Mergers, Acquisitions, Joint Ventures and Strategic Alliances in Agricultural Cooperatives

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Abstract: *A recent merger "wave" has occurred within the economy, including the agricultural sector. Some research has been conducted on publicly traded companies, but there is little information available on merger activity within agricultural cooperatives. This paper presents the results of a recent survey of agricultural cooperatives and attempts to identify major trends in merger activity within cooperatives.*

The authors are Assistant Professor and Professor, respectively. The authors acknowledge the assistance of Ashley Renck in formulating the questionnaire. The comments of Jayson Lusk, Lisa House, Terry Hanson, and Patrick Gerrard are greatly appreciated. This research was supported through a Cooperative Agreement between The Agribusiness Institute, Mississippi State University, and the U.S. Department of Agriculture-Rural Business and Cooperative Service.

MERGERS, ACQUISITIONS, JOINT VENTURES AND STRATEGIC ALLIANCES IN AGRICULTURAL COOPERATIVES

The general economy has been undergoing a wave of merger and acquisition activity, and the agricultural sector has participated in this trend as well. Technology and globalization of industries have likely offered opportunities for increased economies of scale, which, in turn, have led to increased concentration through mergers and acquisitions. The extent of merger and acquisition activity within the food industry has raised public concern about monopoly power (Thomas). This public concern has caused the U.S. Congress to consider halting mergers and acquisitions within the food industry in order to preserve competition.

There are a variety of potential motivations for mergers and acquisitions (Goldberg; Fama and Jensen; Adelaja, Nayga, and Farooq; Dietrich and Sorenson; Parks and Manfredo), and Adelaja, Nayga, and Farooq provide an empirical investigation of mergers and acquisitions in the food industry. However, this analysis focused only on publicly traded companies, which necessarily limits extension of their results into other business forms such as privately held companies and agricultural cooperatives.

Farmer cooperatives accounted for 34% of farm marketing expenditures and 28% of farm supply expenditures in 1996 (USDA/RB-CS, 1998). Thus, merger and acquisition activity in agricultural cooperatives could have a large impact on the agricultural sector. Agricultural cooperatives are important both because of their historical place in American agriculture and the amount of commerce carried out in agricultural cooperatives. For example, farmer owned cooperatives marketed $94 billion worth of commodities in 1995 (USDA/RB-CS, 1995) and several major agricultural cooperatives rank among the top 50 agribusinesses (Fortune).

Despite their importance, there is little empirical evidence on the extent of merger and acquisition activity within agricultural cooperatives. One exception is a recent study by Parks and Manfredo. These authors utilized a panel data set of the top 100 agricultural cooperatives in terms of sales and found that capital constraints were a primary driving force behind mergers and acquisitions in agricultural cooperatives. Their study, however, was limited in two ways. First, the data set was limited to the top 100 firms, which may not capture much of the activity occurring in smaller firms. Second, the nature of the data set prevented analysis on the effects of such factors as research and development and electronic commerce activities. The primary objective of this paper is to present results of a survey of agricultural cooperatives, which was aimed at collecting primary data on agricultural cooperatives in general, as well as the extent and type of merger and acquisition activity occurring between agricultural cooperatives.

Agricultural Cooperative Survey

A survey of agricultural cooperatives was conducted during the spring of 2000. The address list for cooperatives was obtained from the National Council of Farmer Cooperatives and state cooperative associations. Thus, the sample is not completely random and is biased to the extent that there is a self-selection, with membership in the National Council and state cooperative associations required for inclusion in the survey. Because more active or larger cooperatives may be more likely to be members of the National Council or state associations, the results presented here are likely biased towards larger cooperatives.

Initially, there were 500 addresses in the list. After accounting for duplicated addresses and cooperatives whose primary business was non-agricultural (cooperative banks and utility cooperatives), there were 409 remaining addresses, which is roughly 20% of the number of farmer-owned cooperatives believed to have existed in 1996 (USDA/RB-CS). A Dillman three-wave mail survey approach was used. After the initial mailing, 40 were returned due to an incorrect address with no forwarding address, leaving an effective sample of 369 cooperatives. There were 97 responses representing a response rate of 26%.

