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A Comparative Analysis of Strategic Planning Practices in Michigan Agribusiness Firms: 1992 vs. 2012

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Abstract

Over the past 20 years, U.S. agribusinesses have been subject to a number of significant structural changes. Given that the strategic management literature emphasizes an organization's fit with its environment as an important determinant of performance, this study examines how strategic planning practices have changed over time. Data for this study was collected from Michigan agribusinesses at two time periods, 1992 and 2012. A comparative analysis indicates that Michigan agribusinesses have become larger, more diverse, and have increased their adoption of strategic planning activities. Furthermore, these practices were found to be positively correlated with performance.

Keywords: strategic planning, management practices, firm performance, agribusiness, comparative analysis.

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Introduction

U.S. agribusinesses face a competitive environment that is often characterized as more uncertain, with more complex relationships and fiercer competition than just 20 years ago (Ross and Westgren 2009, Ross et al. 2013). Boehlje (1999) and Boehlje et al. (2011) identify several specific changes that have transformed the agribusiness and economic environment during this period. For one, Boehlje (1999) illustrates how tightly aligned value chains, rather than a single firm or economic agent, have become the focal point for successful business activities and transactions. There has also been a change in the type of products produced by the agribusiness sector. As Boehlje (1999) illustrates, the sector now focuses on the “biological manufacturing” of products with specific attributes that are tailored to end-user preferences in contrast to the production processing of commodity products. Both these changes in the industrial organization of agriculture production favor the establishment of higher concentration levels in each of the different industry segments, which deeply influence the way agribusiness organizations behave and interact.

More recently, Boehlje et al. (2011) also describe how “formerly distinct value chains are becoming increasingly interlinked and interdependent”. As a result of this convergence firms that did not traditionally interact with each other are now becoming partners and/or new competitors. Examples of this convergence can be seen by the demand for agricultural products from companies in the food, energy, and/or industrial sectors of the economy. Similarly, agribusiness firms are often present in more than one input market, and are developing portfolios of synergistic products and services that support an active cross-selling strategy in an attempt to develop a competitive advantage (Freedonia Group 2012). Some of the results of the industry changes described above as well as other changes in the general business environment in which U.S. agribusiness firms operate are reflected in Table 1.

Table 1: Comparison of Competitive Environment for U.S. Agribusinesses in 1992 vs. 2012.

	1992	2012
Commodity Price Index (2005=100)	54.93	187.19
Corn (\$/bu)	2.30	6.73
Soybeans (\$/bu)	5.61	13.9
Milk (\$/cwt)	9.71	16.7
Use of Production Contracts (Hogs)	3%	>66% (2004)
% of Crop GM-seed		
Corn	0%	88%
Soybean	0%	93%
Ag Land Values MI (\$/ac)	1,106	3,850
GDP (\$ Billion)	8.28	53.19 (2011)
Agriculture Contribution	2%	1%
Interest Rates (LIBOR)	4.248%	0.862%
S&P 500	435.71	1379.85
U.S. Unemployment Rate (Michigan)	7.5% (8.9%)	8.9% (9.3%)

While the environment described above may well provide agribusiness firms with abundant opportunities for entrepreneurial behavior (Ross and Westgren 2009), it is also true that increased uncertainty and complexity is likely to have placed considerable strain on agribusiness strategic planning activities. Increased frequency of market shifts and/or production shocks make forecasts quickly obsolete and the greater magnitude and diversity of business relationships make “back-of-the-envelope” planning inadequate. As such, we might expect agribusiness firms to change their strategic planning practices.

In this paper, we explore how the strategic planning practices employed by U.S. agribusiness firms have changed over time. Specifically, we conduct a comparative analysis with data collected from two surveys conducted with Michigan agribusinesses in 1992 and 2012¹ to identify changes in the following areas:

- What planning practices do agribusinesses use in order to make strategic decisions?
- What effect do strategic planning practices have on firm performance?
- What expectations do agribusiness firms have for performance and strategic management activities in the future?

The paper is organized as follows. In the next section, we highlight relevant strategic planning literature with a particular focus on the strategic planning in agribusiness firms and the effect of strategic planning on performance. This is followed by a description of the data and the comparative analysis methodology used in this study. The results of the analysis are then presented and discussed. It is expected that both agribusiness managers and industry scholars will benefit from this study. This study will provide agribusiness managers with key benchmarking data, insights about the future intentions and expectations of other agribusiness, as well as a general understanding of the payoff of various strategic planning activities. For agribusiness scholars, this study represents one of the few attempts to understand how the strategic planning activities of U.S. agribusinesses have changed over time.

Theoretical Background

The concept of strategy and the need for strategic planning was first introduced into the management literature in the mid 20th century (Ansoff 1965; Chandler 1962; Mintzberg et al. 1998; Selznick 1957). Scholarship in this area has focused on understanding the underlying motivations and processes that are used to organize and construct the system of activities that are observed in firms. Furthermore, research in this area has been interested in *which* activities allow firms to create value and outperform other firms over the long-term (i.e. sustainable value creation).

¹ Both the 1992 and 2012 surveys were conducted in collaboration with the Michigan Agribusiness Association (MABA).

The Strategic Planning Process in the U.S. Agribusiness Industry

The strategic management process is typically comprised on two fundamental components: a strategic analysis and strategy formulation. Using tools and concepts such as SWOT analysis (Learned et al. 1969), five forces model (Porter 1979) and/or value chain analysis (Porter 1985), a strategic analysis is used to provide an assessment of a firm's current performance, its underlying resources and capabilities and of its business environment (Morgan 2007). This assessment is consistent with two of the dominant theories in the strategic management literature: the resource-based view of the firm and contingency theory. The resource-based view of the firm postulates that firms with resources and capabilities that are valuable, rare, costly to imitate will gain a sustainable competitive advantage in the marketplace and outperform rival firms (Barney 1991; Barney 2007; Wernerfelt 1984). Alternatively, contingency theory emphasizes that firm performance is a result of the effectiveness of a firm's *fit* or alignment with its business environment or situation (Donaldson 2001, Morgan 2007). An in-depth understanding of both the internal and external drivers of firm performance is seen as essential for developing a successful strategic plan.

This study, however, focuses primary on the planning or formulation phase of the strategic management process. Porter (1996) argues that a strategy is a system of activities that work together in a reinforcing way to achieve superior performance. What activities, therefore, are important for formulating a successful strategy? Eden and Ackerman, in their 1998 book *Making Strategy*, start by defining the concept of *emergent strategizing*, which is the term they use for the general patterns that emerge from organizations and, whether they realize it or not, represents their strategic direction. This concept is important because it states that even firms that do not perform any formal activities of strategic planning have some general strategically driven direction. These authors present a framework for strategy making as a JOURNEY: **JO**int Understanding (of all the stakeholders about the strategic direction), **R**eflecting (about the firm's distinctive competencies and how well they support the strategy and aspirations), and **NE**gotiating strateg**Y** (in order to reach an agreement about the aspirations so that they are feasible but still inspirational, monitor the implementation and agree on a draft of strategic intent and direction). Whether or not firms use this planning model, this view of involving all stakeholders and considering the firm's and the surrounding characteristics before establishing the strategy for the firm is an important consideration for the process.

Regarding the relationship between strategic planning and performance, several studies have found a positive relationship between performance and the firm's planning activities (Thune and House 1970, Rhyne, 1987). However, a meta-analysis of this relationship conducted by Boyd (1991) found only mixed results with some studies reporting either no effect or small negative effects between strategic planning activities and performance.

To determine whether a relationship between strategic planning and performance exists in the agribusiness context is of significant importance, as the planning activities, and the strategy implementation that follows, usually signify incurring high non-operational costs. Studying the California processing tomato industry, Baker and Leidecker (2001) found support of this positive relationship in their sample and time period. Their research showed that the use of strategic planning tools had a strong relationship with the firm's ROA. In particular, three specific tools

including the use of a mission statement, long-term goals and ongoing evaluation were found to have a strong relationship with profitability. To our knowledge, however, few studies have examined the role of strategic planning over time.

Methodology

The data for this study was collected from a survey of firm-level management practices and performance of Michigan agribusiness firms. In particular, firms were sampled from the membership of the Michigan Agribusiness Association (MABA), which represents approximately 95% of the Michigan agribusiness firms (J. Byrum, personal communication, July 2012). Firms are sampled from Michigan agribusiness industry for two reasons. First, this industry is characterized by a wide diversity of firms, dealing in different products ranging from inputs like seed, fertilizer and agro-chemicals, to farm machinery and petroleum products; and services, ranging from chemical application to marketing services, like commodity warehousing and trading or hedging mechanisms. Second, Peterson (1995) conducted a survey of the same population in 1992. The availability of data on the strategic planning practices of agribusiness firms 20 years ago offers us a unique opportunity to explore how agribusiness firms have changed over time both with respect to demographic characteristics and their strategic planning behavior.

As mentioned above, the data for this study was collected at two different time periods, 1992 and 2012. To maintain the comparability of the two datasets, these surveys focus solely on Michigan-based agribusiness firms and where possible, the integrity of survey items was maintained across survey waves.² It is important to note that the number of agribusiness firms in the MABA membership drops considerably from 362 firms in 1992 to 80 in 2012. This is a significant finding in itself and provides support to the significant amount of consolidation that has occurred in the U.S. agribusiness sector over the past 20 years (Boehlje 1999, Boehlje 2011).

Data Collection Procedures

The 1992 survey was sent by mail to the owner/manager of 362 agribusiness firms in the MABA membership database and generated 212 responses (i.e. 58.5% response rate) (Peterson 1995). The data from this survey provides a baseline of firm and industry characteristics as well as an inventory of management practices and expectations by which to compare the current state of the industry. In particular, this survey allows for us to describe how the agribusinesses have changed over time in terms of strategic planning and with respect to demographic characteristics and firm performance.

