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Member Participation in Agricultural Cooperatives: A Regression and Scale Analysis

Abstract

This research identifies characteristics that influence member participation in cooperatives. Participation measures include attendance at meetings, serving on committees, serving as an elected officer, and recruiting other farmers to become members. Nineteen characteristics were found statistically related to participation, and include farm characteristics, member demographics, beliefs in cooperative principles, collective action, member influence, cooperative impartiality, and satisfaction with farming and cooperative officers.

Keywords: Cooperatives, dairy members, participation.

Member Participation in Agricultural Cooperatives: A Regression and Scale Analysis

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Preface

Members may participate in cooperatives in a variety of ways. Some limit their participation to economic patronage while others attend meetings, serve on committees, serve as elected officers, and/or recruit other members. If member participation is limited to economic patronage, a cooperative is little more than any other business. Member participation in the governance aspects of the organization gives cooperatives their distinctive character. Little research has been conducted in this area since the early 1980s—although the research tradition extends back to the 1940s.

Several major social and economic changes have occurred since the earlier research was conducted. Numbers of farms have declined continuously, while size in scale of both farms and cooperatives has increased. An individualist ethic has increasingly entrenched itself within our culture.

This report analyzes some of the more basic aspects of membership participation and various characteristics associated with participation. The analysis uses complex techniques—regression analysis and Likert scale analysis. However, great care is taken to explain these tools as the reader proceeds through the report. The authors use these techniques to provide valid results that can be relied upon with degrees of statistical confidence.

Contents

Highlights iii

Introduction 1

Analytical Approach—Likert Scales 2

Member Characteristics 2

- Farm Characteristics 2
- Member Demographics 4
- Cooperative Principles 5
- Collective Action 5
- Identification With the Cooperative 6
- Satisfaction Levels 7
- Member Influence 9
- Equity/Impartiality 9
- Participation 11
- Summary 11

Analytical Approach—Regression Analysis 11

Regression and Likert Scale Analyses 13

- Attended Meetings 13
- Served on Committees 17
- Elected to a Cooperative Office 20
- Recruited Other Members 22

Summary 24

Implications 26

Conclusions 28

References 29

Highlights

This research identifies various characteristics of dairy-farmer members that influence their participation in a cooperative. Participation measures included attending meetings, serving on committees, serving as an elected officer, and recruiting other farmers to become members.

Member characteristics included beliefs concerning: cooperative principles, collective action, individual member identities as associated with cooperative membership, life satisfaction with farming, member satisfaction with the cooperative operations, and representation, member influence on cooperative decision making, and equitable treatment among members. Demographic characteristics of members and measures of farm size and farm type were included.

Regression analysis and Likert scale analysis were applied to 1,156 dairy farmer respondents from North Central States. All were members of the same cooperative. Analysis involved only dummy variables, limiting the total variation explained to very small percentages. However, 19 characteristics were found statistically significant and related to the four participation measures.

Eight characteristics were found positively related to attendance at meetings. The greater the measured value of these characteristics, and the more intense the belief, the more likely a member's attendance at cooperative meetings. These characteristics included: 1) Percent of gross farm sales from the sale of milk; 2) Gross farm sales; 3) Size of milking herd; 4) "I feel I am part owner of the cooperative"; 5) "Ag co-ops should practice one person, one vote"; 6) "Ag co-ops should support education for their members and the public"; 7) Satisfaction with "farming as a way of life"; and 8) Satisfaction with "my district director."

Three characteristics were found negatively related to attendance at meetings. The greater the measured value or frequency of these characteristics and/or the more intense the belief, the less likely member's attendance at cooperative meetings. These characteristics included: 1) Spouse's employment off-farm; 2) "Members have too much say about how the cooperative is run"; 3) "The cooperative primarily benefits small farms."

Five characteristics were found positively related to serving on committees. The greater the measured value or frequency of these characteristics and/or the more intense the belief, the more likely a member's service on committees. These characteristics included: 1) Gross farm sales; 2) More than half the farm labor is hired; 3) "Ag co-ops should work with other ag co-ops"; 4) "Members receive benefits from doing business the cooperative way"; and 5) Satisfaction with "my cooperative board of directors."

Six characteristics were found positively related to service in an elected office. The greater the measured value of these characteristics, and the more intense the belief, the more likely a member's service in an elected office. These characteristics included: 1) Gross farm sales; 2) Size of milking herd; 3) "Ag co-ops should practice one-person, one-vote"; 4) "Ag co-ops should work with other ag co-ops"; 5) "I feel I am part owner of the cooperative"; and 6) Satisfaction with "my board of directors."

One characteristic was found negatively related to service in an elected office. The more intensely members agreed that "an individual farmer can usually make better

Highlights

marketing decisions than a group of farmers or some agency," the less likely those members served as elected cooperative officers.

Two characteristics were positively related to recruitment of other farmers to the cooperative. The greater the measured value of these characteristics and the more intense the belief, the more likely a member recruited others to join the cooperative. These characteristics included:

1) Size of milking herd; and 2) "Belonging to the cooperative is an important part of my identity as a farmer."

One characteristic was found negatively related to recruitment of others. The more intensely members agreed that "the cooperative primarily benefits large farms," the less likely they were to recruit others.

Two variables were significantly related to participation measures in a non-linear fashion—"the cooperative primarily benefits large farms" and "members have too little say about how the co-op is run."

A size bias was found in these analyses. Farmers from larger farm units were more involved. Farmers from smaller units were less satisfied and had less time available to participate. Also revealed was the importance that participation plays in validating or developing farmer understanding and appreciation of cooperative organization. Cooperatives may seek to improve the responsiveness of their organizations by being sensitive to and making accommodations for greater involvement of farmers from smaller units.

Given greater involvement, the cooperative and members may begin to identify ways of improving the satisfaction of these farmers and strengthening the cooperative itself. Study results suggest emphasizing cooperative principles, the benefits of cooperation, and the importance of participation as a possible place to start.

The results also demonstrate the relevance and continuing importance of cooperative principles, beliefs in collective action, and member identification with cooperative organization and action.

Member Participation in Agricultural Cooperatives: A Regression and Scale Analysis

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Introduction

Members can participate in cooperatives in different ways. Some limit participation to economic patronage while others may attend meetings, serve on committees, serve as elected officers, and/or recruit other members. There is no cooperative without member participation. If limited to economic patronage, a cooperative is little more than any other business. Member participation in governance gives cooperatives their distinctive character.

This report focuses on four levels of member involvement in a cooperative—attending meetings, serving on committees, serving as an elected officer, and recruiting other farmers to become members. This is the first study in the United States to examine cooperative participation since the early l980s (Lasley l982)—although the research tradition extended back to the l940s (Anderson and Sanderson l943). Several major social and economic changes have occurred since then. Farm numbers have declined continuously, size in terms of both farms and cooperatives has increased, and an individualist ethic has increasingly entrenched itself within our culture (Hakelius l996; Albrecht l993; Albrecht and Murdock l990; Ford l978; Brown et al. l993; Lasley et al. l995, RBS l995, Mooney l988).

This report analyzes some of the more basic aspects of cooperative membership, i.e., attendance at meetings, serving on committees, holding office, and recruitment. The authors seek to understand what characteristics of members are associated with these forms of participation. Ultimately, the goal is to provide information that will encourage and increase member participation in the cooperative.

The characteristics examined include member beliefs concerning: 1) cooperative principles, 2) collective action, 3) individual member identities associated with cooperative membership, 4) life satisfaction with farming, 5) member satisfaction with the cooperative operations and representation, 6) member influence on cooperative decision making, and 7) equitable treatment among members.

Also considered were various demographic characteristics of members, as well as measures of farm size and farm type. Relationships between most of these variables and participation has been documented in earlier work by Warner 1971, Rogers 1971, Heffernan 1967, Torgerson 1972, Copp 1964, Morrison 1971, Havens 1968, and others.

This study 1) describes various characteristics of members, including their participation behaviors, 2) identifies member characteristics statistically related to differences in observed participation behaviors, and 3) draws implications from the results for cooperatives.

The study, examines the responses to a mail survey of more than 2,000 farmer-members of the same Midwest dairy cooperative. A total of 1,156 usable questionnaires were returned for a response rate of 53 percent. Responses came from farmers residing in four North Central States.[1,2]

[1] Extensive and detailed information on membership characteristics and survey responses will be provided in this study. However, care is taken not to identify geographic locality and size of the membership to such a degree that confidentiality of the cooperative organization is compromised.

[2] The specific cooperative was identified in several survey questions. For reporting purposes here, specific names have been replaced with the words “my cooperative” or “the cooperative.”

Analytical Approach—Likert Scales

Several member characteristics were measured using Likert scales—tools to determine degrees of belief in specific thoughts, ideas, and / or attitudes (Rubin and Babbie l995). The beliefs in cooperative principles, collective action, equitable treatment among members, cooperative identity, and satisfaction with farming and with the cooperative were assessed. Respondents were presented with a series of choices ranging from "strongly disagree" or "very dissatisfied" to "strongly agree" or "very satisfied." The percentage of members responding to each choice was calculated, determining the average intensity measure for each effect and / or belief.

Member Characteristics

Farm Characteristics

The type of farm unit was assessed with several different measures. Dairy predominance was measured by assessing the percent of gross farm sales attributable to dairy. Farm size was measured by assessing gross farm sales, total acres in operation, and size of the milking herd. Tenure was measured by assessing the percentage of acreage owned by the principal operator. Debt load was assessed by estimating the net worth that would remain if all farm assets were sold. Labor provision on the farm was measured by assessing whether more than half of the farm labor was hired.

Farm Type, Dairy: Most respondents were dairy farmers (table 1). About 84 percent reported dairy sales made up more than half of their gross farm sales. Nearly 39 percent were from units where dairy sales made up 75-89 percent of gross farm sales. Nearly 27 percent reported dairy sales in the 50-74 percent of range. More than 18 percent had sales in the 90-100 percent range. Just l6.3 percent reported dairy sales made up less than half of the gross farm sales.