The cooperative survey was designed to be answered by the cooperative's manager, Chief Executive Officer (CEO), or other responsible party with direct knowledge of both the cooperative's basic characteristics and merger and acquisition activity. Merger and acquisition (M&A) activity was defined to be mergers, acquisitions, joint ventures and strategic alliances. Very little research has included joint ventures and strategic alliances. However, some authors argue that joint ventures and strategic alliances (Sporleder) have similar coordination and integration implications as mergers and acquisitions, so it was felt that it was necessary to collect basic data on these activities as well.

General Characteristics

The survey was designed to elicit information on the basic characteristics of the cooperative including the number of members, organizational form (federated or non-federated), size of local market area and number of competitors within that area, basic financial data, number of employees and patronage refund information. Means, medians, and standard deviations for basic characteristics are presented in Table 1.

The “average” cooperative has about 7,600 members and $321 million in annual sales. These results, however, are influenced by several large cooperatives. A more representative approximation under the condition of extreme values is the median, which suggests that the median cooperative has about 840 members with $20 million in annual sales. Cooperatives are typically solvent as reflected by assets and debts, and cooperatives typically generate 2.7 times their assets in annual sales, although this measure ranged from 0.63 to 10.

The median firm employs about 34 full-time employees and 6 part-time employees. About 83% of the reporting cooperatives provide patronage refunds on an annual basis. Of those that provide refunds, about 45% are paid in cash, on average. The primary operating regions of the reporting cooperatives are shown in Table 2. The bulk of the responses came from the Midwest region, which is consistent with the address list.

Products/Services and Marketing Activities

Cooperatives were asked about the products and services provided to their members (Table 3). A large proportion of the cooperatives surveyed marketed products on behalf of members, provided farm supplies, stored commodities, and custom applied chemicals and fertilizers. The interesting result is that although a large proportion of cooperatives provided custom application services, that service made up a small proportion of total sales. Thus, it would appear that these cooperatives are providing this service in order to support sales of chemicals to members.

About 39% of responding cooperatives reported that they performed some type of processing. This processing ranged from simple cotton ginning to full-scale food processing. About 16% reported consulting as an activity provided to members. In fact, several firms reported deriving 100% of annual sales through consulting, usually some type of export negotiations or legal consultation.

The average number of commodities/products marketed was three. Given that the majority of responding cooperatives were located in the Midwest, these results suggest that these cooperatives usually marketed three grain products. Examination of the data suggested that a large number of specialty cooperatives operated in the southwest and northwest, and these cooperatives typically handled cotton or one type of fruit, nut, or vegetable.

An interesting question is the location of the cooperative within the market channel (Figure 1). That is, does the cooperative market products primarily to intermediaries (merchants and shippers), processors, or directly to wholesalers and retailers. Nearly one half of responding cooperatives reported marketing products directly to wholesalers and retailers. Because these products must be essentially in finished form, this result suggests that a large proportion of cooperatives are creating (or handling) products that are essentially ready for consumption by consumers. The vast majority of cooperatives still operated in the more “traditional” mode of marketing. That is, most cooperatives appear to take raw products from their producer/members and market them to processors.

Finally, cooperatives were asked what products/services they provided directly to retail consumers (Table 4). It appears that a large proportion of cooperatives currently offer a variety of products to retail consumers. Many firms likely see offering these products as a means to stabilize income for the cooperative by expanding the customer base and offering products that stabilize cash flows in different parts of the year.

Research and Development and Electronic Commerce

Information was also gathered on the research and development activities of agricultural cooperatives (Table 5). About 37% of the responding cooperatives reported participation in some form of research and development, and there appears to be a relatively even dispersion across the different products under research and development. Interestingly, it appears that agricultural cooperatives have also participated in the agro-biotechnology movement. Agro-biotechnology has significant implications for industry structure (Kalaitzandonakes and Bjornson), and could be having some influence on merger and acquisition activity reported below.