The initial 1992 survey was followed up, 20 years later, by a similar survey of Michigan agribusiness firms conducted during the summer of 2012. The 2012 survey was conducted as a web survey to a target population of 80 owner/managers of current agribusiness firms in the

² In the few cases where items are not identical, a notation has been made in the manuscript to indicate potential non-comparability issues.

MABA membership³. To encourage participation, a letter of support from the executive director of the MABA accompanied the link to the web survey. A reminder notice was sent to the MABA membership after two weeks and the survey was open for a total of four weeks. In total, 60 responses were collected from the 2012 survey, representing a 75% response rate⁴.

Survey Analysis

This paper provides a descriptive comparison of Michigan agribusiness firms, management practices and performance across the 1992 and 2012 time periods. For this purpose, the analysis of the survey data from both the 1992 and 2012 surveys were divided into two components. The first component of the data analysis provides a descriptive analysis of agribusiness firm demographics, strategic planning practices and performance measures collected in the two time periods. Statistical analyses such as t-tests and chi-square tests are used to determine significant differences between firms in the two time periods. Furthermore, a cluster analysis was conducted to identify groups of firms with similar levels of strategic behavior in terms of planning activities used.

The second component of the analysis examines the relationships between strategic planning practices and performance outcomes. For this purpose, correlations are calculated between performance related variables and various management practices at respective time periods⁵. In each case, *pretax profits* and *satisfaction with performance* are used as measures of firm performance. Furthermore, due to the low number of usable observations, hypothesis testing was conducted using a chi-square test of the independence between two variables. The following two performance relationships are examined.

R1: The level of strategic planning used by the firm is positively correlated with performance. Firms located in the higher planning clusters were expected to show higher levels of performance as they should be able to create competitive advantage over other players in the market by incorporating strategic management practices in their business. These expectations were supported by the findings of previous studies like the ones performed by Baker and Leidecker (2001) or Andersen (2000), where positive correlations between strategic planning activities and performance were found.

R2: Demographic characteristics of the firm are correlated with performance. The idea that firms could be subject to certain requirements in terms of minimum efficiency scale could justify

³ The degree to which firms overlap in the 1992 and 2012 surveys is unknown as respondents were not asked to identify themselves or their organizations in order to protect the confidentiality and anonymity of surveys responses.

⁴ However, not all firms answered all questions. Where appropriate the number of responses for each question is indicated.

⁵ As is the case with all survey research that utilizes a single source for both dependent and independent variables, common method variance is a potential issue. Unfortunately, given the type of firms involved in the data collection, utilizing a single respondent (i.e. owner/manager) as the source of data was unavoidable. We attempt to mitigate this potential issue by using various *ex ante* and *ex post* methods as suggested by Chang et al. (2010) and Podsakoff et al. (2003). First, we use different scale endpoints for various survey items Salesto reduce method bias caused by commonalities of endpoints (Podsakoff et al. 2003). We also conduct a Harman's single factor test, which indicates that less than 50% (0.18) of the variance of survey items can be explained by a common factor.

a positive relationship between demographic variables, like sales or total assets, and performance. Nevertheless there could be the need for a lower capital-labor ratio. This could justify a negative correlation between the number of employees and performance, or even a positive relationship between debt-to-asset ratio and performance. Testing for the existence of these relationships between demographic characteristics of the firm and performance can help shed light into these questions.

Survey Results

In this section, we provide a detailed analysis of the data collected in the 1992 and 2012 surveys. Comparisons are made between the two datasets to highlight how Michigan agribusiness firms have changed over the 20-year time period in terms of demographics information, strategic planning practices, performance and future expectations for performance and management activities. The results also illustrate the relationship between strategic planning activities and firm performance.

Respondents' Level of Satisfaction with Firm Performance

Surveys respondents were asked to indicate their level of satisfaction with the firm's performance on a scale of 1 (very dissatisfied) to 7 (very satisfied). These results are illustrated in Figure 1. As shown, the results reveal an industry with high levels of satisfaction with a clear increase in satisfaction levels in all categories from 20 years ago. Special attention should be paid to the level of satisfaction with profit margins. In 1992, agribusiness firms were moderately satisfied (=3.4) with their performance, while in 2012, the average level of satisfaction had climbed to 4.6 of the 7-point scale. Furthermore, our results indicate that the aggregate level of satisfaction across all performance variables is statistically different between 1992 and 2012 at the 1% significance level (see Table 2). This finding is consistent with the levels of profitability reported below.

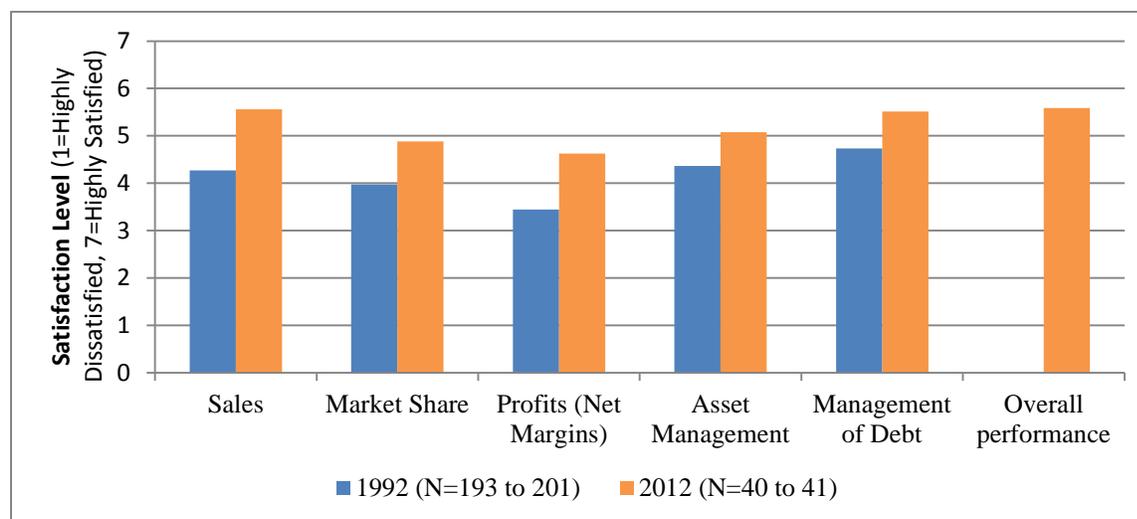


Figure 1. Average Level of Satisfaction with Firm Performance in 1992 and 2012.

Both surveys also included a question about the respondent's satisfaction with various business activities within the agribusiness firm. These results are illustrated in Figure 2. As above, a clear increase in satisfaction level is evident when comparing the 1992 and 2012 survey results. On average, seven of the nine operations received a score of above 5 on the 7-point scale in 2012. Furthermore, our results indicate that the aggregate level of satisfaction across all business activities is statistically different between 1992 and 2012 at the 1% significance level (see Table 2). Together the Figures 1 and 2 illustrate an industry that is more satisfied with its own performance and abilities today than it was twenty years ago.

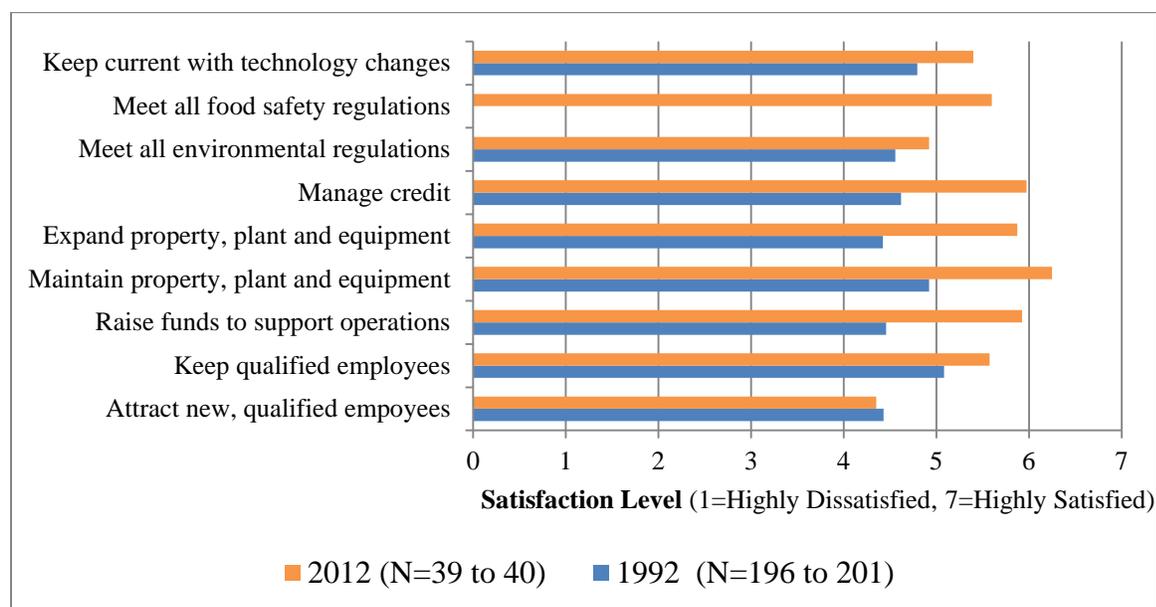


Figure 2. Average Level of Satisfaction with Firm's Ability to Perform Various Business Activities, 1992 vs. 2012.