Size, Acres: Only 2.2 percent had farms of greater than 1,000 acres (table 2). Most (83.5 percent) were less than 500 acres. About 60 percent were in the 180-499 acre category. Less than 2 percent had less than 50 acres.

Size of Milking Herd: About 92 percent had milking herds of less than 100 cows (table 3). None had herds of more than 500 cows. Less than 9 percent had herds in the 100-499 range. About 44 percent milked herds of less than 50 cows, with an additional 47.8 percent milking between 50 and 100 cows.

Size, Gross Farm Sales: Nearly 41 percent reported gross farm sales in the $100,000-$249,999 range (table 4). An additional 26.9 percent were in the $50,000-$99,999 range. These two categories accounted for most respondents. Nearly 12 percent had gross

Table 1— **Gross farm sales from dairy**

Gross farm sales	Farms
Percent	*Number*
1 - 49	180
50 - 74	294
75 - 89	428
90 - 100	200
Total	1,102
	Percent
1 - 49	16.3
50 - 74	26.7
75 - 89	38.8
90 - 100	18.1
Total [2]	100.0

[1] Based on the number responding to each item.
[2] Total may not add due to rounding.

Table 2— **Acres in farming operation**

Acres	Farms
Number	*Number*
Less than 50	21
50 - 179	250
180 - 499	665
500 - 999	160
1,000 and more	25
Total	1,121
Number	*Percent* [1]
Less than 50	1.9
50 - 179	22.3
180 - 499	59.3
500 - 999	14.3
1,000 and more	2.2
Total	100.0

[1] Based on the number responding to each item.

farm sales of $250,000 or more. Less than 19 percent reported gross farm sales in the $10,000-$50,000 range. Only 2.1 percent had sales of less than $10,000.

Tenure, Ownership of Acreage: Table 5 presents data on percentages of respondents reporting levels of ownership of acreage in the farming operation. Nearly 45 percent indicated they owned 90-100 percent of the acreage farmed. An additional 24 percent said they owned 50-89 percent of the acreage. Nearly 12 percent owned 1-49 percent. Nearly 20 percent owned none of the land they farmed.

Labor Provision: More than 90 percent said that less than half of the physical labor on the farm was hired, meaning most of the labor came from the principal operators and their respective families (table 6).

Debt Load: Respondents were asked about the value of their farm unit that would remain if all farm

Table 3— **Size of milking herd**

Milk cows	Farms
	Number
Less then 50	491
50 - 99	537
100 - 499	95
More than 500	-
Total	1,123
	Percent[1]
Less then 50	43.7
50 - 99	47.8
100 - 499	8.5
More than 500	-
Total	100.0

[1] Based on the number responding to each item.

Table 4— **Size of farm by gross sales**

Gross farm sales	Farms
Dollars	*Number*
Less than 10,000	23
10,000 - 29,999	90
30,000 - 49,999	111
50,000 - 99,999	291
100,000 - 249,999	440
250,000 or more	128
Total	1,083
Dollars	*Percent*[1]
Less than 10,000	2.1
10,000 - 29,999	8.3
30,000 - 49,999	10.2
50,000 - 99,999	26.9
100,000 - 249,999	40.6
250,000 or more	11.8
Total	100.0

[1] Based on the number responding to each item.

Table 5— **Acreage owned by members** [1]

Acres	Members
Percent	*Number*
None	216
1 - 49	132
50 - 89	274
90 - 100	499
Total	1,121
Percent	*Percent*
None	19.3
1 - 49	11.8
50 - 89	24.4
90 - 100	44.5
Total	100.0

[1] Based on the number responding to each item.

Table 6— **Farms where more than half of physical labor is hired**

Response	Farms
	Number
No	1,011
Yes	111
Total	1,122
	Percent[1]
No	90.1
Yes	9.9
Total	100.0

[1] Based on the number responding to each item.

Table 7— **Member's net worth after sale of farm assets**

Net worth	Members
Percent	*Number*
None, debts exceed assets	52
1 - 49	324
50 - 74	282
75 - 99	221
100 percent debt free	190
Total	1,069
	Percent[1]
None, debts exceed assets	4.9
1 - 49	30.3
50 - 74	26.4
75 - 99	20.7
100 percent debt free	17.8
Total	100.0

[1] Based on the number responding to each item.

Table 8— **Age of members**

Age	Members
	Number
Less than 35 years	251
35 - 50	426
51 - 65	329
More than 65	120
Total	1,126
	Percent [1]
Less than 35 years	22.3
35 - 50	37.8
51 - 65	29.2
More than 65	10.7
Total	100.0

[1] Based on the number responding to each item.

assets were sold and if all debts were paid (table 7). More than 30 percent said they would have up to 50 percent of the value of the assets remaining. This was the largest size category. An additional 26.4 percent said they would have 50-74 percent of their assets. Percentages become progressively smaller beyond these two ranges. Slightly less than 18 percent would be debt free. About 5 percent would have no assets. Debts would exceed assets.

Summary: A profile of an average member in this study i.e., one where more than half of the members had similar characteristics, would be a farmer milking less than 100 cows on a farm between 180 and 500 acres. Most of the acreage farmed would be owned. This farmer would generate gross farm sales in the $50,000-$250,000 range. Most within this range would be in the $100,000-$250,000 range. Little hired labor would be used. If all farm assets were sold, this member would have 50 percent or more of the value of total assets remaining.

Member Demographics

Various measures were made of such member demographics characteristics as age, educational attainment, and off-farm employment (tables 8-11).

Age: The largest grouping of members fell in the middle-aged category (table 8). Nearly 38 percent of

Table 9— **Education received by members**

Education	Members
	Number
Did not complete high school	186
Completed high school	650
Some college	196
Received bachelor's degree	70
Received master's degree	5
Received doctorate	6
Total	1,113
	Percent [1]
Did not complete high school	16.7
Completed high school	58.4
Some college	17.6
Received bachelor's degree	6.3
Received master's degree	0.4
Received doctorate	0.5
Total	100.0

[1] Based on the number responding to each item.

Table 10— **Principal operator with occupation or employment other than farming**

Response	Principal operator
	Number
No	1,002
Yes	114
Total	1,116
	Percent [1]
No	89.8
Yes	10.2
Total	100.0

[1] Based on the number responding to each item.

Table 11— **Spouse has an occupation or employment other than farming**

Response	Members
	Number
No	647
Yes	361
No spouse	106
Total	1,114
	Percent [1]
No	58.1
Yes	32.4
No spouse	9.5
Total	100.0

[1] Based on the number responding to each item.

the respondents were aged 35-50, 30 percent 51-65, nearly 11 percent older than 65, and 22 percent less than 35 years of age.

Education: Table 9 indicates that 58 percent of these farmer-members were high school graduates. About 18 percent had some college education, 17 percent had not finished high school, and 7 percent were college graduates.

Off-farm employment: The farm enterprise was the primary source of employment for nearly 90 percent of the principal operators. Only 10 percent had off-farm employment. Spouses of the principal operators were employed at higher rates. About one-third had off-farm employment (table 10-11). About 58 percent reported spouses did not work off the farm. Nearly 10 percent had no spouse.

Summary: Demographically, the average member in this study had a high school diploma, was between the ages of 35 and 65, and, within this age range, was more likely to be 35-50. Neither the member, nor his or her spouse, would likely hold an off-farm job.

Cooperative Principles

Member beliefs in cooperative principles were assessed by using these statements: 1) “Ag co-ops should accept any farmer who wants to join”; 2) “Ag co-ops should practice one-person, one-vote”; 3) “Members should receive patronage dividends in proportion to patronage”; 4) “Ag co-ops should support education for members and the public”; 5) “Ag co-ops should work with other ag co-ops.”

The beliefs listed in table 12 suggest that respondents strongly supported most cooperative principles. With the exception of the “open membership” principle, at least 72 percent of the members agreed or strongly agreed with each of the items. The “open membership” principle was somewhat more contested. About 40 percent of the members either agreed or strongly agreed, or disagreed or strongly disagreed. About 19 percent were unsure. With surpluses and quality of milk issues ever present in dairy production, these members may be quite ambivalent about accepting “any farmer” with milk to sell.

Summary: Average members in this study agreed with most cooperative principles, although some might express some ambivalence about “open membership.”

Collective Action

Collective action refers to initiatives taken by an identifiable group to realize their common interests. Several items were used to assess member beliefs about collective action (table 13): 1) “Farmers must stick together in order to get things done even if they have to give up some of their individual freedom”; 2) “A basic cause of agricultural problems today is that too many farmers want to go their separate and individual ways without regard for other farmers or some agency”; 3) “An individual farmer can usually make better marketing decisions than a group of farmers or some agency”; 4) “Members receive benefits from doing business the cooperative way”; 5) “It is only through ag co-ops that farmers can assume an appro-

Table 12— **Members' beliefs in cooperative principles**

Belief	Strongly disagree	Disagree	Unsure	Agree	Strongly agree	Total	Weighted score
				Number/Percent			
Agricultural cooperatives should accept any farmer who wants to join	60	395	205	387	59	1,106	2.99
	5.4	35.7	18.5	35.0	5.3	100.0	
Agricultural cooperatives should practice one-member, one-vote	9	48	158	711	185	1,111	3.91
	0.8	4.3	14.2	64.0	16.7	100.0	
Members should receive patronage dividends in proportion to patronage	5	25	148	741	191	1,110	3.98
	0.5	2.3	13.3	66.8	17.2	100.0	
Agricultural cooperatives should support education of members and the public	21	65	221	675	124	1,106	3.74
	1.9	5.9	20.0	61.0	11.2	100.0	
Agricultural cooperatives should work with other agricultural cooperatives	11	50	201	701	144	1,107	3.83
	1.0	4.5	18.2	63.3	13.0	100.0	
Every dairy farmer should have a choice of more than one place to sell their milk	3	29	123	732	222	1,109	4.03
	0.3	2.6	11.1	66.0	20.0	100.0	

priate role in the marketplace"; and 6) "Members of ag co-ops have a competitive advantage in the marketplace."