Another issue is the proliferation of information technology (Streeter, Sonka, and Hudson) and electronic or “e-commerce.” Table 6 shows the extent of usage of different e-commerce activities by agricultural cooperatives. Usage of e-commerce to sell products to members or the public is limited. So-called "business-to-business" activity as reflected by electronic purchases of inputs seems slightly more widespread. However, only one-third of the responding agricultural cooperatives utilize this e-commerce opportunity. A majority of the cooperatives surveyed responded that electronic media (primarily e-mail and web pages) was used to communicate with employees or the public.

Taken together, these results suggest that electronic communication has taken hold in agricultural cooperatives, but cooperatives generally do not utilize electronic media to conduct business. This may not bode well for cooperatives facing competition from other firms who utilize e-commerce. E-commerce expands market areas beyond traditional geographic boundaries and has the potential to lower marketing cost. Certainly some cooperatives are in a better position to capture the benefits of e-commerce. For example, food processing cooperatives may find it easier to market to a broader geographic area and customer base through e-commerce as compared to a farm supply cooperative. However, other cooperatives will need to consider strategies that will allow them to capitalize on e-commerce or at least compete with firms utilizing e-commerce.

M&A Activity in Cooperatives

Firms were asked about their M&A activity during the past 5 years (Table 7). Result show that about 78.5% of the cooperatives surveyed had been offered an M&A activity during the past 5 years, which reflects the proliferation of M&A activity within agricultural cooperatives. Further, 81% of the responding cooperatives participated in the M&A activity when offered, suggesting that most potential M&A opportunities in agricultural cooperatives are consummated.

Respondents were asked the year of their most recent M&A activity (Figure 2). Results reveal a definitive increase in M&A activity since 1998. These data suggest a trend toward increasing usage of M&A activities, although the time period is too short to draw definitive conclusions. Respondents were also asked the type of their most recent M&A activity (Table 8). Clearly, traditional mergers and acquisitions are the most common M&A methods employed by agricultural cooperatives. However, a relatively large percentage of cooperatives (45.06%) reported using either joint ventures or strategic alliances. In addition, Figure 3 shows a shift in usage from mergers and acquisitions to joint ventures and strategic alliances through time. This may reflect an increasing understanding of the usage of these tools on the part of cooperatives and/or be related to cooperative management perceptions of these tools (discussed below).

Cooperative managers were asked about their primary reasons for engaging in their most recent M&A activity. Table 9 shows the choices provided to the respondents and the percentages responding that each motivation was their primary reason for participation. With the exception of financial constraints, there is considerable variation in the underlying motives behind M&A activity, with reducing cost through reducing duplicated personnel as the most common motivation. The fact that financial constraints is not a common motivation is not surprising given the apparent financial health of agricultural cooperatives (Table 1), but this seems to be contradictory to the results of Parks and Manfredo.

Combining expansion in either market area, products offered, or firm size accounts for over 50% of the cited motivations for M&A activity suggesting that M&A tends to be used more for expansion than other reasons.

Finally, managers were offered four different descriptions and asked to identify the one that most resembled their most recent M&A activity (Table 10). The results strongly suggest that the majority of M&A activity in agricultural cooperatives is horizontal in nature. That is, most of the M&A activity occurs between similar firms within the same market level (providing the same products and/or services). This appears logical because reducing costs through eliminating duplicated personnel was a common motivation for participation in an M&A activity (Table 9).

Given these responses, it seems that expanding horizontally is the primary M&A strategy in agricultural cooperatives. Expanding horizontally offers advantages through cost reductions and reductions in competition in local market areas. Efficiencies can be gained through increasing size of operations and combining firms operating in different market areas as well. However, expanding horizontally can also have disadvantages by concentrating income in a single market level (as compared to expanding vertically). The impacts of these M&A activities is beyond the scope of this paper, but deserves attention in future research.