Table 2. Average Level of Satisfaction with Performance and Ability to Conduct Business Activities, 1992 vs 2012.

Variable	Mean		p-value
	1992	2012	
Satisfaction with performance	4.13	5.17	0.00***
Satisfaction with business operations	4.64	5.56	0.00***

Note. ***= significant at 1% significance level.

Demographic and Performance Characteristics of Michigan Agribusiness Firms

In addition to satisfaction levels, survey respondents were also asked to report actual performance levels for the agribusiness firm as well as other demographic data. The results of this analysis are presented in the following figures.

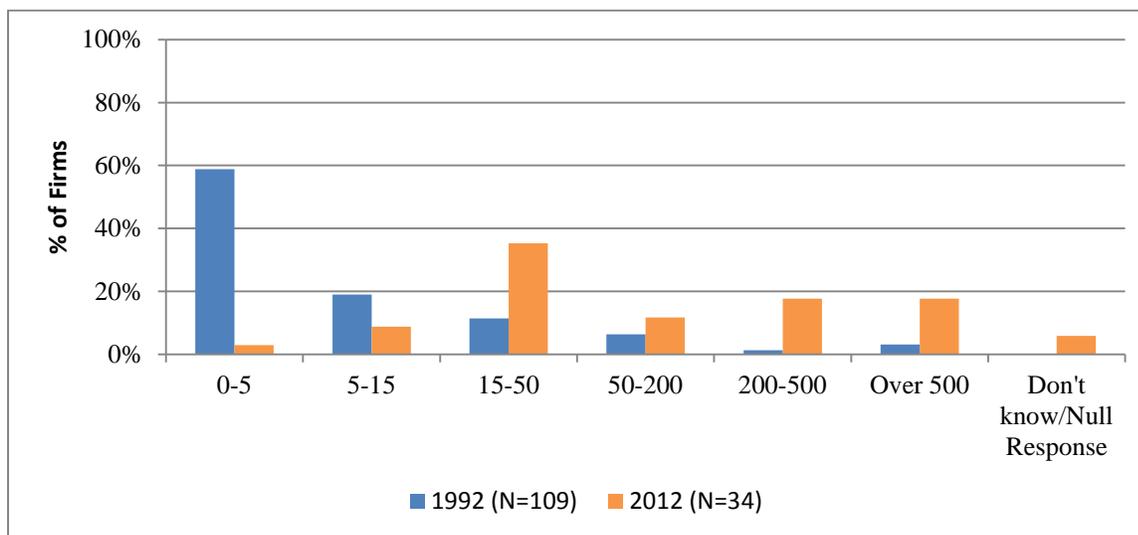


Figure 3. Average Sales (in Millions \$, Nominal Value) for Previous 3-Year Period, 1992 vs. 2012.

Note. According to the Bureau of Labor Statistics ,100 USD (1992) = 164 USD (2012).

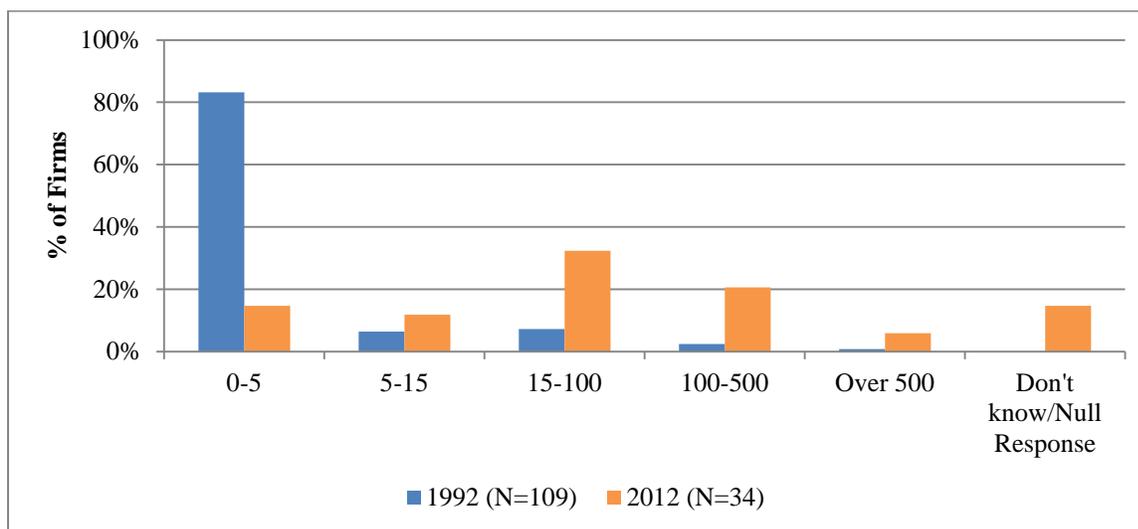


Figure 4. Average Total Assets (in Millions \$, Nominal Value) for Previous 3-Year Period, 1992 vs. 2012.

Note. According to the Bureau of Labor Statistics, 100 USD (1992) = 164 USD (2012).

In 1992, the majority of agribusiness firms generated sales in the range of \$0-5 million (in nominal terms). Furthermore, 83% of agribusiness firms owned assets within the same range. It is evident from both Figures 3 and 4 that firms have not only grown in size, in terms of both sales and total assets, but also that the distribution of firms is more dispersed across size categories. According to the survey results, average sales have increased from \$69 million to

\$282 million; this difference was found to be statistically significant at the 1% significance level (see Table 3). There is also a significant difference between the average total assets owned by agribusiness firms in the two periods (see Table 3). In fact, 27% of firms were found to own total assets of between over \$100 million (Figure 4). These values appear to be consistent with the satisfaction levels reported above.

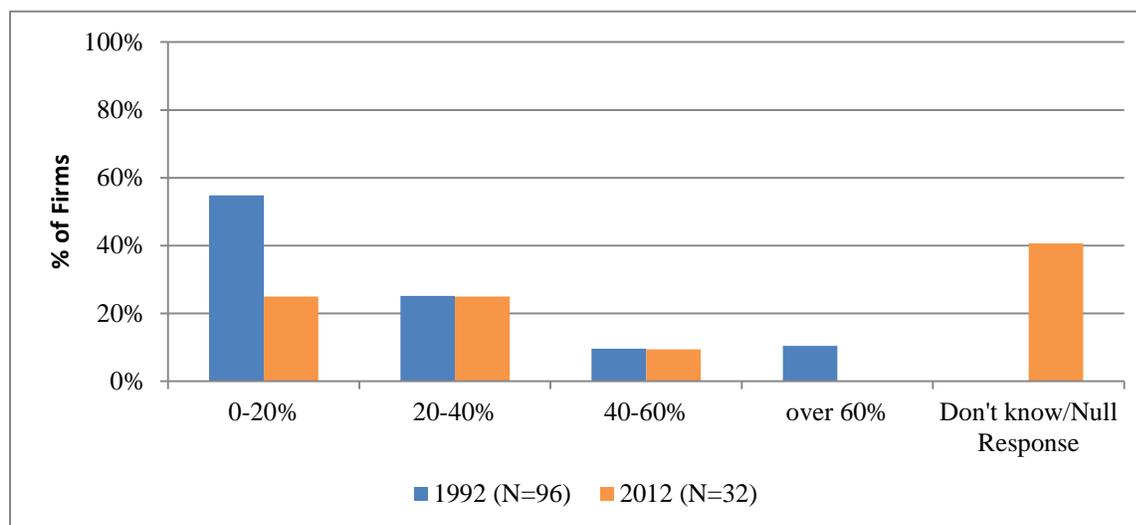


Figure 5. Average Debt-to-Asset Ratio in Previous 3-Year Period, 1992 vs. 2012.

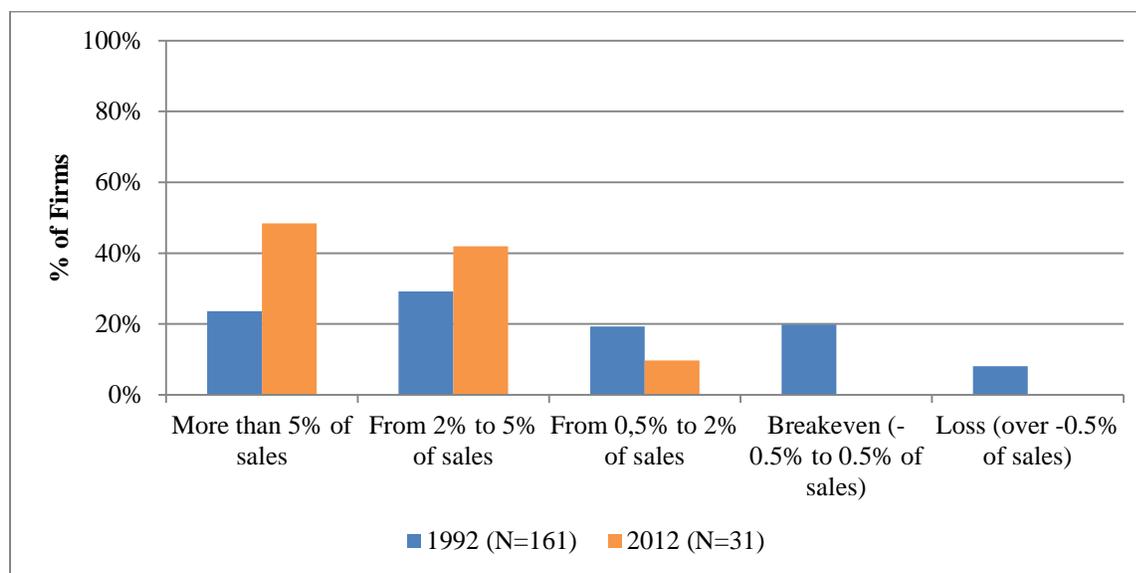


Figure 6. Average Pretax Profit in Previous 3-Year Period, 1992 vs. 2012.