In spite of research by Hakelius (1996) documenting the emergence of a predominant individualist orientation among farmers in Sweden, results in table 13 suggest many of the dairy farmers in this study favor collective action. Nearly 60 percent preferred a collective or cooperative approach over an individualist one for four of the six beliefs. Seventy-five percent agreed or strongly agreed that the "members receive benefits from doing business the cooperative way." More than 64 percent agreed or strongly agreed that farmers must stick together, even if it means giving up some individual freedoms. Nearly 63 percent rejected or disagreed with the view that "An individual farmer can usually make better marketing decisions than a group of farmers or some agency."

The most problematic item perhaps was also the most extreme one: "It is only through ag co-ops that farmers can assume an appropriate role in the marketplace." Many independent-minded farmers may object to the use of the word "only." More than 31 percent were unsure, although nearly 46 percent agreed or strongly agreed with the statement.

Summary: Average members tended to agree more with collective action beliefs than individualist ones did. However, these members are not so collective-action minded as to see cooperatives as the sole and exclusive choice for action.

Identification With the Cooperative

Identification refers to the degree of attachment a member has toward the organization. Three different measures were made: 1) "I feel I am part owner of the cooperative"; 2) "Belonging to the cooperative is an important part of my identity as a farmer"; and 3) "The cooperative is my agent in the marketplace." About 60 percent agreed or strongly agreed with these statements (table 14). Nearly 75 percent agreed or strongly agreed that they felt like "part owners" of the cooperative. Almost 85 percent agreed or strongly agreed that they understood the cooperative was their agent in the marketplace. More than half (51 percent) strongly disagreed or disagreed that "the cooperative is just another place to do business."

Table 13— **Members' beliefs in collective action**

Belief	Strongly disagree	Disagree	Unsure	Agree	Strongly agree	Total	Weighted score
				Number/Percent			
Farmers must stick together in order to get things done even if they have to give up some of their individual freedom	34	148	214	580	137	1,113	3.57
	3.1	13.3	19.2	52.1	12.3	100.0	
A basic cause of agricultural problems today is that too many farmers want to go their separate and individual ways without regard for other farmers	55	233	243	450	129	1,110	3.33
	5.0	21.0	21.9	40.5	11.6	100.0	
An individual farmer can usually make better marketing decisions than a group of farmers or some agency	125	572	273	118	22	1,110	2.41
	11.3	51.5	24.6	10.6	2.0	100.0	
Members receive benefits from doing business the cooperative way	10	38	229	747	86	1,110	3.78
	0.9	3.4	20.6	67.3	7.7	100.0	
It is only through agricultural cooperatives that farmers can assume an appropriate role in the marketplace	36	220	346	438	67	1,107	3.25
	3.3	19.9	31.3	39.6	6.1	100.0	
Members of agricultural cooperatives have a competitive advantage in the marketplace	22	92	333	588	72	1,107	3.54
	2.0	8.3	30.1	53.1	6.5	100.0	

Summary: Members on average identify with the cooperative, take a personal interest in it, and don't see it as "just another business."

Satisfaction Levels

Three measures were used to assess farmer-members' satisfaction with the social and economic context within which they lived. Members were asked to specify to what degree they were satisfied or dissatisfied with: 1) "dairy farming as a way of life"; 2) "dairy farming as a way to make a living"; and 3) "the income my family makes from dairy farming."

Nearly 74 percent said they were satisfied or very satisfied with dairy farming as a way of life. As statements narrowed, satisfaction levels declined. Fifty-seven percent were satisfied or very satisfied with "dairy farming as a way to make a living." However, only 36 percent said they were satisfied or very satisfied with "the income their family makes from dairy farming." More than half were dissatisfied or very dissatisfied with the income from dairy farming, and 9.3 percent were very dissatisfied with the "income" earned (table 15).

Members were also asked about their satisfaction levels with member representatives, management, and their cooperative overall (table 16). About 73 percent were satisfied or very satisfied with their district and board representatives and management. About 87 percent were satisfied or very satisfied with their cooperative overall.

About 19 percent of these members, however, expressed some ambivalence with their district and board representatives and cooperative management.

Summary: The average member was satisfied with farming as a way of life and dairy farming as a way to make a living, but dissatisfied with the income made from dairy farming. In terms of transactions with the cooperative, members were basically satisfied

Table 14— **Members' identification with the cooperative**

Item	Response					
	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree	Total
			Number			
I feel I am part-owner of the cooperative	32	122	129	714	127	1,124
Belonging to the cooperative is an important part of my identity as a farmer	35	206	208	571	103	1,123
The cooperative is just another place to do business	52	518	116	401	31	1,118
The cooperative is my agent in the marketplace	13	39	120	820	127	1,119
			Percent [1]			
I feel I am part-owner of the cooperative	2.8	10.9	11.5	63.5	11.3	100.0
Belonging to the cooperative is an important part of my identity as a farmer	3.1	18.3	18.5	50.8	9.2	100.0
The cooperative is just another place to do business	4.7	46.3	10.4	35.9	2.8	100.0
The cooperative is my agent in the marketplace	1.2	3.5	10.7	73.3	11.3	100.0

[1] Based on the number responding to each item.

Table 15— **Member satisfaction levels with farming and their cooperative**

Item	Response					
	Very dissatisfied	Dissatisfied	Unsure	Satisfied	Very satisfied	Total
			Number			
Dairy farming as a way of life	17	139	140	669	155	1,120
Dairy farming as a way to make a living	57	216	208	537	102	1,120
The income my family makes from dairy farming	103	455	152	367	34	1,111
			Percent [1]			
Dairy farming as a way of life	1.5	12.4	12.5	59.7	13.8	100.0
Dairy farming as a way to make a living	5.1	19.3	18.6	47.9	9.1	100.0
The income my family makes from dairy farming	9.3	41.0	13.7	33.0	3.1	100.0

[1] Based on the number responding to each item.

Table 16— **Member satisfaction with their cooperative**

Item	Response					
	Very dissatisfied	Dissatisfied	Unsure	Satisfied	Very satisfied	Total
			Number			
Satisfied with my cooperative over-all	15	43	83	781	201	1,123
Satisfied with my district director	25	42	230	659	162	1,118
Satisfied with the board of directors	16	40	239	685	141	1,121
Satisfied with the cooperative's management	27	59	216	642	174	1,118
			Percent [1]			
Satisfied with my cooperative over-all	1.3	3.8	7.4	69.5	17.9	100.0
Satisfied with my district director	2.2	3.8	20.6	58.9	14.5	100.0
Satisfied with the board of directors	1.4	3.6	21.3	61.1	12.6	100.0
Satisfied with the cooperative's management	2.4	5.3	19.3	57.4	15.6	100.0

[1] Based on the number responding to each item.

made from dairy farming. In terms of transactions with the cooperative, members were basically satisfied with district and board representatives and managers.

Member Influence

Cooperatives are organized around principles which seek to provide member influence and control. Member beliefs about their own influence, and members' influence generally, were assessed with three items: 1) "Cooperative members have a great amount of influence on how the cooperative is run"; 2) "Cooperative members have too much say about how the cooperative is run"; and 3) "I am satisfied with the amount of influence I have on how the cooperative is run." Fifty percent of the members agreed or strongly agreed that cooperative members have a "great amount of influence" on how the cooperative is run. Nearly 80 percent disagreed or strongly disagreed that members have too much say. When queried about individual member influence, nearly 57 percent agreed or strongly agreed that they were satisfied with the amount of their influence on how the cooperative is run (table 17).

Summary: A profile of the average member would find a farmer who was satisfied with the amount of influence he or she personally has on the cooperative, who would believe that members in general have considerable influence on how the cooperative is run, and who would disagree that members have too much say.

Equity/Impartiality

Fundamental to these organizations are concepts of equity or understandings of the cooperative as impartial in determining its use, function, and the benefits received. Three items were used in assessing member beliefs about equity: 1) "The cooperative primarily benefits large farms"; 2) "The cooperative primarily benefits small farms"; and 3) "The cooperative benefits Grade A producers more than Grade B producers."

Results showed members were unsure about these equity issues. Nearly 39 percent said they were unsure whether the cooperative benefits Grade A more than Grade B producers. Nearly 29 percent agreed or strongly agreed that Grade A producers receive an advantage, although about the same number disagreed or strongly disagreed that one class of producer had an advantage over the other (table 18).

In terms of possible advantages attributable to size of farm, most respondents felt it was fairly clear. Small farms were not the prime beneficiaries of the

Table 17— **Member beliefs on the amount of influence on the cooperative**

Item	Response					
	Strongly disagree	Disagree	Unsure	Agree	Strongly agree	Total
	Number					
Have a great amount of influence on how the cooperative is run	56	230	274	517	42	1,119
Have too much say about how the cooperative is run	151	741	201	16	9	1,118
Have too little say about how the cooperative is run	36	405	379	220	74	1,114
Satisfied with the amount of influence I have on how the cooperative is run	63	173	249	587	45	1,117
	Percent [1]					
Have a great amount of influence on how the cooperative is run	5.0	20.6	24.5	46.2	3.8	100.0
Have too much to say about how the cooperative is run	13.5	66.3	18.0	1.4	0.8	100.0
Have too little say about how the cooperative is run	3.2	36.4	34.0	19.7	6.6	100.0
Satisfied with the amount of influence I have on how the cooperative is run	5.6	15.5	22.3	52.6	4.0	100.0

[1] Based on the number responding to each item.

Table 18— **Member beliefs on equity issues**

Belief	Response					
	Strongly disagree	Disagree	Unsure	Agree	Strongly agree	Total
	Number					
The cooperative primarily benefits large farms	61	401	350	216	76	1,104
The cooperative primarily benefits small farms	129	552	379	39	9	1,108
The cooperative benefits Grade A more than Grade B producers	45	311	434	263	58	1,111
	Percent [1]					
The cooperative primarily benefits large farms	5.5	36.3	31.7	19.6	6.9	100.0
The cooperative primarily benefits small farms	11.6	49.8	34.2	3.5	0.8	100.0
The cooperative benefits Grade A more than Grade B producers	4.1	28.0	39.1	23.7	5.2	100.0

[1] Based on the number responding to each item.

