tables 9 and 10, it can be seen that the medium size farm groups sold a higher percentage of grain at harvesttime and also had the highest percent of storage utilization. The high usage of storage facilities implies that farmers in the medium size category were short on storage facilities. Farms in the large size farm group had a high percentage of storage capacity used, but also stored some grain in off-farm storage rather than sell at harvesttime.

By the implied shortage of available storage in the small size groups and the use of off-farm storage by large size category, it can be said that selling grain at harvesttime may be considered undesirable by many farmers. Farmer reluctance to sell at harvesttime may be due to the lack of the availability of labor during harvest or the seasonally low price normally received at harvesttime. They may also desire to store grain because of long-range marketing strategies to protect themselves against cyclical price fluctuations.

Adequacy of Farm Storage Facilities

The amount of farm storage facilities on hand at harvesttime in 1971 was sufficient to handle approximately 138 percent of the crop produced during the calendar year 1971. The type of grain storage facilities used tends to vary according to the needs of the individual farmer. Table 11 shows the types of storage facilities and the capacities of these facilities for each farm size category. Included in the "other" column is small elevators, barns, sheds, and other temporary storage facilities.

Metal bins are the major type of storage facilities used by farmers interviewed. The percentage use of metal bins and quonsets tends to increase with farm size. These two types of storage facilities account for two-thirds of the storage found on farms surveyed.

Farmers were asked about the amount and type of storage which they anticipate adding in the next five years. This will give a better picture of how farm storage facilities and quantity may change in the near future.

Table 12 indicates the responses of farmers asked if their farm storage was adequate for their individual farm. The highest percentage of farmers stating that storage was inadequate was the medium size farm group.

TABLE 11. PERCENT AND AVERAGE CAPACITY OF STORAGE BY KIND OF STORAGE AND FARM SIZE, 1971

Kind of Storage Percent and Average Capacity	Farm Size			Average of Total
	Small	Medium	Large	
<u>Metal Bins</u>				
Percent of Farms Using	84	92	100	92
Average Bushel Capacity Per Farm Reporting	7,000	18,000	25,500	17,400
Average Bushel Capacity for All Farms	5,900	16,600	25,500	16,000
<u>Wooden Granaries</u>				
Percent of Farms Using	84	84	72	80
Average Bushel Capacity Per Farm Reporting	5,900	10,500	16,300	10,600
Average Bushel Capacity for All Farms	5,000	8,800	11,800	8,500
<u>Quonset</u>				
Percent of Farms Using	20	52	76	49
Average Bushel Capacity Per Farm Reporting	15,200	18,200	22,800	20,100
Average Bushel Capacity for All Farms	3,000	9,400	17,300	9,900
<u>Silo</u>				
Percent of Farms Using	8	8	12	9
Average Bushel Capacity Per Farm Reporting	4,000	2,500	3,700	3,400
Average Bushel Capacity for All Farms	300	200	400	300
<u>Other</u>				
Percent of Farms Using	24	16	44	28
Average Bushel Capacity Per Farm Reporting	3,200	10,300	22,500	14,600
Average Bushel Capacity for All Farms	800	1,600	9,900	4,100
Average Total Bushel Capacity for All Farms	15,000	36,600	64,900	38,800

TABLE 12. PERCENT OF FARMERS HAVING ADEQUATE AND INADEQUATE STORAGE BY FARM SIZE GROUP CATEGORY, 1971

Response	Farm Size		
	Small	Medium	Large
Adequate	84	40	48
Inadequate	16	60	52

More than half of the medium and large size farm groups felt that their farm storage capacity was inadequate. Table 12 reinforces the argument that farm storage is a necessary part of farmers' grain marketing strategies.

Table 13 indicates the type and amount of storage of each facility type which was anticipated being added. Metal bins and quonsets are the two most popular types of storage facilities being planned for within the study area.

TABLE 13. PERCENT AND AVERAGE STORAGE SPACE PER TYPE ANTICIPATING ADDING BY KIND OF STORAGE AND FARM SIZE CATEGORY, 1972

Kind of Space To Be Added	Small		Medium		Large	
	Percent of Storage Space To Be Added percent	Average Storage Space/Type bushels	Percent of Storage Space To Be Added percent	Average Storage Space/Type bushels	Percent of Storage Space To Be Added percent	Average Storage Space/Type bushels
Metal Bins	100.0	5,000	80.00	13,500	84.62	16,818.18
Wooden			7.67	10,000		
Quonset			13.33	15,000	15.38	27,500.00
Other						
Total	100.0	5,000	100.00	13,446.5	100.00	18,461.58

As illustrated by Tables 12 and 13, many of the farmers feel that storage is inadequate and that either metal bins or quonsets will be added to increase the farmers' storage capacity. If the storage space were added to the farms, the average storage capacity per farm would increase approximately 16 percent for the farmers interviewed.