The survey item related to the firm's debt-to-asset ratio returned a high amount of null responses, therefore not allowing for a very conclusive analysis. However, it is interesting to note that the 20%-40% and 40%-60% categories recorded very similar levels to 1992 and that there was a

very abrupt drop in firms within the 0%-20% class (see Figure 5). This would suggest that firms in 2012 are more highly leveraged, even though their assets have significantly increased in size.

Regarding profit margins, Figure 6 shows a clear shift to increased profitability over the last 20 years; consistent with the increase in satisfaction with performance observed previously. When comparing the two surveys, it is clear that the two classes above 2% pretax profit margins have substantially increased and that in 2012 the most frequent class is no longer “2% to 5%” but “More than 5%”.

Figure 7 represents the distribution of firms by number of employees in the two time periods. In this case, the industry has shifted from a situation where the vast majority, 71%, of firms employed 50 or less people in 1992 to a more even distribution across employment categories in 2012. In 2012, the two most represented categories are “11 to 50” and “Over 500” with only 26% and 20% of the firms in those categories, respectively.

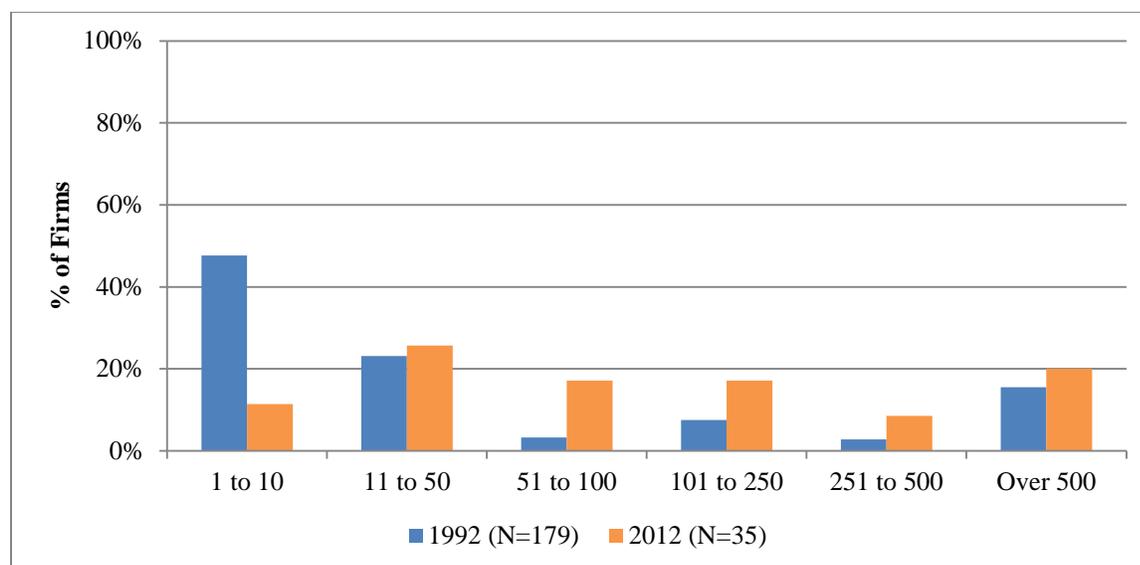


Figure 7. Total Number of Employees, 1992 vs. 2012.

With respect to type of business organization, Figure 8 also illustrates the tendency for a more even distribution of firms across organizational structure types in 2012 compared with the 1992 agribusiness industry. In the 1992 survey, 59% of respondents stated that their organization was a private corporation, while all other types of organizations were represented in the industry at levels of 15% or below. In 2012, the most common type of organization was a partnership, representing 36% of the industry, while public and private corporations presented very similar frequencies. The movement from private corporations to partnerships is surprising and in need of future research. It is also interesting to note that there was minimal change in the percentage of firms organizing as a cooperative or sole proprietorship, from 15% to 12% and from 4% to 3% respectively.

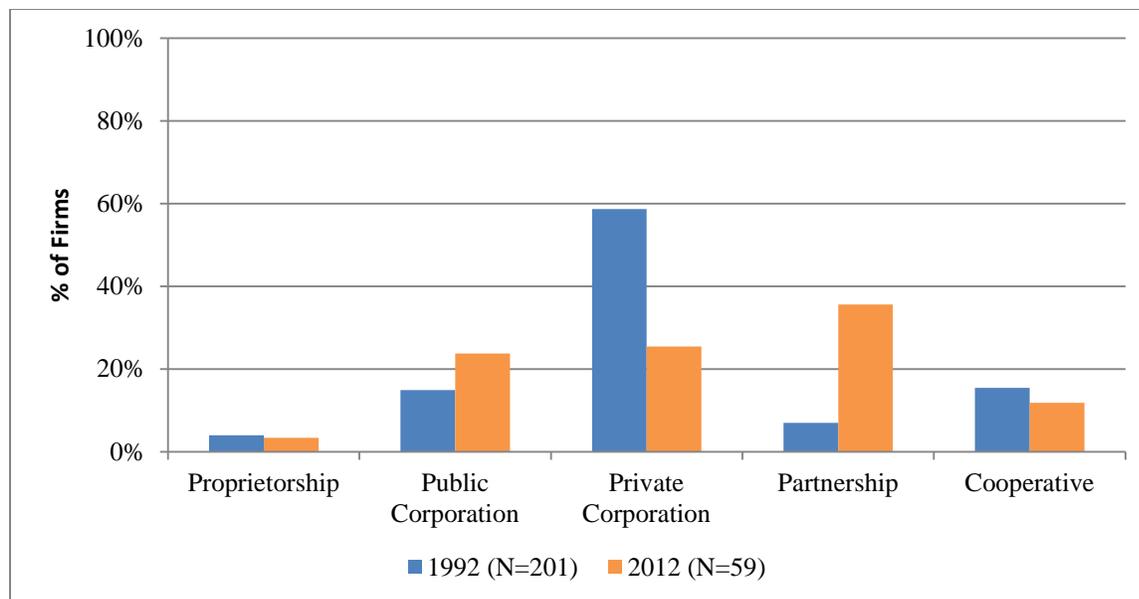


Figure 8. Distribution of Firms by Type of Organizational Structure, 1992 vs. 2012.

For each of the demographic and performance variables, a two sample t-test with unequal variances was used to test for significant differences between mean values in 1992 and 2012. The results are presented in Table 3. Support was found for significant differences between the two years for sales, total assets, profit margin and number of employees. These results also illustrate an industry that has evolved from a very stylized industry in 1992, usually dominated by one demographic category, to an industry with firms that are much more varied and evenly distributed across various demographic categories in 2012.

Table 3. Average Demographic and Performance Characteristics, 1992 vs. 2012.

Variable	mean ⁶		p-value
	1992	2012	
Sales ⁷	\$69 MM	\$282 MM	<0.01***
Assets ⁸	\$32 MM	\$165 MM	<0.01***
DAR	23%	25%	0.61
Profit	2.92%	5.63%	<0.01***
Number of employees	152	233	<0.01***

Note. ***= significant at 1% significance level.

The 2012 survey also inquired about the type of ownership regarding whether or not the firms were local (Michigan-owned) and whether or not they were family-owned. The results reveal that 60% of the firms reported to be local businesses and 43% reported to be family-owned

⁶Because values were assessed in categorical questions, the values presented for the means correspond to the average calculated using the intervals' middle points.

⁷Mean values for sales presented in real 2012 dollars.

⁸ Mean values for assets presented in real 2012 dollars.

businesses. This question was not asked in the 1992 survey and therefore, comparisons cannot be drawn between the two samples.

To examine *Relationship 2*, that there is a significant relationship between demographic characteristics of the firms and their performance level, chi-square tests were used. This series of tests was performed for each year and the demographic and performance variables used include sales, total assets, debt-to-asset ratio (DAR), number of employees and type of organizational structure. Table 4 presents the results of these tests.

Table 4. Relationship of Various Demographic and Performance Characteristics with Pretax Profit, 1992 vs. 2012.

Variable	1992		2012	
	Covariance	p-value	Covariance	p-value
Sales	0.08	0.10*	0.06	0.16
Assets	0.06	0.05*	0.12	0.82
DAR	0.32	0.03**	0.36	0.25
Employees	-0.04	0.01**	0.25	0.22
Business Organization	-0.07	0.14	0.19	0.32

Note. **= significant at 5% significance level. *=significant at 10% significance level

In 1992, a statistically significant relationship was found for 4 of the 5 variables with pretax profits: sales, total assets, DAR and number of employees. Of note, the results support the finding that firms with higher leverage positions and with less employees outperform other agribusiness firms. This could suggest that the most efficient firms were investing in more capital intensive technology and relying less on labor. As expected, the results also support that firms with higher sales and asset levels outperform other agribusiness firms.

With respect to the 2012 data, however, the covariance between each of the variables and pretax profit was not found to be significant. Similarly, no relationship was found with satisfaction with overall performance for any of the variables. These findings do not support the hypothesis that demographic characteristics are correlated with firm performance, *Relationship 2*, in 2012. In fact, they seem to suggest that a wide array of characteristics is suitable for success in Michigan agribusiness sector.

Expectations for the Future

Another important component of the surveys was the assessment of the respondents' expectations towards the future. The 1992 and 2012 datasets allow for a detailed comparison of what the firms foresaw in their future at those two points in time. Figure 9 illustrates the expectations for financial performance by agribusiness firms over the five years immediately after the survey year.