Management Perceptions

Some insight on the motives for M&A activity can be gained by assessing the perceptions of those responsible for management activities. Respondents were asked their perceptions about several issues in a Liekert scale format (Table 11). A slight majority of the responding cooperatives indicated that management exerted more control than membership. Fama and Jensen argue that strength of management control may be a factor affecting merger and acquisition activity. One might expect management control to correlate with the size of the firm. However, the correlation between the Liekert score for management control and the number of members and total annual sales was –0.08 and –0.17, respectively, suggesting no significant relationship. Thus, it appears that the degree of management control was distributed similarly for large and small cooperatives alike.

Business risk was generally believed to be an issue of some importance by cooperative managers. Business risk was defined loosely as the variability in annual income. Interestingly, perceived business risk was positively correlated to both measures of firm size (0.03 and 0.15 for members and sales, respectively), although not significantly. The majority of the responding managers did not perceive their firm as being highly diversified. In contrast to the previous two statements, diversification and firm size were significantly correlated (0.17 and 0.25 for members and sales, respectively, which are statistically significant at the 0.10 and 0.02 level, respectively). Thus, larger cooperatives tend to perceive themselves as being diversified.

The cost of new technologies appears to be significantly influencing perceptions about the need for expansion, but this perception does not seem to depend on firm size (correlation of 0.06 and –0.08 for members and annual sales). These results suggest that increasing technology costs are affecting perceptions similarly whether the firm is small or large. There appears to be a strong perception that joint ventures and strategic alliances offer more flexibility than mergers or acquisitions, but again, there is no relationship to firm size.

Finally, perceptions about the impacts of mergers on competition in agricultural cooperatives appear to be split, reflecting the general public perception. Interestingly, however, there is a significant inverse correlation between perceptions and firm size in terms of the number of members (ρ= -0.18, which is statistically significant at the 0.08 level). This result may be reflecting a "sour grapes" attitude in that smaller firms are being "left out" of the on-going mergers and/or are being adversely affected by these mergers.

Conclusions

This paper presents results of a survey of agricultural cooperatives regarding current merger, acquisition, joint venture, and strategic alliance activity. The results of this survey point to some general preliminary conclusions. First, M&A activity has proliferated agricultural cooperatives throughout the country. This result appears consistent with other industries, which has formed the basis for considerable public concern about market power in the food industry.

Unlike many other industries, the bulk of the M&A activity in agricultural cooperatives appears to be horizontal in nature, suggesting expansion within a market level as opposed to across market levels. This type of consolidation activity may offer some efficiencies and reduced costs, but the long-run implications of this activity on competitiveness with firms expanding vertically are unknown. These tendencies toward horizontal integration coincide with the historical role of cooperatives that have increased market power and, thus, profits through gaining more control over the same level or stage of the marketing channel.

M&A activity in agricultural cooperatives appears to be both increasing and shifting in type. The flexibility noted by cooperative managers may help explain the relative shift towards joint ventures and strategic alliances. However, other factors may be influencing this change as well. This issue deserves consideration in future research because it has implications on how this consolidation activity may be regulated in the future.

References

Adelaja, A., R. Nayga, and Z. Farooq. “Predicting Mergers and Acquisitions in the Food Industry.” *Agribusiness*, 15 (1999): 1-23.

Dietrich, J. and E. Sorenson. “An Application of Logit Analysis to Prediction of Mergers Targets.” *Journal of Business Research*, 12 (1984): 393-402.

Dillman, D. *Mail and Telephone Surveys: The Total Design Method*. John Wiley, New York, 1978.

Fama, E. and M. Jensen. “Separation of Ownership from Control.” *Journal of Law and Economics*, 26 (1983): 301-325.

Fortune. Fortune 500 Index Database, Fortune Magazine Web Site, URL http://www.fortune.com, Accessed 6/2/2000.

Goldberg, W. *Mergers: Motives, Modes, and Methods*. Nichols Publishing Company, West Chester, PA, 1983.

Kalaitzandonakes, N. and B. Bjornson. “Vertical and Horizontal Coordination in the Agro-biotechnology Industry: Evidence and Implications.” *Journal of Agricultural and Applied Economics*, 29 (1997): 129-139.

Parks, T. and M. Manfredo. “Determinants of Mergers and Acquisitions in Agricultural Cooperatives.” Organized Symposia Presentation, American Agricultural Economics Association Annual Meetings, August, 2000.