Table 19— **Member participation in the cooperative**

Item	No	Yes	Total
		Number	
Attended meetings	468	656	1,124
Served on committees	988	132	1,120
Elected to office	919	199	1,118
Recruited other farmers as members	348	82	430
		Percent[1]	
Attended meetings	41.6	58.4	100.0
Served on committees	88.2	11.8	100.0
Elected to office	82.2	17.8	100.0
Recruited other farmers as members	80.9	19.1	100.0

[1] Based on the number responding to each item.

cooperative—only 4 percent agreed or strongly agreed that they were. More than 61 percent did not believe that small farms were the prime beneficiaries. The remaining 34 percent were unsure.

When the question was asked in the reverse, 42 percent disagreed that large farms were the prime beneficiaries, 27 percent said they were, and 31 percent were unsure.

Summary: The average responses for these equity questions were the most problematic of all the categories.

Participation

Four measures were made of member participation in the cooperative. Three were assessments of participation in member governance and one of loyalty and commitment, i.e., recruitment of other members (table 19).

More than 58 percent said they had attended cooperative meetings in the past year—the most involvement of the four measures. Nearly 18 percent had served as an elected officer, another 11.8 percent had served on a non-elective committee. Nearly 20 percent attempted to recruit other farmers as members, though it needs noting that less than one-half of all members responded to this question.

Summary: The average member attends meetings, but is much less likely to serve as an elected officer or on a committee, or to recruit other members.

Summary

The average member milked less than 100 cows, farmed between 180 and 500 acres with less than 10 percent of it rented, produced gross farm sales ranging from $50,000 to $250,000 and more likely in the $100,000-$250,000 range, and hired little labor for the operation. If all farm assets were sold on this farm, the average member would be able to retain 50 percent or more of the value of those assets.

Demographically, this member had a high school diploma and was between the ages of 35 and 65, and more likely was 35-50. On average, members or their spouses did not hold off-farm jobs.

Most members believed in cooperative principles although they were ambivalent about "open membership." The average believed in collective action, but not to the extent that they saw cooperatives as the sole and exclusive choice for social action. In terms of identity, the average member felt attached to the cooperative and saw it as more than "just another business."

The average member was: satisfied with farming as a way of life, dairy farming as a way to make a living, unhappy with the income it generated, basically satisfied with district and board representatives and managers, satisfied with the amount of influence he or she personally had on the cooperative, believed that members in general had considerable influence on how the cooperative was run, and disagreed that members have too much say. The average member—with degrees of unsureness—did not see either large or small farmers or Grade A or Grade B producers as prime beneficiaries of the cooperative.

Concerning participation, this member attended meetings, but was less likely to serve on committees, serve in an elected office, or help recruit other members.

Analytical Approach—Regression Analysis

The major interest in this study is to understand how characteristics of members are related to various participation measures, i.e., attending meetings, serving on committees, serving as an elected officer, and recruiting other members.

For example, how do members' perceptions of equity-fairness issues affect how they participate? Are their feelings about cooperative principles related to participation? Do members who believe in collective

action participate more or less than those who do not? Does the size of a member's farm unit affect how he or she participates?

Regression Analysis: This is a powerful statistical method for sorting out influences among variables. It allows the user to identify how several variables simultaneously influence the value of another variable. These influences can be assessed with statistically computed degrees of confidence, i.e., whether the results are due to some random occurrence or if the observed influences occur in a systematic, non-random fashion. Regression analysis as used here assesses how various member characteristics influence the participation activities.

Regression Coefficients: One can understand how variables are related to each other by examining computed regression coefficients. These calculated measures assess the strength and direction of association between variables. A positive coefficient between two variables indicates they change congruently in the same direction. A negative coefficient implies the reverse—variables change in opposite directions, i.e., as one gets larger, its complement gets smaller.

The size of a regression coefficient indicates the relative strength of a relationship between two variables. The absolute size of a standardized regression coefficient always varies between 0.0 and 1.0. The larger the absolute size of the number, the stronger the relationship.

Given the objectives of this report to understand how member characteristics are related to participation, a value can be calculated, for example, on how a member's age, belief in principles and collective action, and size of farm unit may all affect participation behaviors. This technique can measure the relationship between participation and the other variables, with varying degrees of confidence, i.e., what we observe happening between variables is due to some systematic relationship and not just chance.[3]

Likert Scales: Many member characteristics were measured with these scales. There were five choices along a range—from strongly disagree or very dissatisfied to strongly agree or very satisfied. These choices are scored "1" (strongly disagree or very dissatisfied) to "5" (strongly agree or very satisfied). The higher the number, the stronger the agreement or level of satisfaction.

Scale scores are calculated for each belief item to supplement interpretations and to cross-validate the regression results. They are a check on the regression results. When scale scores are incongruent with the regression results, the regression coefficients likely represent non-linear relationships with the participation measures. The variables may vary together, but in a curvilinear fashion, sometimes increasing and/or decreasing and then reversing themselves. The scale scores identify these variables. Their interpretation is more ambiguous and will not be interpreted here.

Regression Equations: These techniques are used to show how various member characteristics are related to four measures of participation, i.e., attendance at meetings, serving on committees, serving as an elected officer, and recruiting other members. These objectives can be specified in an equation format: participation is understood as a function of, or associated with farm type, farm tenure, labor provision, debt load, member demographics, and beliefs about cooperative principles, collective action, equitable treatment, member identity, member influence, and life and cooperative satisfaction. Stated more formally in functional equation format:

1 "Attending meetings" is a function of (demographics, farm type, tenure, labor, debt, cooperative principles, collective action, equity, member identity, member influence, and life satisfaction.)
2 "Farmers serving on committees" is a function of (demographics, farm type, tenure, labor, debt, cooperative principles, collective action, equity, member identity, member influence, and life satisfaction.)

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[3] Readers uninitiated in regression analysis need only know a few things to understand regression coefficients. Coefficients measure relationships between things called variables. For example, the daily temperature is a variable. The cloudiness of the sky is variable. A standardized regression coefficient can only vary between 0.0 and l.0. The larger the absolute size of the regression coefficient, the stronger the relationship between the two variables. If the coefficient between the amount of change in the daily temperature, for example, and the amount of change in cloud cover is [0.7], this suggests there is a fairly strong relationship between changes in the daily temperature and the degree of clouds in the sky.

Regression coefficients have a positive or negative sign. Positive signs imply that when two variables change together, they change in the same direction. Negative signs imply they vary or change in opposite directions. For example, if the regression coefficients between changes in the daily temperature and the amount of cloud cover in the above example was found to be -0.8, we would know that as larger proportions of the sky are overcast, daily temperatures would be lower—i.e., more clouds, lower temperatures.

A third variable might be the probability of rain. If a regression coefficient +0.75 was found between cloud cover and the probability of rain, this number suggests there is a strong positive relationship between cloud cover and rain—i.e., the more cloud cover, the greater the likelihood of rain.

3. "Farmers elected to office" is a function of (demographics, farm type, tenure, labor, debt, cooperative principles, collective action, equity, member identity, member influence, and life satisfaction.)
4. "Farmers recruiting other farmers" is a function of (demographics, farm type, tenure, labor, debt, cooperative principles, collective action, equity, member identity, member influence, and life satisfaction.)

Regression and Likert Scale Analyses

The results of the four regression analyses are shown in tables 20-23. Only statistically significant variables are presented. These measures indicate whether variables are related to each other by chance or are systematic and non-random relationships. Several variables were statistically related to four participation measures i.e., attending meetings, serving on committees, serving on the board of directors, and recruiting other members.

Regression analyses convey how variables change and move together, either in the same or opposite direction. Regression coefficients summarize the intensity and direction of these movements. Likert scales measure the intensity of beliefs and attitudes. They represent the average degree of belief members hold collectively.

Attended Meetings

Thirteen variables were statistically related to attending meetings and included the following characteristics and measures: farm type (percent gross farm sales from the sale of milk); farm size (gross farm sales and size of milking herd); demographics (does the spouse hold an off-farm job); cooperative identification ("I feel I am part owner of the cooperative"); cooperative principles ("Ag co-ops should practice one-person, one-vote" and "Ag co-ops should support education for members and the public"); two satisfaction variables (" with dairy farming as a way of life" and "with the district director"); two comparative equity variables ("the cooperative primarily benefits small farms" and "the cooperative primarily benefits large farms"); influence ("Members have too much say about how the cooperative is run"), and collective action ("Members receive benefits from doing business the cooperative way") (table 20).

Farm Type, Dairy: The farm type variable, "percent of gross farm sales from milk sales," was found statistically significant and positively related to attendance at meetings. Table 20 shows a regression coefficient of 0.06740 for this variable. The more farm sales were composed of milk sales, the more likely members were to attend meetings. Table 24 shows this tendency is in part accounted for by the greater attendance of members in the 75-89.9 percent sales category, and their relatively smaller attendance in the 1-49 percent sales category.

Farm Size: Two farm size variables, "size of milking herd" and "gross farm sales," were found statistically significant and positively related to attendance at meetings. Their regression coefficients were 0.11777 for size of milking herd and 0.08423 for gross farm sales (table 20). These positive regression coefficients indicate members with larger herds were more likely to attend cooperative meetings than those with smaller herds, as were members with smaller sales.

Table 24 shows these relationships in percentage format. It compares attenders with non-attenders. Fifty-eight percent who attend meetings came from farms with gross sales volumes of $100,000 or more. Only 6.3 percent came from farms with sales volumes of less than $30,000. This size relationship is reflected by the non-attenders as well. Compared with attenders, fewer non-attenders (44.8 percent) were from the $100,000-plus units, while more (16.1) percent were from the $30,000 and less units.