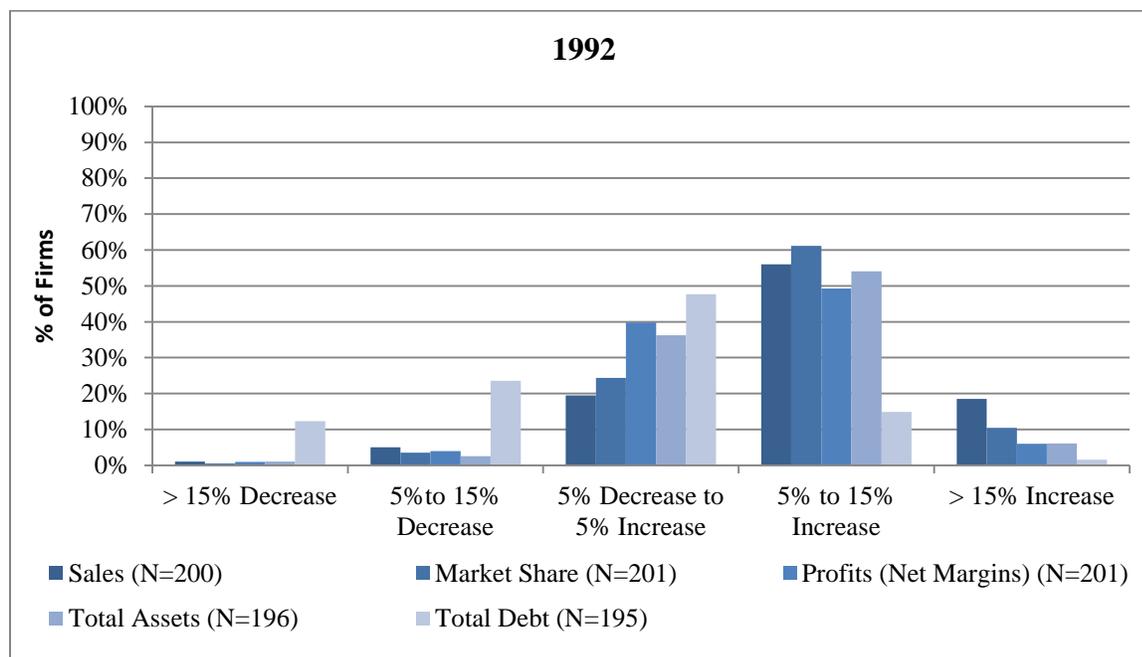
As Figure 9 shows industry expectations did not change substantially over 20 years. The majority of firms expected sales, market share, profits and assets to increase in the range of 5% to 15% in the following five years, while debt was expected to be stable in both surveys. It is

interesting to note, however, that in 2012 there are more participants expecting an increase in growth, either by means of sales, market share or profits, than in the 1992 survey. This is consistent with the high level of optimism that can be observed in the survey responses, where 97% of respondents stated that they were either optimistic or very optimistic about their organization’s ability to perform well over the following five years. T-tests were used to determine if the differences in financial expectations were significant between 1992 and 2012. As shown in Table 5, only the increase in expected profit and total assets for the following five years were significant.

Table 5. Average Financial Expectations for Next 5 Years, 1992 vs. 2012.

Expectation Variable	mean		p-value
	1992	2012	
Sales	3.86	4.05	0.15
Market share	3.78	3.83	0.69
Profit	3.55	3.90	0.01***
Total Assets	3.62	3.92	0.05**
Total Debt	2.70	2.95	0.12

Note. **= significant at 5% level. ***=significant at 1% level.



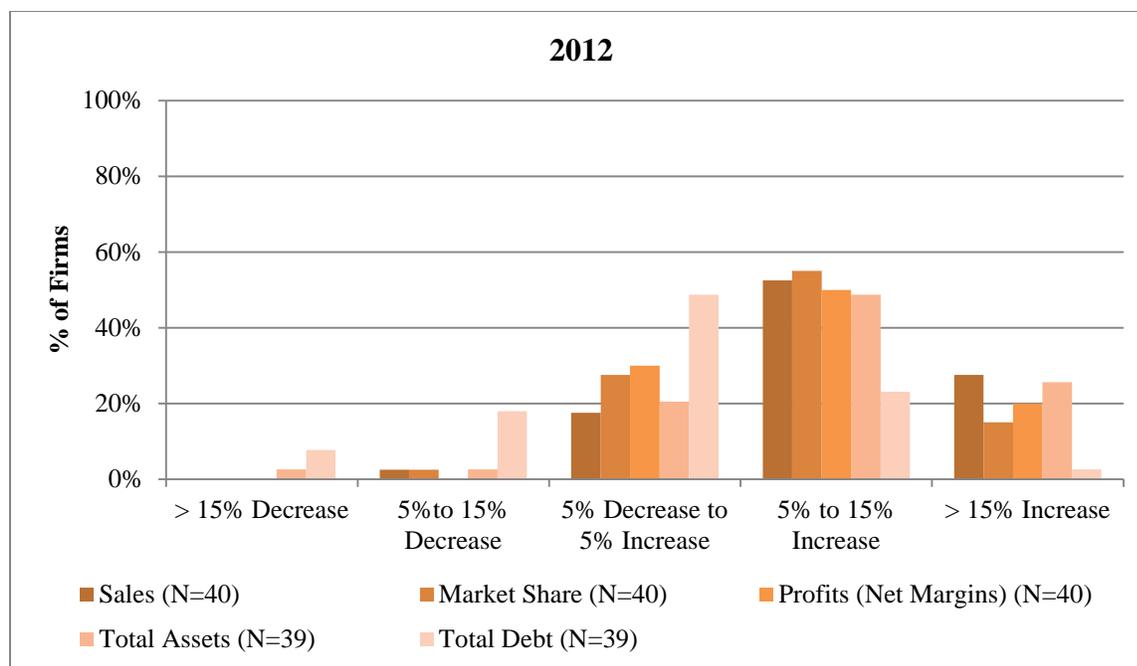


Figure 9. Financial Expectations for the Next 5 Years, 1992 vs. 2012.

In each of the surveys, respondents were also asked about the likelihood that their agribusiness firm would engage in a range of various strategic business activities in the following five years. The results are presented below in Figure 10 (growth related activities), Figure 11 (Efficiency Improvement Activities) and Figure 12 (Defensive Activities). This categorization of strategic business activities was done in accordance with Peterson’s change grid framework (Peterson, unpublished).

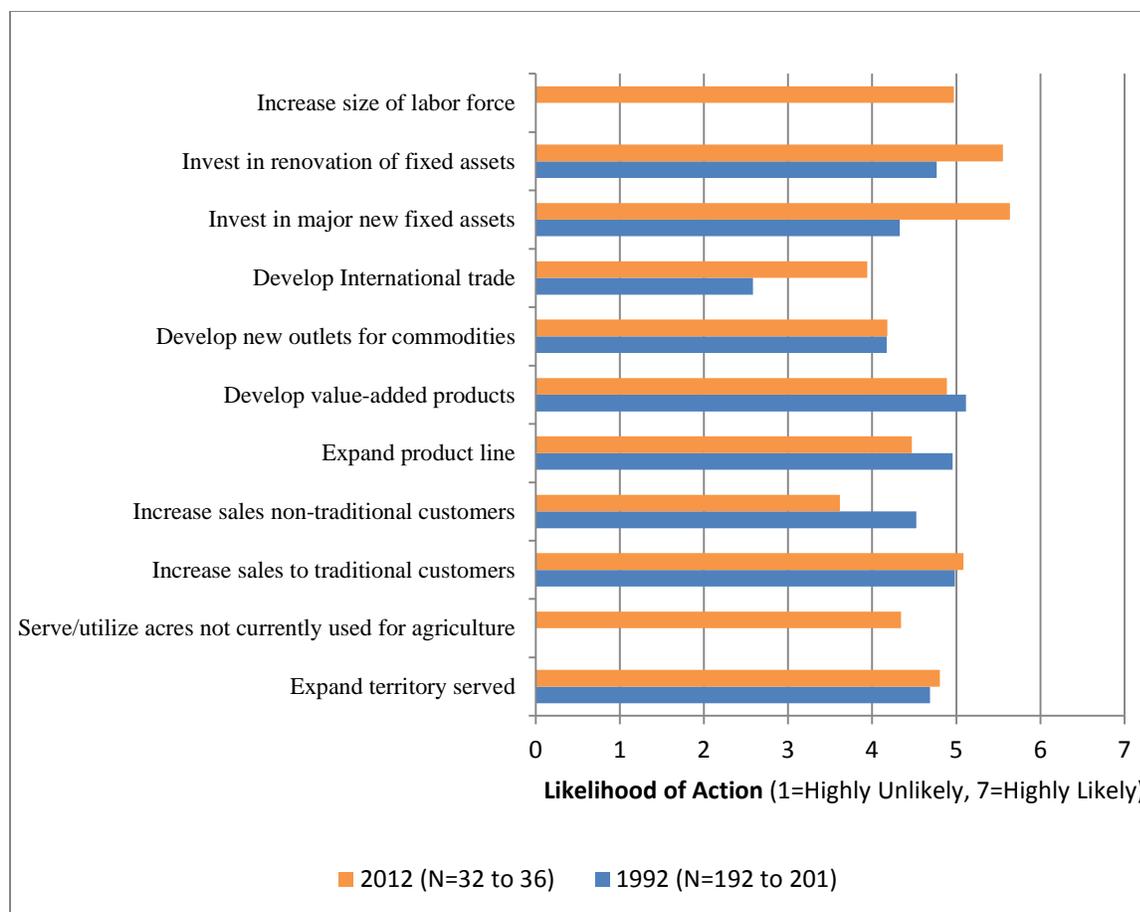


Figure 10. Expectations for Future Growth Related Business Actions in the Next 5 Years, 1992 vs. 2012.