Sporleder, T. “Assessing Vertical Strategic Alliances by Agribusinesses.” *Canadian Journal of Agricultural Economics*, 42 (1994): 533-540.

Streeter, D., S. Sonka, and M. Hudson. “Information Technology, Coordination, and Competitiveness in the Food and Agribusiness Sector.” *American Journal of Agricultural Economics*, 73 (1991): 1465-1471.

Thomas, C. (Sen.-Wyo.). Congressional Record, Vol. 145, No. 138, October 13, 1999.

U.S. Department of Agriculture/Rural Business-Cooperative Service (USDA/RB-CS). “Understanding Cooperatives: Farmer Cooperative Statistics.” Cooperative Information Report 45, Section 13, December 1996.

U.S. Department of Agriculture/Rural Business-Cooperative Service (USDA/RB-CS). “Cooperative Historical Statistics.” Cooperative Information Report 1, Section 26, April 1998.

Table 1. General Characteristics of Responding Cooperatives.

Characteristic	_n_	Mean	Median[e]	Standard Deviation
Number of Members	95	7,589	840	32,656
Annual Sales	83	$320,746,118	$20,000,000	$1,337,737,612
Assets[a]	81	$107,666,335	$8,432,941	$470,671,455
Debt[b]	79	$84,503,675	$6,571,544	$355,314,998
Asset Turnover[c]	78	2.65		1.84
Competitors	93	18	7	40.12
Full-time Employees	94	443	34	1,910
Part-time Employees	94	87	6	287
Patronage Refunds	95	83%		
Percentage Refund Paid in Cash[d]	79	45%		

[a] A combination of current, intermediate, and long-term assets from the survey.
[b] A combination of current liabilities and other liabilities in the survey.
[c] Annual sales/total assets.
[d] Percentage paid in cash for those reporting that they provided patronage refunds.
[e] Median reported for those characteristics where the mean and median diverged and appropriate.

Table 2. Primary Operating Regions of Reporting Cooperatives.

Region	Proportion of Responses[a]
Northeast	2.06%
Southeast	7.22%
Midwest	45.36%
Southwest	18.56%
Northwest	18.56%
National	2.06%
International	4.12%

[a] May not sum to 100% due to rounding.

Table 3. Products/Services Provided by Cooperatives to Their Members and Percentage of Total Sales.

Product/Service	Percentage Providing	Average Percentage of Total Sales[a]
Marketing Products	66.7	63.9
Farm Supply Sales	67.7	47.5
Custom Applications	48.4	7.5
Commodity Storage	50.5	11.5
Processing	38.7	27.3
Consulting	16.2	18.7
Transportation	15.1	2.9
Other	12.9	32.3

[a] Percentage for those reporting that they provided that product/service.

Table 4. Products Sold at Retail to Consumers.

Products	Proportion
Food	21.05
Lawn Care	43.16
Nursery	15.79
Other	46.32

Table 5. Research and Development Activities by Agricultural Cooperatives.

Product	Percent
Practice Research and Development	36.84
Specific Research and Development Activities[a]	
Genetics	36.36
Software	27.27
Equipment	36.36
Food	36.36
Other	24.24

[a] Percentage responding for those that reported that they practiced research and development.

Table 6. "E-Commerce" Usage by Agricultural Cooperatives.

Activity Type	Percent Usage
Sell to Members or Public Electronically	23.66
Purchase Inputs for Operations	32.26
Communication to Employees or Public	61.29
Track Inventory Electronically	18.28
Other	12.90

Table 7. M&A Opportunities and Participation in Agricultural Cooperatives, 1995-2000.

Question	Percent Indicating "Yes"
"Have you been offered the opportunity to participate in a merger, acquisition, joint venture or strategic alliance during the past 5 years?"	78.49
"If offered, did you participate in that activity?"	80.82[a]

[a] This percentage reflects the percentage participating if an offer had been extended.

Table 8. Type of Most Recent M&A Activity in Agricultural Cooperatives.