When examining herd sizes, a similar relationship is found (table 24). Nearly 64 percent of the members who attended meetings milked herds of more than 50 cows. Only 36.3 percent of those who attended had herds of less than 50 head. Compared with attenders, fewer non-attenders (46 percent) milked herds larger than 50 cows and more non-attenders (54 percent) milked herds smaller than 50 head.

Demographic Variables: The variable, "Does spouse hold an off-farm job?", was found statistically significant and negatively related to attendance at meetings. The calculated regression coefficient was -0.09009 (table 20). Members were more likely to attend meetings if the spouse was not employed off the farm.

This relationship was supported by table 25 percentages. Nearly 63 percent of the attenders said their spouses did not hold off-farm employment, compared with 50+ percent of the non-attenders. More non-attenders than attenders had an employed spouse, (35 versus 30 percent).

Cooperative Principles: Two beliefs, "Ag co-ops should practice one-person, one-vote" and "Ag co-ops should support education for members and the public," were found statistically significant and positively related to meeting attendance. The calculated regression coefficients were 0.06072 for the one-person, one-

Table 20— **Attendance at meetings and member characteristics: regression coefficients (n = 1,156)**

Member characteristics	Standardized regression coefficient (t-value)
Farm Type:	
Percent of gross farm sales from milk	0.06740 * (2.415)
Farm Size:	
Gross farm sales	0.08423 * (2.650)
Size of milking herd	0.11777 * (3.796)
Demographic:	
Spouse employed off the farm	-0.09009 * (3.319)
Cooperative Identification:	
I feel I am part-owner of the cooperative.	0.14624 * (4.236)
Cooperative principles:	
Ag co-ops should practice one-person, one-vote.	0.06072 ** (1.757)
Ag co-ops should support education for members and the public.	0.06594 ** (1.890)
Satisfaction:	
With dairy farming as a way of life.	0.10769 * (3.669)
With my district director.	0.09049 * (2.714)
Equity:	
The cooperative primarily benefits small farms.	-0.09451 * (-3.256)
The cooperative primarily benefits large farms.	0.07424 * (2.582)
Influence:	
Co-op members have too much to say about how the co-op is run.	-0.05030 * (-2.084)
Collective Action:	
Members receive benefits from doing business the cooperative way.	0.07271 * (1.987)
Intercept	0.38529
R^2	0.22169
Adjusted R^2	0.21282
F	24.99946 *

* Variables significant at 0.05 probability level.
** Variables significant at 0.10 probability level.

Table 21— **Service on committees and member characteristics: regression coefficients(n = 1,156)**

Member characteristics	Standardized regression coefficient (t-value)
Farm Size:	
Gross farm sales	0.13933 * (4.842)
Percent of labor hired	0.09382 * (3.318)
Cooperative principles:	
Ag co-ops should work with other ag co-ops.	0.09014 * (2.656)
Satisfaction:	
With my board of directors.	0.19992 * (6.372)
Influence:	
Co-op members have too little to say about how the co-op is run.	0.07954 * (2.916)
Collective Action:	
Members receive benefits from doing business the cooperative way.	0.10466 * (3.008)
Intercept	0.22919
R^2	0.19938
Adjusted R^2	0.19519
F	47.64737 *

* Variables significant at 0.05 probability level.

vote principle, and 0.06594 for the education principle (table 20). The greater the agreement with these principles, the more likely members were found to attend meetings. The reverse was also true—less agreement and less attendance.

The relationships between principles and attendance at meetings was supported by the Likert scale analysis (table 26). The score for those attending meetings was 3.95, and 3.86 for non-attenders for the one-person, one-vote principle. The scale scores for the education principle was 3.80 for attenders and 3.66 for non-attenders. Members who attended meetings subscribed to one-person, one-vote and the education principles more strongly than non-attenders.

Collective Action: The item, "Members receive benefits from doing business the cooperative way," was found statistically significant and positively related to attendance at meetings. The regression coefficient for this variable was .07271 (table 20). The stronger they believed that "Members received benefits from doing business the cooperative way," the more likely they were to attend meetings.

The scale analysis supported this finding. The score was 3.84 for attenders and 3.68 for non-attenders (table 26). Members who attended meetings believed in "the cooperative way" more strongly than non-attenders.

One identification variable, "I feel I am part owner of my cooperative," was found statistically significant. The regression revealed a coefficient of 0.14624 for this variable (table 20). The more strongly members subscribed positively to this belief, the more likely they were to attend cooperative meetings. When scale scores between attenders and non-attenders were compared, those attending scored higher (3.83) than non-attenders (3.51) in their identification with the cooperative.

Table 22— **Service in an election office and member characteristics: regression coefficients(n = 1,156)**

Member characteristics	Standardized regression coefficient (t-value)
Farm Size:	
Gross farm sales	0.08573 * (2.672)
Size of milking herd	0.09121 * (2.945)
Cooperative principles:	
Ag co-ops should practice one-member, one-vote.	0.12766 * (3.682)
Ag co-ops should work with other ag co-ops.	0.08031 * (2.265)
Satisfaction:	
With my board of directors.	0.15440 * (4.357)
Cooperative Identification:	
I feel I am part owner of the cooperative.	0.13140 * (3.760)
Collective Action:	
An individual farmer can usually make better marketing decisions than a group of farmers.	-0.06393 (-2.320)
Intercept	0.23672
R^2	0.19955
Adjusted R^2	0.19466
F	40.84831*

* Variables significant at 0.05 probability level.

Member Satisfaction: Two satisfaction variables were found positively related to meeting attendance, "satisfaction with dairy farming as a way of life" and "satisfaction with the district director." The calculated regression coefficients were 0.10769 ("farming as a way of life,") and 0.09049 ("district director") (table 20). Members who were more satisfied with "farming as a way of life" and with the "district director" tended to be attenders, while those less satisfied were less likely to attend.

This relationship between these measures of satisfaction and attendance at meetings was supported by the scale analysis. The score for attenders satisfied with farming was 3.82, and 3.59 non-attenders. The scale score for satisfaction with the district director was 3.89 for attenders and 3.67 for non-attenders. Members who attended meetings expressed more satisfaction with farming and with their district director than non-attending members (table 26).

Member Influence: "Members have too much say about how the cooperative is run" was found statistically significant and negatively related to attendance at meetings. Regression coefficient for this was -0.05030 (table 20). Farmers who agreed that "Members have too much say" were less likely to attend meetings.

The scale analysis supported this finding. The score was 2.02 for attenders and 2.20 for non-attenders. On average, both groups disagreed that members have too much say. However, those who attended meetings

Table 23— **Recruited other members and member characteristics: regression coefficients (n = 1,156)**

Member characteristics	Standardized regression coefficient (t-value)
Farm Size:	
Size of milking herd	0.08434 * (2.877)
Cooperative Identification:	
Being a co-op member is an important part of my identity as a farmer.	0.14294 * (4.875)
Equity:	
The cooperative primarily benefits large farms.	-0.09535 * (3.303)
Intercept	-0.03080
R^2	0.04142
Adjusted R^2	0.03892
F	16.57946 *

* Variables significant at 0.05 probability level.

tended to disagree more strongly with the "too much say" item while non-attenders were more likely to believe that members have too much say (table 26).

Equity/Equality/Impartiality: The item, "The cooperative primarily benefits small farms," was found negatively related to attendance at meetings. The regression revealed a coefficient of -0.09451 (table 20). The more strongly members subscribed to this belief, the less likely they were to attend cooperative meetings. When scale scores between attenders and non-attenders were compared, attenders scored lower (2.23)—disagreed more intensely—than non-attenders (2.44) (table 26).

A second equity variable, "The cooperative primarily benefits large farms," was found positively related to attendance. The calculated regression coefficient was 0.07424 (table 20). The more likely members were to attend meetings, the more likely they were to agree with the view that "The cooperative primarily benefits large farms."

The relationship between "equity " and "attendance" was supported by the scale analysis. The score was 2.80 for those attending and 2.94 for those not attending. Both groups disagreed that "The cooperative primarily benefits large farms." However members attending were less intense in their disagreement. A score of 3.00 indicates ambivalence. Non-attenders disagreed more intensely.

Served on Committees

Six variables were found related to serving on non-elective committees—farm size (gross farm sales); the percent labor hired; cooperative principle ("Ag co-ops should work with other ag co-ops"); collective action ("Members receive benefits from doing business the cooperative way"); satisfaction ("satisfaction with the cooperative board of directors"); and influence ("Members have too little say on how the cooperative is run").

Farm Size: The amount of gross farm sales was found statistically significant and positively related to members serving on a committee. The regression revealed a coefficient of 0.13933 for this variable (table 21). Those from farms with greater gross sales were more likely to serve than those with smaller gross farm sales.

When comparing members who served on committees with those who did not, 78.3 percent who served had gross sales volumes of $100,000 or more, while just 48.7 percent who did not serve had similar volumes (table 27). Only 1.6 percent of the committee

Table 24— **Size of farm and member attendance at meetings**

Size category	Attended meetings			
	No		Yes	
	Number	*Percent*	*Number*	*Percent*
Cows				
Number				
Less than 50	250	54.0	236	36.3
50 - 179	183	39.5	349	53.7
180 - 499	30	6.5	65	10.0
500 - 999	-	-	-	-
1,000 and more	-	-	-	-
Total	463	100.0	650	100.0
Gross farm sales				
$1,000				
Less than 10	14	3.2	9	1.4
10 - 29.9	57	12.9	31	4.9
30 - 49.9	53	12.0	56	8.9
50 - 99.9	120	27.1	169	26.7
100 - 249.9	153	34.6	285	45.1
250 and more	45	10.2	82	13.0
Total	442	100.0	632	100.0
Gross farm sales from milk sales				
Percent				
1 - 49.9	89	19.7	88	13.7
50 - 74.9	124	27.5	168	26.2
75 - 89.9	155	34.4	271	42.2
90 - 100	83	18.4	115	17.9
Total	451	100.0	642	100.0

Table 25—Spouse with occupation or employment other than farming and attendance at meetings

Spouse employed	Attended meetings	
	No	Yes
	Number	
No	236	405
Yes	162	195
No spouse	62	44
Total	460	644
	Percent	
No	51.30	62.89
Yes	35.22	30.28
No spouse	13.48	6.83
Total	100.00	100.00

persons came from farms with sales volumes of less than $30,000, while 11.8 percent of those not serving on committees had such volumes.