As found above, Figures 10, 11 and 12 portray an agribusiness industry that is generally optimistic about the future, both in 1992 and 2012. Overall, agribusiness firms appear to be relatively more optimistic in 2012 than in 1992, though the differences are small. Nevertheless, all nine defensive actions were seen as less likely to occur in 2012, while most of the growth related and the performance improvement related actions were seen as more likely than 20 years earlier. The exceptions were “develop value-added products”, “expand product line” and “increase sales to part time farmers and other non-traditional farmers”. T-tests were used to determine if the differences in expected strategic business activities over the next 5 years were significant between 1992 and 2012. As shown in Table 6 only the decrease in likelihood of defensive actions was significant.

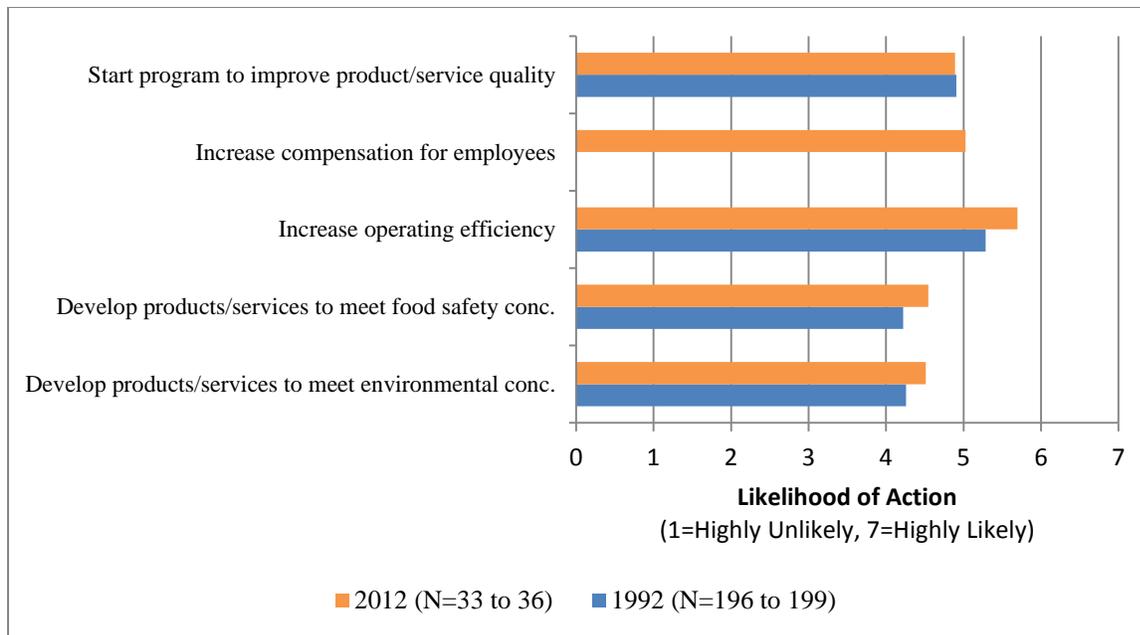


Figure 11. Expectations for Efficiency Improvement Related Business Actions in the Next 5 Years, 1992 vs. 2012.

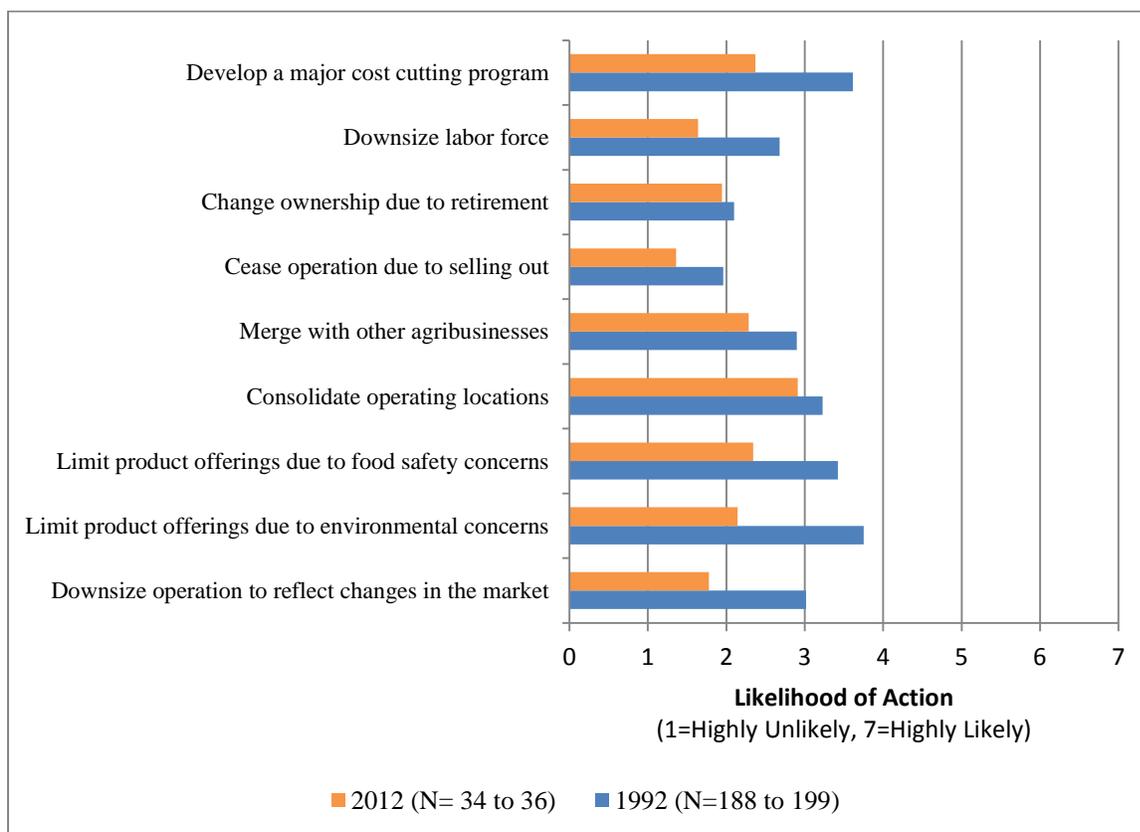


Figure 12. Expectations for Defensive Business Actions in the Next 5 Years, 1992 vs. 2012.

Table 6. Average Likelihood of 3 Types of Future Strategic Business Actions⁹, 1992 vs. 2012.

Variable	mean		p-value
	1992	2012	
Growth Actions Index	4.47	4.68	0.24
Efficiency Improving Actions Index	4.65	4.92	0.23
Defensive actions index	2.93	2.14	<0.01***

Note. ***= significant at 1% significance level

Strategic Planning Practices

Both the 1992 and 2012 asked agribusiness firms to describe their strategic planning activities. Respondents were given a list of strategic planning activities and asked to identify which activities were used in their organization and to what extent: “Yes, formally”, “Yes, Informally” and “No”. A factor analysis was performed on both survey datasets and allowed the identification of four categories of planning: Short-range planning, goal setting and review, long-range planning and strategic analysis. The 1992 survey included 25 activities instead of the 2012’s 13. However, the design of the 2012 survey was such that a simple manipulation of the 1992 data would convert it to parameters comparable to the 2012 format. Table 7 (see Appendix) reveals the frequency of usage of each of the activities for both 1992 and 2012. The 1992 variables are presented after harmonization with the 2012 format.

The variation of responses revealed in Table 7 depicts important changes in the usage of the strategic planning activities. For all activities, the frequency of “Yes, Formally” responses increased from 1992 to 2012 and the difference in the mean is statistically different at the 5% level. Also, firms reported “No” usage of a planning activity less frequently in 2012 for all items. The exceptions to this finding were “analysis of business/external conditions” and the “annual analysis of the firm performance” which were both already at low levels in 1992. On average, the non-usage of these activities was also statistically different between the two years. Test of statistical differences in usage of strategic planning activities in 1992 and 2012 can be found in Table 8.

Table 8. Average Usage of Strategic Planning Activities, 1992 vs. 2012.

Variable	Means		p-value
	1992	2012	
“Yes, formally”	35%	52%	0.04**
“Yes, informally”	46%	37%	0.15
“No”	20%	12%	0.03**

Note. **= significant at 5% level.

⁹ For each type of strategic business action the t-test was performed using an index consisting of the average of all activities in that category.

The strong shift towards a higher degree of usage of the strategic planning activities is matched with the higher levels of satisfaction and financial performance that respondents' reported in 2012 relative to 1992. These findings seem to be consistent with the existence of *Relationship 1*, presented above, as well as studies by Andersen (2000) and Capon et al. (1994), which find positive relationships between strategic planning and performance.

The relationship between pretax profit and strategic planning activities in 1992 was tested for using the original items in the 1992 survey dataset (see Table 9 in Appendix). Only 8 of the 25 variables were found to have a statistically significant covariance with performance. As such, in 1992, the hypothesis that strategic planning is positively related with performance is only weakly supported.

In a previous analysis of the data, Peterson (1995) segmented the 1992 survey data to reanalyze this relationship between performance and planning activities, this time considering only the observations where firms were satisfied with their activities (i.e. firms that saw no need to change their behavior regarding the specific planning activity). By doing this, he was able to establish that there was a significant covariance between pretax profit and an annual analysis of each product line's performance (p-value = 0.002 from the chi-square test).