Type of Activity	Percent[a,b]
Merger	25.42
Acquisition	30.50
Joint Venture	33.20
Strategic Alliance	11.86

[a] Percentage of firms that reported participating in an M&A activity.

[b] May not sum to 100% due to rounding.

Table 9. First or Second Most Important Reasons for Participating in M&A Activity.

Reason	Percent
"Increase market area to tap unserviced markets."	11.86
"Increase market area to diversify geographic coverage."	20.34
"Reduce competition and/or increase market share in local market area."	15.25
"Streamline operations (reduce cost) by eliminating duplicated personnel between firms."	33.90
"Gain access to market channels."	18.64
"Expand the number of products/services offered to your members."	20.34
"Financial constraints forced the activity in order to maintain the financial viability of the cooperative."	6.78
"Increase the scale (size) of the cooperative to cover increasing fixed costs of operation."	25.42
"Increase the scale (size) of the cooperative to remain competitive with other business firms."	27.12
"Other."	15.25

Numbers do not sum to 100% because these represent the first and second most cited motivations.

Table 10. Description of Most Recent Merger, Acquisition, Joint Venture, or Strategic Alliance.

	Description	Percent
Horizontal	"A combination of companies with similar products, services, and/or member patrons to reduce costs and increase the scale (size) of both companies."	66.10
Vertical	"A combination of companies with different products, services, and/or member patrons to increase the scope of the operation (for example, the combination of marketing and processing cooperative to provide a more integrated, efficient operation for both)."	6.78
	"A combination of companies to gain access to market channels or to assure supply (for example, a farm supply cooperative purchasing a fertilizer manufacturer to insure a stable supply of fertilizer)."	13.56
Conglomerate	"A combination of unrelated companies to stabilize the income for both firms."	6.78
	"Other."	5.08

Table 11. Perceptions of Agricultural Cooperative Management on Issues Surrounding Cooperative Operation and M&A Activity.

Statement	SA[a]	A	N	D	SD
	Percentage				
"Management has complete control in my cooperative with members only voting on Board of Directors."	17.39	30.43	17.39	20.65	14.13
"The business risk for my cooperative is very high; the annual income is highly variable."	14.13	40.22	22.83	19.57	3.26
"My cooperative is highly diversified; we offer many unrelated products and services."	6.52	23.91	17.39	34.78	17.39
"Firms must expand to increase growth rates in sales and profits."	19.57	50.00	20.65	8.70	1.09
"The cost of new technologies is forcing me to consider expansion so that I can afford to adopt new technology and remain competitive."	17.78	48.89	22.22	10.00	1.11
In general, I believe that a joint venture or strategic alliance with another cooperative offers more flexibility than a merger or acquisition."	14.61	44.94	24.72	11.24	4.49
"In general, I believe that the mergers that are taking place in agricultural cooperatives are significantly reducing competition."	7.69	25.27	17.58	24.18	25.27

[a] SA = strongly agree, A = agree, N = neutral, D = disagree, and SD = strongly disagree.