Labor Provision: Hired labor was found statistically significant and positively related to member participation on a committee. The calculated regression coefficient for this variable was 0.09382 (table 21). Members serving on committees tended to be from farms that hired more than half their labor needs.

Table 28 shows that while l7.4 percent of the members serving on committees hired more than half of their needed farm labor, just 8.8 percent of members not serving on committees did so. While the percentage of all respondents in the study hiring half of their labor needs was small (less than 10 percent), those serving on committees were more likely to hire labor than those members not serving on committees.

Cooperative Principles: One belief concerning cooperative principles, "Ag co-ops should work with other ag co-ops," was found statistically significant and positively related to serving on committees. The regression revealed a coefficient of 0.09014 for this variable (table 21). The more members agreed, the more likely they were found serving on committees and conversely so (less likely, less service).

This relationship is supported by the scale analysis. The scale score for those serving was 4.07 and 3.8 for non-servers (table 29). Members serving on committees believed more intensely than those not serving that "Ag co-ops should work with other ag co-ops."

Collective Action: This variable, "Members receive benefits from doing business the cooperative way," was found statistically significant and positively related to serving on committees. The calculated regression coefficient was .10466. The more intensely members believed that "Members received benefits from doing business the cooperative way," the more likely they were to serve on committees. The scale

Table 26—**Member beliefs and attendance at meetings**

Belief	Strongly disagree	Disagree	Unsure	Agree	Strongly agree	Total	Weighted score
				Number			
I feel I am part-owner of my cooperative							
Did not attend meetings	18	66	67	288	26	465	3.51
Attended meetings	14	55	62	419	101	651	3.83
Agricultural cooperatives should practice one-member, one-vote							
Did not attend meetings	2	20	84	284	66	456	3.86
Attended meetings	7	28	73	420	119	647	3.95
Agricultural cooperatives should support education of members and the public							
Did not attend meetings	10	29	107	269	39	454	3.66
Attended meetings	11	35	114	400	85	645	3.80
The cooperative primarily benefits small farms							
Did not attend meetings	40	204	190	18	5	457	2.44
Attended meetings	89	343	185	21	4	642	2.23
Members receive benefits from doing business the cooperative way							
Did not attend meetings	5	16	123	289	24	457	3.68
Attended meetings	5	22	104	453	62	646	3.84
Members have too much to say about how the co-op is run							
Did not attend meetings	54	276	123	9	2	464	2.20
Attended meetings	97	461	76	7	7	648	2.02
The cooperative primarily benefits large farms							
Did not attend meetings	17	144	177	82	34	454	2.94
Attended meetings	44	255	170	131	42	642	2.80
	Very Dissatisfied	Dissatisfied	Unsure	Satisfied	Very Satisfied	Total	Weighted score
Satisfaction with my district director							
Did not attend meetings	12	17	127	266	43	465	3.67
Attended meetings	13	25	102	387	119	646	3.89
Satisfaction with dairy farming as a way of life							
Did not attend meetings	13	71	60	266	53	463	3.59
Attended meetings	3	66	79	398	101	647	3.82

Table 27— **Member served on a committee and size of farm**

Size category	Served on a committee: No	Served on a committee: Yes
	Number of members	
Gross farm sales		
$1,000		
Less than 10	23	-
10 - 29.9	88	2
30 - 49.9	104	5
50 - 99.9	268	21
100 - 249.9	361	74
250 and more	98	27
Total	942	129
	Percent	
Less than 10	2.44	-
10 - 29.9	9.34	1.55
30 - 49.9	11.04	3.88
50 - 99.9	28.45	16.28
100 - 249.9	38.32	57.36
250 and more	10.40	20.93
Total	100.00	100.00

Table 28— **Member served on a committee and hired more than half of the physical labor performed on the farm**

Hired over half of the physical labor	Served on a committee: No	Served on a committee: Yes
	Number	
No	889	109
Yes	86	23
Total	975	132
	Percent	
No	91.18	82.58
Yes	8.82	17.42
Total	100.00	100.00

likely they were to serve on committees. The scale served on committees scored higher (3.98) than those who didn't participate (3.75).

Member Satisfaction: "Satisfaction with the board of directors" was found positively related to serving on committees. The calculated regression coefficient was 0.19992 (table 21). Those farmers more satisfied with their board of directors were more likely to serve on committees. This relationship was borne out by the Likert scale scores. Members who served on committees scored higher (4.11) than those who did not (3.76) (table 29).

Influence: "Members have too little say about how the co-op is run" was found statistically significant and positively related to service on a non-elected committee. However, this relationship is ambiguous given the Likert scale analysis. The scale score was 2.69 for those who served on committees and 2.93 for those who had not served. Overall, members disagree that they have "too little say about how the co-op is run." However, members serving on committees disagreed more intensely. This result is at variance to the regression analysis and reveals a non-linear relationship between this item and service on a committee.[4]

Elected to a Cooperative Office

Seven characteristics of members were found statistically related to members serving in an elected office. They included the following variables and measures: farm size (gross farm sales and size of herd); cooperative principles ("Ag co-ops should practice one-member, one-vote" and "Ag co-ops should work with other ag co-ops"); collective action ("An individual farmer can usually make better marketing decisions than a group of farmers or some agency"); identification ("I feel I am part owner of my cooperative"); and satisfaction ("with the cooperative board of directors") (table 22).

Farm Size: Two farm size variables, "gross farm sales" and "size of milking herd," were statistically significant and positively related to serving in an elected office. The revealed regression coefficients were 0.08573 for gross farm sales, and 0.09121 for size of milking herd (table 22). Members from farms with larger gross farm sales were more likely to have served as an officer than members with smaller sales numbers. Similarly, members with larger herds were more likely to have served as an elected officer than members with smaller herds.

[4] Mathematically, regression coefficients are calculated from the entire sample of members who answered the question, while in the Likert scale computations, each score is calculated independent of each other. The differences between the two methods may reveal a skewness in the regression relationship of a curvilinear rather than linear nature.

Table 29— **Member beliefs and served on a committee**

Belief	Strongly disagree	Disagree	Unsure	Agree	Strongly agree	Total	Weighted score
				Number			
Members have too little to say about how the cooperative is run							
Did not serve on a committee	23	347	343	196	66	975	2.93
Served on a committee	12	55	32	23	8	130	2.69
Members receive benefits from doing business the cooperative way							
Did not serve on a committee	9	36	211	648	66	970	3.75
Served on a committee	1	2	15	94	19	131	3.98
Agricultural co-ops should work with other agricultural co-ops							
Did not serve on a committee	10	49	181	615	111	966	3.80
Served on a committee	-	1	19	81	30	131	4.07
	Very Dissatisfied	Dissatisfied	Unsure	Satisfied	Very Satisfied	Total	Weighted score
Satisfied with my cooperative board of directors							
Did not serve on committees	14	38	222	605	101	980	3.76
Did serve on committees	2	1	15	75	38	131	4.11

When comparing members who have served with those who have not, table 30 indicates that 70.8 percent of the elected officers came from farms with gross sales volumes of $100,000 or more. But the 47.8 percent of members who had not served as an officer came from farms with similar volumes. Just 2.6 percent of the officeholders came from farms with sales volumes of less than $30,000, while 12.3 percent of the non-officeholders came from farms with such volumes. Members with greater gross farm sales were more likely to serve in an elected capacity than members with smaller gross farm sales.

Similarly, when examining herd sizes, more than 72 percent of the elected officers milked herds of more than 50 cows, while only 52.5 percent of non-officeholders milked that many. Conversely with smaller herds, 47.5 percent of non-officeholders milked herds of less than 50 head, compared with just 27.6 percent of the officeholders (table 30). Members with larger milking herds were more likely to serve as an officer than those with smaller herds.

Cooperative Principles: Two beliefs concerning cooperative principles, "Ag co-ops should practice one-person, one-vote" and "Ag co-ops should work with other ag co-ops," were found statistically significant and positively related to holding an elected office. The coefficients revealed by the regression were 0.12766 for "one-person, one-vote" and 0.08031 for the "Ag co-ops should work together" (table 22). The more members accepted these two basic cooperative principles, the more likely they were to have held an elective office.

The relationship between principles and holding office was supported by the Likert scale analysis. The average scale score for officeholders was 4.09 for the one-person, one-vote principle and 3.88 for non-office holders (table 31). Members who have held office tend to subscribe to the one-person, one-vote principle more strongly than non-officers.

The average scores for "Ag co-ops should work with other ag co-ops" was 4.10 for officers and 3.77 for nonofficers. Members who have held an elected office believed more strongly that "Ag co-ops should work with other ag co-ops" than members who did not serve as an officer (table 31).

Table 30— **Member's size of farm and elected to office**

Size category	Elected to office: No	Elected to office: Yes
Size of milking herd	*Number of members*	
Less than 50	431	55
50 - 99	407	122
100 - 499	70	22
500 and more	-	-
Total	908	199
	Percent	
Less than 50	47.47	27.64
50 - 99	44.82	61.31
100 - 499	7.71	11.06
500 and more	-	-
Total	100.00	100.00
Gross farm sales		
$1,000	*Number of members*	
Less than 10	23	-
10 - 29.9	85	5
30 - 49.9	102	8
50 - 99.9	246	44
100 - 249.9	319	113
250 and more	99	25
Total	874	195
	Percent	
Less than 10	2.63	-
10 - 29.9	9.73	2.56
30 - 49.9	11.67	4.10
50 - 99.9	28.15	22.56
100 - 249.9	36.50	57.95
250 and more	11.33	12.82
Total	100.00	100.00

Collective Action: The view that "An individual farmer can usually make better marketing decisions than a group of farmers or some agency" was found statistically significant and negatively related to holding an elected office. The regression revealed a coefficient of -0.06393. The more intensely members heed this viewpoint, the less likely they were to have served as an elected officer.