The strategic planning – performance relationship was also examined using the 2012 survey data. Of the 12 planning activities, only 2 were found to have a statistically significant covariance with pretax profit. These planning activities were “mission statement or statement of specific business objectives” and “an analysis of business conditions including trade area information, legal and regulatory changes, and/or industry trends” (see Table 10 see Appendix).

Using the same data segmentation procedure as Peterson (1995), a chi-square test was performed using only the cases of respondents that were satisfied with their current use of the planning activity. Under this scenario, two other strategic planning activities were identified to have a statistically significant relationship with the pretax profit of the firm. These two additional activities were “a 3 to 5 year general business plan to guide operations including a facilities plan, personnel plan and/or a financial plan” (covariance=0.183; p-value=0.088) and “an annual analysis of firm performance by department, product line, and/or employee performance” (covariance=0.164; p-value=0.039).

The relationship between the usage of the strategic planning activities and overall performance satisfaction was also examined for the 2012 agribusiness firms. The results of this analysis are presented in Table 11 (see Appendix). A chi-square test identifies four planning activities to have a statistically significant covariance with overall performance satisfaction. Interestingly, three of these activities coincide with those identified above for pretax profit in the 2012 survey.

One of the main results of this series of tests across the two datasets is the identification of three strategic planning activities that appear to have a robust positive relationship with firm performance over the 20-year time period. These three strategic planning activities were: (1) *Mission and objective statements*; (2) *External analysis of the industry characteristics and conditions*; and (3) *Annual operational and capital budgets and projections of sales and/or cash flows*.

The final analysis that was conducted using the 1992 and 2012 survey data was a cluster analysis of firm attitudes towards strategic planning¹⁰. Using this analysis technique, four significant clusters were identified and provided support for segmenting firms as high planners, long-term moderate planners, short-term moderate planners and low planners. Typically, high planners used most of the planning activities at a formal level. Low planners, on the other hand, were not using many of the activities. Moderate planners had an intermediate level of usage for the planning activities and either showed a tendency towards high usage of the 3 to 5 year horizon planning activities (long-term planners) or more short-term planning activities (short-term planners). This cluster classification was performed for both datasets and the results can be found in Figure 13.

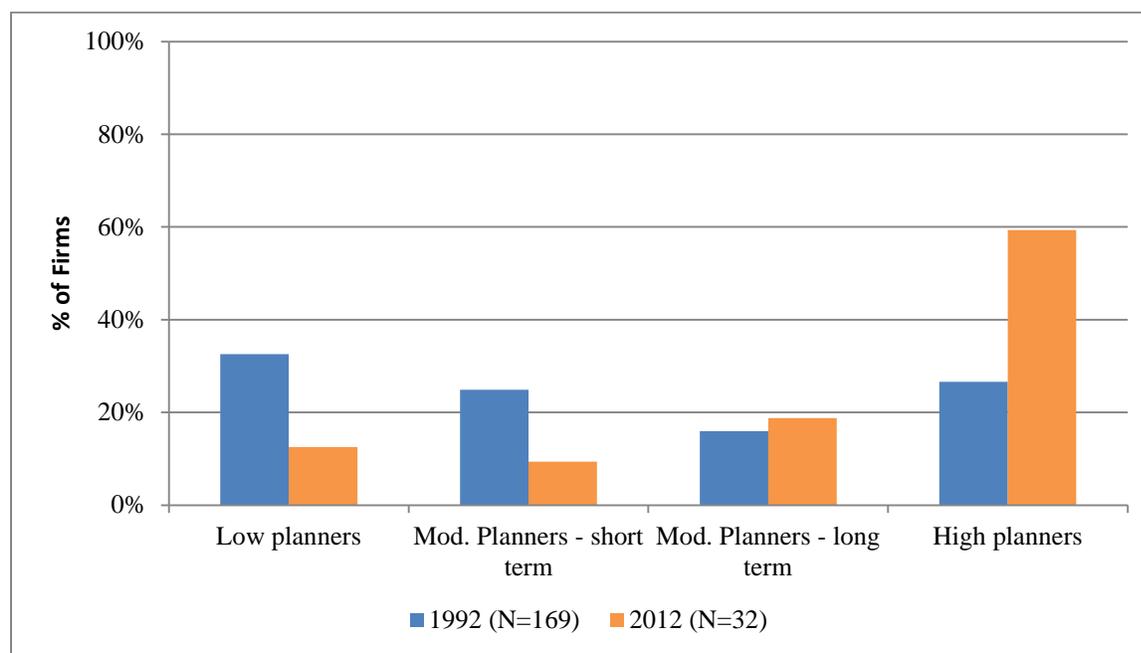


Figure 13. Results of Cluster Analysis on Agribusiness Strategic Planning Activities, 1992 vs. 2012.

Figure 13 clearly illustrates a shift towards higher levels of strategic planning activity from 1992 to 2012, a trend that was illustrated in Figure 7 as well. The effect of this shift, however, is mixed. With respect to the 1992 survey data, the distribution of firms into strategic planning clusters was not found to relate with pretax profit. Therefore, the hypothesis that strategic planning and performance are related was not supported with the 1992 data. A similar result was also found between planning behavior and pretax profit in 2012. However, using overall performance satisfaction from the 2012 survey as a measure of performance, a positive and significant covariance was found with the level of strategic planning activity (covariance=0.494; p-value=0.033).

¹⁰ The cluster analysis using the 1992 survey data was originally conducted by Peterson (1995).

Discussion

Significant changes have taken place in the global agribusiness industry over the past 20 years. The availability of data from a 1992 survey of agribusiness strategic planning practices offers us a unique opportunity to explore how the strategic behavior of agribusiness firms have changed over time as well. Using a 2012 follow-up survey of the same sample population, our study reveals several important changes that have occurred within the Michigan agribusiness sector. This section discusses those results.

Demographic and Performance Characteristics of Michigan Agribusiness Firms

A comparison of the results from the 1992 and 2012 surveys illustrate a significant shift in the many key firm characteristics and performance attributes. Firms have clearly grown in terms of size, profitability and strategic planning complexity. The industry has also become more fragmented in the sense that a dominant design does not seem to be apparent for Michigan agribusiness firms. At the same time, one the most significant findings of this study is the significant decline in the number of firms in the Michigan agribusiness sector. Given the relatively positive financial outlook for firms in 1992, this finding appears to provide empirical support for the increased level of consolidation in this industry over the past twenty years (Boehlje 1999; Boehlje 2011). Our results suggest that this consolidation may have been driven by both the desire of agribusiness firms to increase efficiency as well as to increase their product portfolios, especially in terms of value-added products and serving non-traditional customers, in 1992 (see Figures 10 and 11).

Various demographic indicators (i.e. size) were found to relate with performance (i.e. pretax profit) in 1992, while no such relationship was found in 2012. As opposed to 1992, this latter finding may further indicate that there is no single strategy (in terms of firm structure characteristics) that dominates the 2012 Michigan agribusiness sector. This finding would be consistent with other studies that stress the importance of entrepreneurial behavior in today's current agri-food business environment (Ross and Westgren 2009).

The positive relationships between firm size as measured by sales and assets, and performance (i.e. pretax profits) that were found in the 1992 survey may also provide insights into the trend towards consolidation over the 20 years (Boehlje 1999). During this time, agribusiness firms that were below their minimum efficient scale and were faced with significant economic challenges would have an incentive and to merge with, acquire or sell to another firm in order to get bigger (or get out) and increase performance. This would be consistent with the evolution of strategic management field as described by Grant (2008). During the late 1980s and the early 1990s, the principal strategic management concepts and techniques focused on firm resource analysis and the identification of core competencies (Grant 2008). This became known as the resourced-based view of the firm (Barney 1991, Barney 2001, Wernerfelt 1984). As Grant (2008) describes, this led to a wave of corporate restructuring and business process reengineering, as well as to refocusing and outsourcing. In other words, firms had the incentive to achieve economies of scale and reduce costs by scaling up efforts to exploit their resources and capabilities that were valuable, rare, and costly to imitate (Barney 1991). With respect to the current (2012) environment, favorable economic conditions for agribusinesses and the fact that

the group of firms surveyed showed high heterogeneity could mean that this is a period where firms are typically above the minimum efficiency scale and are pursuing strategies related to growth and differentiation as illustrated in Table 10 (see Appendix).

Planning Activities and Performance

In the past 20 years, a clear change in the use of strategic planning activities was observed, as shown in Table 7 (see Appendix) and Figure 13. There was a clear and significant increase in the average percentage of “formally used” planning activities and a clear and significant decrease in the average percentage of “not used” activities. This finding is illustrated in Table 8. Overall, it appears that Michigan agribusiness firms are taking a more comprehensive approach in their strategic planning activities.

In 2012, five of the thirteen planning activities were found to have a significant positive covariance with firm performance (i.e. pretax profit) or the firms’ level of satisfaction with performance. Even more interestingly, three of these five tools were also found to positively relate with performance (i.e. pretax profit) in 1992. This finding highlights the importance of these activities for the success of agribusiness firms as well as the robustness of these strategic planning tools over time. The three strategic planning activities were: (1) *Mission and objective statements*; (2) *External analysis of the industry characteristics and conditions*; and (3) *Annual operational and capital budgets and projections of sales and/or cash flows*. These findings further provide evidence that strategic planning activities have a positive effect on agribusiness performance. However, the fact that only some of the activities were found to be significantly related seems to suggest that not all planning activities are necessary for success, and that this may be especially true for an industry as diverse as agribusiness.