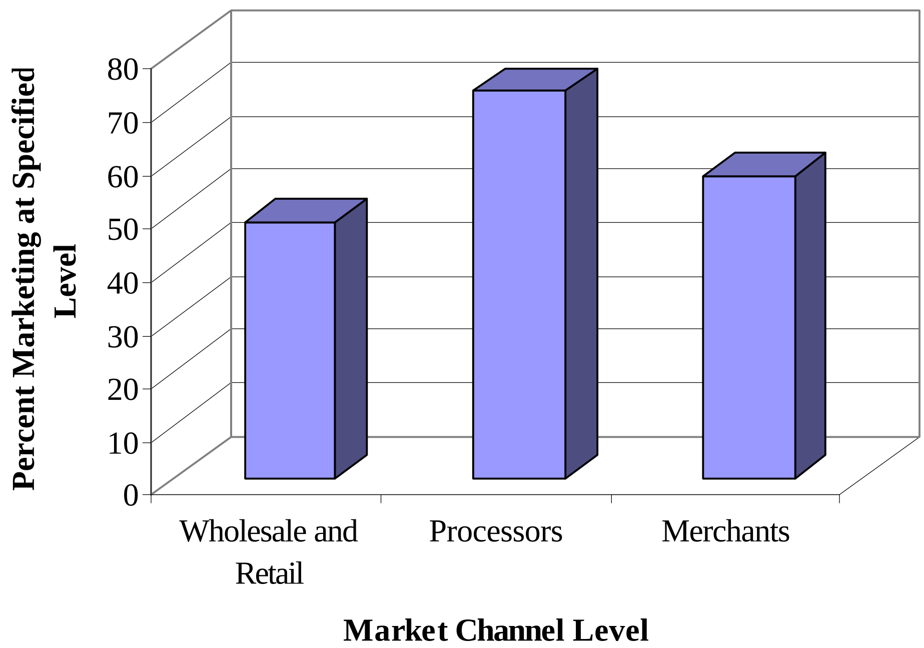

Figure 1. Percentage of Agricultural Cooperatives Marketing Products at Different Market Channel Levels.

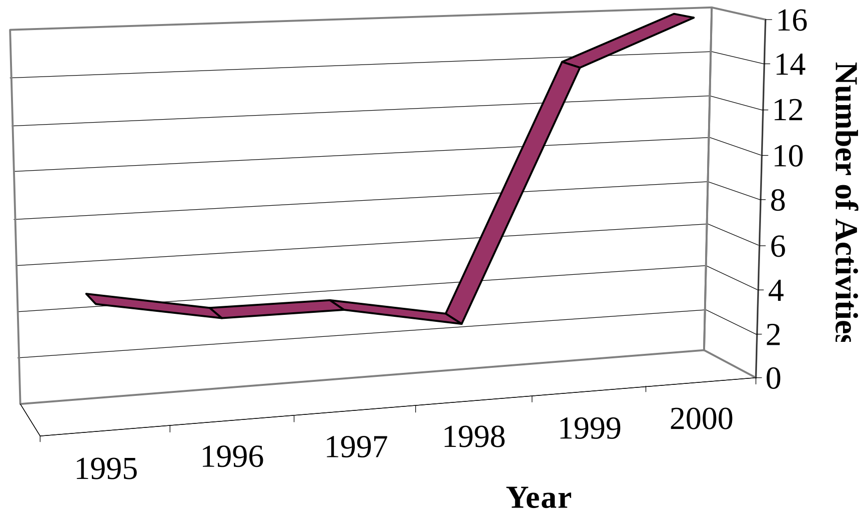

Figure 2. Number of Cooperatives Reporting Given Year as Most Recent M&A Activity.

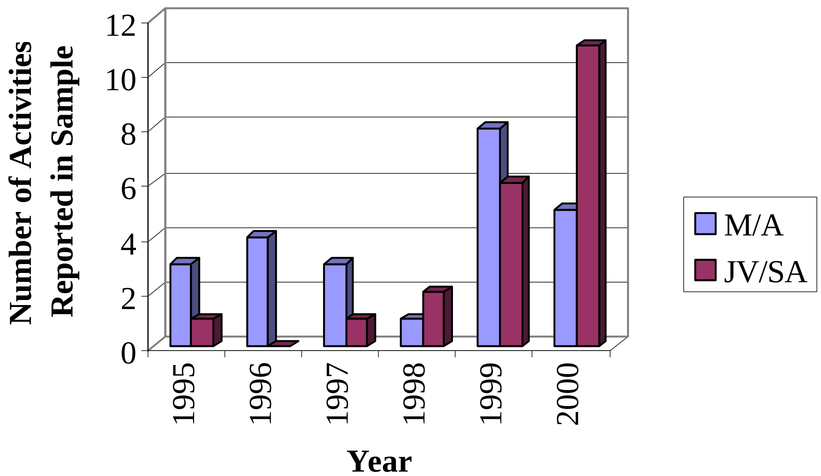

Figure 3. Distribution of Merger/Acquisition (M/A) and Joint Venture/Strategic Alliance (JV/SA) Activity in Agricultural Cooperatives, 1995-2000.