The scale analysis supported this finding. The scale score was 2.13 for officeholders and 2.46 for non-officeholders (table 31). Both measures are to the "disagreement" side of unsure. Neither group of members agree that individuals can do better than a group, but those who had held an office disagreed more so, and to a statistically significant degree.

Identification: "I feel I am part owner of the cooperative" was found statistically significant and positively related to holding an elected office. The revealed regression coefficient for this variable was 0.13140. The more intensely members believed they were part owners of the cooperative, the more likely they were to have served as an elected officer.

This relationship between "having been elected" and "feeling like a part-owner" was supported by the scale analysis. The average score was 4.11 for officeholders and 3.65 for non-officeholders. The average member elected to an office felt more intensely about their ownership of the cooperative than non-officers (table 31.)

Member Satisfaction: The variable, "satisfaction with the board of directors," was positively related to having served in an elected office. The calculated regression coefficient was 0.15440 (table 22). Farmers more satisfied with their board of directors were most likely to have served as elected officers.

The scale analysis supported this finding. The average score was 4.10 for officeholders and 3.73 for non-officeholders (table 31.) Those who had held an elected office were more satisfied with their board of directors than those who had never been an officer.

Recruited Other Members

Three characteristics of members were found statistically related to differences in whether members had recruited other members—"size of milking herd," "The cooperative primarily benefits large farms," and "Belonging to the cooperative is an important part of my identity as a farmer."

Farm Size: "Size of milking herd" was statistically significant and positively related to recruiting other members. The regression analysis revealed a coeffi-

Table 31— **Member's beliefs and elected to office**

Belief	Strongly disagree	Disagree	Unsure	Agree	Strongly agree	Total	Weighted score
				Number			
I feel I am part-owner of my cooperative							
Have not been elected	32	112	115	586	68	900	3.65
Have been elected	-	10	14	118	56	198	4.11
Agricultural cooperatives should practice one-member, one-vote							
Have not been elected	9	38	141	580	132	900	3.88
Have been elected	-	9	15	123	51	198	4.09
An individual farmer can usually make better marketing decisions than a group of farmers or some agency							
Have not been elected	95	441	237	108	19	900	2.46
Have been elected	30	124	33	7	3	197	2.13
Agricultural cooperatives should work with other cooperatives							
Have not been elected	9	45	177	577	90	898	3.77
Have been elected	1	4	21	119	52	197	4.10
	Very Dissatisfied	Dissatisfied	Unsure	Satisfied	Very Satisfied	Total	Weighted score
Satisfied with my cooperative board of directors							
Did not serve on committees	126	636	192	15	9	978	2.13
Did serve on committees	24	99	7	1	-	131	1.89
Satisfied with my cooperative board of directors							
Had not been elected to office	16	33	215	563	84	911	3.73
Had been elected to office	-	6	24	112	56	198	4.10

cient of 0.08434 for this variable (table 23). Members from farms with larger milking herds were more likely to recruit others than members with smaller herd sizes.

Sixty-seven percent of the recruiters and 50.7 percent of the non-recruited milked herds of more than 50 cows. (table 32). Conversely, while nearly 49.3 percent of non-recruiters milked herds of less than 50 head, just 32.9 percent of the recruiters did so. Members with larger milking herds were more likely to have recruited others than their fellow members with smaller herd sizes.

Member Equity/Impartiality: "The cooperative primarily benefits large farms" variable was statistically significant and negatively related to recruitment. The regression analysis revealed a coefficient of -0.09535 (table 23). The more strongly members agreed, the less likely they were to have recruited others to join the cooperative. Conversely, the less likely it was that members agreed, the more likely it was that they had recruited members.

The scale analysis supported these findings. The average was 2.41 for recruiting members and 2.89 for non-recruiters. Average scores for members indicate that overall, members disagreed with the statement, but those who had not recruited disagreed with greater intensity (table 33).

Member Identification: "Being a co-op member is an important part of my identity as a farmer" was statistically significant and positively related to recruitment. The regression coefficient for this variable

Table 32— **Member's size of milking herd and recruitment of members**

Size category	Recruited members: No	Recruited members: Yes
	Number	
Number of cows		
Less than 50	168	27
50 - 99	149	40
100 - 499	24	15
More than 500	-	-
Total	341	82
	Percent	
Less than 50	49.27	32.93
50 - 99	43.70	48.78
100 - 499	7.04	18.29
More than 500	-	-
Total	100.00	100.00

Table 34— **Member attended meetings and spouse employed in an occupation other than farming**

Spouse employed	Attended meetings: No	Attended meetings: Yes
	Number	
No	236	405
Yes	162	195
No spouse	62	44
Total	460	644
	Percent	
No	51.30	62.89
Yes	35.22	30.28
No spouse	13.48	6.83
Total	100.00	100.00

Table 33— **Member's belief and recruitment of members**

Belief	Strongly disagree	Disagree	Unsure	Agree	Strongly agree	Total	Weighted score
				Number			
The cooperative primarily benefits large farms							
Recruited members	15	115	129	52	28	339	2.89
Did not recruit members	13	36	17	11	2	79	2.41
Belonging to the cooperative is an important part of my identity as a farmer							
Recruited members	9	75	74	170	17	345	3.32
Did not recruit members	-	7	9	43	23	82	4.00

was 0.14294 (table 23). The more strongly members believed this, the more likely they were to have recruited other members.

The scale analysis supported this finding. Recruiters had an average score of 4.00, while non-recruiters scored 3.32. Members who sought to recruit others identified more strongly with the cooperative as an important part of their identity, than those who did not recruit.

Summary

Nineteen variables were found statistically related to the various participation measures, i.e., attendance at meetings, service on a committee, service in an elected office, and recruitment of other members.

Percent of gross farm sales from the sale of milk was positively related to attendance at meetings. Gross farm sales and size of milking herd variables were positively related to three participation measures. Gross farm sales was related to attendance at meetings, service to committees, and service in an elected office. Size of milking herd was related to attendance at meet-

Table 35— **Member loyalty**

Belief	Strongly disagree	Disagree	Unsure	Agree	Strongly agree	Total	Weighted score
				Number			
Agricultural cooperatives should work with other cooperatives							
Did not attend meetings	9	45	177	577	90	898	3.77
Attended meetings	1	4	21	119	52	197	4.10
Lack of time prevents me from attending most cooperative functions and activities							
Spouse was not employed off the farm	1	4	4	8	1	18	3.22
Spouse was employed off the farm	20	175	72	310	48	625	3.31
No spouse	11	85	45	181	33	355	3.39

ings, service as an elected officer, and recruitment of other members. Percent of labor hired was positively related to service on committees. Spouse's off-farm employment was negatively related to attendance at meetings. Attendance was greater when spouses were not employed off the farm.

Three cooperative principles, "Ag co-ops should use one-person, one-vote," "Ag co-ops should support education for the members and the public," and "Ag co-ops should work with other ag co-ops," were positively related to three of the participation measures; "One-person, one-vote" to attendance at meetings and service as an elected officer; "Support education" to attendance at meetings; and "Work with other ag co-ops" was related to service on committees and as an elected officer.

Satisfaction measures were related to three of the participation measures; "Satisfaction with dairy farming as a way of life" and "with district directors" to attendance at meetings; and "Satisfaction with the cooperative board of directors" to service on committees and as an officer.

Two equity/impartiality variables, "the cooperative primarily benefits small farms" and "the cooperative primarily benefits large farms," were significantly related to participation measures. "The cooperative primarily benefits small farms" was negatively related to attendance at meetings. "The cooperative primarily benefits large farms" was positively related to attendance at meetings, although negatively related to recruitment.

Two influence variables, "members have too little say in the cooperative" and "members have too much say in the cooperative," were significantly related to participation variables. "Too little say" was positively related to service on a committee and "too much say" was negatively related to "attendance at meetings."

Two collective action variables were related to three participation measures—attendance at meetings, service to committees, and service as an elected officer. "Members receive benefits from doing business the

Table 36— **Member's education and served on a committee**

Education	Served on committee: No	Served on committee: Yes
	Number	
Not completed high school	170	14
Completed high school	570	71
Some college	165	30
Bachelor's degree	54	14
Master's degree	5	-
PHD degree	5	1
Total	969	130
	Percent	
Not completed high school	17.54	10.77
Completed high school	58.82	54.62
Some college	17.03	23.08
Bachelor's degree	5.57	10.77
Master's degree	0.52	-
PHD degree	0.52	0.77
Total	100.00	100.00

cooperative way" was positively related to attendance at meetings and service on a committee. "Individual farmers can usually make better marketing decisions than a group of farmers or some agency" was negatively related to service as an elected officer. All members, on average, disagreed with this item, although officers disagreed more intensely than others.

Two identification variables were related to three participation variables—attendance at meetings, service to committees, and recruitment of other members. "I feel I am part owner of my cooperative" was positively related to attendance at meetings and service as an officer. "Belonging to the cooperative is an important part of my identity as a farmer" was positively related to recruitment of other members.

Two of these variables—"the cooperative primarily benefits large farms" and "members have too little say in how the co-op is run"—proved ambiguous in their respective relationships to attendance at meetings and service on committees. The regression results and the Likert scale analysis produced incongruent results for these variables.

Implications

Attending Meetings: The most democratic aspect of organized cooperation is the member meeting. When members attend and articulate their needs, they imprint the cooperative with their voices and improve possibilities for shaping the cooperative in their joint interests. While directors act in the collective interests of all members, those who do not attend meetings have little input into cooperative decision making, including the selection of directors.

Differences were found between members who did or did not attended meetings. Those who attended were more satisfied with farming as a way of life, more closely identified with the cooperative, and saw themselves as part-owners who believed in the benefits of doing business the cooperative way. They believed more strongly in the one-person, one-vote principle and supported cooperative education for members and the public. These members also had larger farm units, larger gross sales volumes, and larger dairy herds. Their spouses were less likely to work off the farm.