The results of a cluster analysis, which grouped firms according to their strategic planning intensity, also were mixed with respect to identifying a planning-performance relationship. No identifiable relationship was evident in 1992; however, in 2012 a positive and significant covariance was found between performance and the level of planning undertaken by firms. These findings support our hypothesis that performance is positively correlated with strategic planning but only for the later period. Given these mixed results, Michigan agribusiness firms are advised to make mission and objective statements, external analysis and annual operating and capital budgeting practices a regular part of their strategic planning programs while also continuing to use and explore other various strategic planning activities.

As mentioned previously, the existence of planning-performance relationship has been the center of debate in the past. The fact that a positive relationship was found in one period and not another appears to be consistent with other studies such as Boyd (1991) that found this relationship to be not always present and sometimes negative. What this study does show is that for this particular industry at a specific time, strategic planning and firm success have a positive relationship. Furthermore, together with the changes in demographics illustrated earlier, these results tell the story of an industry that has seen the usage of planning activities increase over the last 20 years and, at the same time, realized performance improvements and higher levels of performance satisfaction.

Although this study presents a unique examination of agribusiness strategic planning activity over time, it is limited in several ways. One particular limitation of this study is that given the small sample size in 2012, we are not able to provide a more comprehensive analysis of the drivers of the strategic planning-performance relationship. For example, we are not able to parse out whether the increased usage of strategic planning activities or the positive effect of strategic planning on performance in 2012 is a result of the increased size of Michigan agribusiness firms (and the resulting increased internal complexity of their activities) or due to the dramatic external changes that have occurred in the agribusiness sector over the past twenty years. It would also have been particularly informative to be able to more directly compare firms across the two sample periods. This might help us determine whether the importance of strategic planning activities is different or has changed over time for different firm criteria such as firm size, products or services offered, or level of vertical integration. The authors acknowledge that this is an important area of study and encourage future research on this issue.

Readers are also cautioned to interpret the performance relationships presented in this study in light of the potential for the results to reflect common method bias. While efforts were taken to remedy and identify any potential common method bias problems, we acknowledge this is a potential issue in survey research when data for all variables are acquired from a single source (Chang et al. 2010, Podsakoff et al. 2003). Although often difficult for relatively small private firms, future research should attempt to collect data from multiple respondents in the same the agribusiness firm or industry experts in order to obtain separate data sources for important independent and dependent variables (i.e. firm demographics, strategic planning activities, and firm performance) where possible.

Finally, the analysis in this study is limited to Michigan agribusiness firms and the findings of this study may not be valid for other contexts. Agribusiness managers and scholars are encouraged to compare the characteristics of the Michigan agribusiness sector with the agribusiness sectors in their regions and to judge whether the same findings would be relevant. Furthermore, future research should look to replicate this study in our regions, both at a national and an international level.

Conclusions

Significant changes have taken place in the global agribusiness industry over the past 20 years. The availability of data from a 1992 survey of Michigan agribusiness strategic planning practices offers us a unique opportunity to explore how the strategic behavior of agribusiness firms have changed over time as well. Using a 2012 follow-up survey of the same sample population, the purpose of our study was to explore how the strategic planning behavior of firms in the Michigan agribusiness sector had changed over the 20-year period. The results illustrate several important findings for agribusiness managers and scholars.

This study highlights that the number of Michigan agribusiness firms has declined significantly from 1992 potentially reflecting a period of consolidation in the industry. Furthermore, compared to their 1992 counterparts, Michigan agribusiness firms are larger, more profitable, and engage in a greater level of strategic planning activity in 2012. This study also finds that the diversity of Michigan agribusiness firms has also increased over the past twenty years with a

relatively equal distribution of firms across various size and business organization categories. As in 1992, Michigan agribusiness firms are optimistic about their performance over the next five years and look to implement a range of growth activities during this period. Finally, we find support that strategic planning activities are positively related to firm performance. Three particular strategic planning activities were found to have a robust positive relationship with firm performance in 1992 and 2012, namely (1) *a statement of mission and objectives*; (2) *an external analysis of the industry characteristics and conditions*; and (3) *an annual operational and capital budgets with projections of sales and/or cash flows*. Managers of agribusiness firms may want to adopt these strategic management practices if they have not already.

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Appendix

Table 7. Usage of Strategic Planning Activities, 1992 vs. 2012.¹¹

Usage of planning activities in the two surveyed years							
Activity	Factor	NO		Yes, Informally		Yes, Formally	
		1992	2012	1992	2012	1992	2012
An annual operating and/or capital budget including sales and/or cash flow projections	Short-Range Planning factor	10%	6%	28%	24%	62%	71%
Mission Statement or Statement of specific business objectives		16%	3%	42%	21%	42%	76%
An environmental management plan	Goals Setting and Review Factor	24%	12%	20%	18%	56%	71%
A food safety and/or sustainability management plan		N/A	18%	N/A	6%	N/A	76%
Inclusion of non-management personnel in planning process		18%	24%	59%	45%	23%	30%
A 3 to 5 year general business plan to guide operations including a facilities plan, personnel plan and/or a financial plan	Long-Range Planning Factor	15%	12%	44%	32%	41%	56%
A management succession plan		N/A	9%	N/A	59%	N/A	32%
A personnel management plan		39%	12%	45%	50%	17%	38%
Review internal strengths and weaknesses		25%	9%	52%	41%	23%	50%
Review opportunities/threats		26%	12%	55%	47%	20%	41%
analysis of competitors' strengths and weaknesses		24%	18%	58%	56%	18%	26%
An analysis of business conditions including trade area information, legal and regulatory changes, and/or industry trends	Strategic Analysis Factor	12%	12%	60%	53%	28%	35%
An annual analysis of firm performance by department, product line, and/or employee performance		7%	9%	39%	21%	54%	71%

Note. 1992: N= 192 to 199; 2012: N= 33 to 34.

¹¹ The definitions given for each type of usage in the surveys were as follows: “Yes, Informally” means that you regularly engage in the activity but rather than produce a formal, written document you keep the ideas either in your mind or in some informal written form. “Yes, Formally” means that you regularly engage in the activity and you produce a formal document to guide management action. In order to compare the responses in the two surveyed years, the data from figure 6 was condensed to the format in the 2012 survey.

Table 9. Relationship Between Strategic Planning Activity and Pretax Profit, 1992.

Variable	Covariance	p-value
A mission statement	0.06	0.96
Statement of specific business objectives	0.13	0.04**
A 3 to 5 year general plan to guide operations	0.01	0.44
A 3 to 5 year facilities plan	0.03	0.07*
A 3 to 5 years personnel plan	0.08	0.80
A 3 to 5 years financial plan	-0.05	0.57
An annual operating budget	0.01	0.46
An annual capital budget	0.06	0.37
Monthly cash flow projections for the coming year	-0.04	0.25
An annual sales plan	0.07	<0.01***
An annual plan for the use and maintain of facilities	0.05	0.77
An annual plan for personnel replacements and promotions	0.09	0.21
An annual budget for each department	0.03	0.74
A review of internal strengths and weaknesses	0.17	0.05**
A review of opportunities and threats from outside of the firm	-0.02	0.50
An analysis of competitors' strengths and weaknesses	0.03	0.04**
An analysis of trade area data to evaluate market potential	0.11	0.81
An analysis of business conditions at local or state levels	0.03	0.22
Analysis of industry trends	0.08	<0.01***
An annual analysis of each department's performance	0.04	0.86
An annual analysis of each product line's performance	0.01	0.30
An annual evaluation of each employee's performance	0.18	0.06*
An environmental disaster plan	0.05	0.13
Input from non-management employees in planning	0.01	0.09*
A wage and salary plan	0.13	0.36

Note. *=10% significance level. **= 5% significance level. ***=1% significance level.

Table 10. Relationship Between Strategic Planning Activity and Pretax Profit, 2012.

Planning activities correlated with profit	Covariance	p-value
Mission Statement or Statement of specific business objectives	0.15	0.03**
A 3 to five year general business plan to guide operations including a facilities plan, personnel plan and/or financial plan	0.14	0.10
An annual operating and/or capital budget including sales and/or cash flow projections	-0.02	0.98
A review of its internal strengths and weaknesses	0.07	0.73
A review of opportunities and threats from outside the firm	0.14	0.35
An analysis if competitors' strengths and weaknesses	0.19	0.10
An analysis of business conditions including trade area information, legal and regulatory changes, and/or industry trends	0.21	0.01**
An analysis of firm performance by department, product line, and/or employee performance	0.10	0.64
A food safety and sustainability management plan	-0.04	0.35
An environmental management plan	0.01	0.12
A management succession plan	0.12	0.20
Non-management personnel included in the planning process	0.12	0.50

Note. **=5% significance level.

Table 11. Relationship Between Strategic Planning Activity and Overall Performance Satisfaction, 2012.

Planning activities correlated with overall performance satisfaction	Covariance	p-value
Mission Statement or Statement of specific business objectives	0.26	<0.01***
A 3 to five year general business plan to guide operations including a facilities plan, personnel plan and/or financial plan	0.20	0.46
An annual operating and/or capital budget including sales and/or cash flow projections	0.27	0.07*
A review of its internal strengths and weaknesses	0.24	0.42
A review of opportunities and threats from outside the firm	0.18	0.30
An analysis if competitors' strengths and weaknesses	0.17	0.15
An analysis of business conditions including trade area information, legal and regulatory changes, and/or industry trends	0.12	0.05**
An analysis of firm performance by department, product line, and/or employee performance	0.32	0.01**
A food safety and sustainability management plan	0.31	0.18
An environmental management plan	0.27	0.16
A management succession plan	0.09	0.75
Non-management personnel included in the planning process	0.19	0.70

Note. *= 10% significance level. **= 5% significance level. ***= 1% significance level