Members who did not attend meetings lacked a strong appreciation of cooperatives and were less likely to identify themselves as part owners. They also had a weaker appreciation for cooperative principles such as one-member, one-vote, and education. They were also less likely to identify with the view that "Members benefit from doing business the cooperative way." These members also operated smaller farm units, were less satisfied with farming as a way of life, and were more likely to have a spouse working off the farm.

A cooperative seeking to realize the fundamental belief that the cooperative is for all members may want to target members from smaller units. The equality aspects of the organization should be emphasized with these members—the one-member, one-vote principle and the part-owner relationship.

Given that these members are more likely to have a spouse working off the farm, some sensitivity should be given to scheduling meetings at times convenient for them. Table 34 indicates that such farmers felt that "lack of time prevents me from attending cooperative functions."

Members who did not attend meetings were also more likely to agree that "members have too much say in how a cooperative is run." Their view may be a rationalization for their own lack of attendance or a resentment of those who do. However, it again betrays a misunderstanding of cooperatives.

Unfortunately, these farmers are the most stressed and have the least contact with the cooperative. They don't attend meetings to voice their needs and do not learn about and can't integrate the "cooperative" aspects of membership. Consequently, cooperative nor the member can learn from one another.

A member relations program that seeks to better integrate more members from the smaller units could help improve the cooperative's response to all members, and help members from the smaller units better realize "benefits from doing business the cooperative way."

Serving on a Committee: Some variables that were statistically related to serving on committees were similar to those related to attending meetings. Farmers who served on committees tended to have larger gross farm sales and hired more labor in their operations. The hired labor measure not only indicates the size of the operation, but may also be a measure of available time. Farmers who hire labor are likely able to slip away from farm chores more easily to attend committee meetings than those who lack hired help.

These results also suggest that involvement makes a difference. It is likely that the first-hand experience of serving on committees allows members to understand "Ag co-ops should work with other ag co-ops" and that "Members receive benefits from doing

business the cooperative way." These committee experiences may also account for greater member-satisfaction with the board of directors.

Committee members were also more likely to agree that members have too little say in the cooperative. By their committee work, they may become aware how much is done in the cooperative and how little most members are involved.

All of the results for committee participation imply that members gain considerably from their involvement in the cooperative. They may learn that "ag co-ops do need to work with other ag co-ops" and that "members benefit from doing business the cooperative way."

As with attendance at meetings, a member relations program could improve cooperative responsiveness for all members by targeting members from smaller units. Study results suggest these members have less time to serve and are less satisfied with their board of directors. On-farm visits to members by directors could help mitigate some of their time disadvantages, improve participation in the organization, and help familiarize them with cooperative operations. Ideal scheduling would allow farmers from smaller units greater participation on committees.

Elected to an Office: As with the other methods of participation, size again is important in influencing those who do or do not serve. Members who served as an elected officer had larger milking herds and greater farm sales volumes.

These members strongly believed in the "One-member, one-vote" and "Ag co-ops should work with other ag co-ops" principles. They also felt more strongly about their "part ownership" in the organization.

Farmers who had not served in an elected office more intensely agreed that "an individual farmer can usually make better marketing decisions than a group of farmers or some agency." Again, this suggests the positive impacts of involvement. Members who serve as elected officers deepen or develop these beliefs.

A member relations program should emphasize these aspects of the organization to the general membership and involve members from the smaller farm units.

Recruiting Other Members: Recruitment is perhaps the most intense form of participation in the cooperative. Just 83 members recruited others. These farmers identified themselves most closely with the cooperative. Again, size of the farm unit was important. Although farmers who had the largest milking herds often acted as recruiters, they disagreed most intensely that "The cooperative primarily benefits large farms." Cooperatives might augment their member relations programs with these farmers, perhaps helping them direct some of their efforts to farmers on the smaller units.

These variables are important in improving participation in a cooperative by all members. They can help the cooperative understand what beliefs and values are different for participators and non-participators. A member relations program then might highlight those beliefs. The organization may also seek to better integrate those members from smaller farm units who feel they are not benefiting from the organization.

Direct contact with these members, flexible meeting schedules, and direct recruitment of members to meetings, committees, and offices could improve organizational responsiveness for all members. With greater involvement, all members can articulate their needs and the organization can better respond to them.

Of particular note is the continuing importance of cooperative principles, the collective action variables, and identification with the cooperative. Despite cultural trends emphasizing the individual, farmer members continued to reflect an appreciation for cooperative organization and collective action. This research demonstrates clearly that these beliefs and the understanding of their value in action are best deepened by participation in cooperative governance.

Limitations of Study: The analysis is most relevant for dairy farmers in the identified States and within the response ranges summarized in the report. As member characteristics vary out of these ranges—for larger or smaller farms, other regions, different average responses and scale scores on the belief items—less reliance can be placed in the results.

These variables are statistically significant and related to participation in the cooperative. Their identification can help cooperatives better tailor their member programs to encourage involvement at meetings, service on committees or in an elective office, and in recruiting other members.

However, this analysis measured member characteristics using dummy variables. The respondent answers questions with very limited choices, e.g., yes, no, or strongly disagree to strongly agree. This type of analysis accounts for only a limited amount of the variation in participation rates. Other influences, left unidentified, more fully account for differences in participation. The variables identified here explain only limited differences. However, they are statistically significant and can be used as a place to start.

Conclusions

This research identifies various characteristics of dairy members that influence their participation in a cooperative. Participation measures included attendance at meetings, serving on committees or as an elected officer, and recruiting other farmers to become members. Member characteristics included beliefs concerning: cooperative principles, collective action, individual member identities as associated with cooperative membership, life satisfaction with farming, member satisfaction with the cooperative operations and representation, member influence on cooperative decision making, and equitable treatment among members.

Demographic characteristics of members and measures of farm size and farm type were included. Regression analysis and Likert scale analysis were applied to the 1,156 dairy farmer respondents from Iowa, Illinois, Minnesota, and Wisconsin. All were members of the same cooperative. Analysis involved only dummy variables, limiting the total variation explained to very small percentages. However, 19 characteristics were found statistically significant and linearly related to the four participation measures.

Eight characteristics were positively related to attendance at meetings. The greater their measured value and / or the more intense the belief, the more likely a member would attend cooperative meetings. The characteristics are:

1. Percent of gross farm sales from the sale of milk.
2. Gross farm sales.
3. Size of milking herd.
4. "I feel I am part owner of the cooperative."
5. "Ag co-ops should practice one person, one vote."
6. "Ag co-ops should support education for their members and the public."
7. Satisfaction with "farming as a way of life."
8. Satisfaction with "my district director."

Three characteristics were found negatively related to attendance at meetings. The greater the measured value or frequency of these characteristics and more intense the belief, the less likely a member would attend cooperative meetings. The characteristics are:

1. Spouse's employment off-farm.
2. "Members have too much say about how the cooperative is run."
3. "The cooperative primarily benefits small farms."

Five characteristics were found positively related to serving on committees. The greater their measured value or frequency and more intense the belief, the more likely a member would serve on committees. The characteristics are:

1. Gross farm sales.
2. More than half of the farm labor is hired.
3. "Ag co-ops should work with other ag co-ops."
4. "Members receive benefits from doing business the cooperative way."
5. Satisfaction with "my cooperative board of directors."

Six characteristics were positively related to service in an elected office. The greater the measured value and intensity of belief, the more likely a member would serve in an elected office. The characteristics are:

1. Gross farm sales.
2. Size of milking herd.
3. "Ag co-ops should practice one-person, one-vote."
4. "Ag co-ops should work with other ag co-ops."
5. "I feel I am part-owner of the cooperative."
6. Satisfaction with "my board of directors."

One characteristic was negatively related to service in an elected office. The more intensely members agreed that "an individual farmer can usually make better marketing decisions than a group of farmers or some agency," the less likely they were to serve as an elected cooperative officer.

Two characteristics were positively related to recruitment of other farmers to the cooperative. The greater their measured value and more intense the belief, the more likely members would recruit others to join the cooperative. The characteristics are:

1. Size of milking herd.
2. "Belonging to the cooperative is an important part of my identity as a farmer."

One characteristic was negatively related to recruiting others to join the cooperative. The more intensely members agreed that "the cooperative primarily benefits large farms," the less likely they were to recruit others.

Two variables were significantly related to participation measures in non-linear fashion—"the cooperative primarily benefits large farms," and "members have too little say about how the co-op is run."

A size bias was found in these analyses. Farmers from larger farm units were more involved. Farmers from smaller units were less satisfied and had less time

available to participate. Participation is important in validating or developing farmer understanding and appreciation of cooperative organization.

Cooperatives may seek to improve their responsiveness by being sensitive to and making accommodations for greater involvement of farmers from smaller units. With greater involvement, the cooperative and members may identify ways of improving the satisfaction of these farmers and strengthening the cooperative. Study results suggest emphasizing cooperative principles, the benefits of cooperation, and the importance of participation as a place to start.

Of particular importance, this research demonstrates the continued importance of "cooperative principles," "beliefs in collective action," and "personal identification with the cooperative" as sets of belief systems that continue to be relevant for members and that are deepened with cooperative involvement.

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Rural Business–Cooperative Service (RBS) provides research, management, and educational assistance to cooperatives to strengthen the economic position of farmers and other rural residents. It works directly with cooperative leaders and Federal and State agencies to improve organization, leadership, and operation of cooperatives and to give guidance to further development.

The cooperative segment of RBS (1) helps farmers and other rural residents develop cooperatives to obtain supplies and services at lower cost and to get better prices for products they sell; (2) advises rural residents on developing existing resources through cooperative action to enhance rural living; (3) helps cooperatives improve services and operating efficiency; (4) informs members, directors, employees, and the public on how cooperatives work and benefit their members and their communities; and (5) encourages international cooperative programs. RBS also publishes research and educational materials and issues *Rural Cooperatives* magazine.