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STRATEGIC POSITIONING OF THE MICHIGAN VEGETABLE INDUSTRY

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PLAN B RESEARCH PAPER

**Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of**

MASTER OF SCIENCE

Department of Agricultural Economics

2002

ABSTRACT

The Michigan vegetable industry has witnessed several challenges in the past few years. The future of the industry remains uncertain too. This strategic positioning study aims at identifying the strategic issues faced by the industry and developing strategies to face the uncertain future. Strategic Analysis and Scenario Analysis are the two techniques that have been used in this study. Through Strategic Analysis, the inability to offer year round supply, the need for differentiation and increasing regulations have been identified as the critical strategic issues that need to be addressed to ensure a successful future for the industry. The nature of increasing regulatory pressure, global sourcing and supply activities, urban sprawl, changing consumer trends, changes in the world economy, retailer consolidation and technological changes were identified as the seven fundamental uncertainties likely to impact the Michigan vegetable industry. Three possible future scenarios--survival of the few, no surprises, and renewal and growth--were developed, based on the plausible combinations of these uncertain forces. Competitive strategies have been recommended for dealing with uncertainty and for addressing the critical strategic issues. Some of the strategies that have been recommended are: (1) formation of strategic alliances with domestic/global suppliers from other vegetable producing regions to enable the industry to provide an array of products throughout the year, (2) adoption of effective farm strategies, such as, HACCP, in day-to-day operations to facilitate the industry's ability to meet varying private standards, and (3) industry coordinated marketing efforts to promote products.

Acknowledgments

I would like to express my appreciation to all those who helped me during this program. I am extremely grateful to Dr. Christopher Peterson, my major professor and advisor for his constant guidance and support. His timely feedback and constructive criticisms enabled me to improve my work tremendously. I am also thankful to my committee members Dr. Weatherspoon and Dr. Hausbeck. I owe my gratitude to Mr. Tom Kalchik, of the MSU extension team, who was always ready to provide information about the industry. My Spartan friends were a constant source of moral support for me and I thank them profusely.

I am indebted to my parents for their support and encouragement and am glad that I was finally able to fulfill their dreams. My special thanks to my husband Manoj, without whose initiative I would never have been able to take up this task. Last but not the least, my son Abhinav and his smiles were a constant motivating factor that enabled me to complete this research on time. Many a time during the entire program, I had come across difficult situations; the faith in Lord Almighty always gave me the strength to overcome the same. My thanks to thee, "O Lord".

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CHAPTER 1

Introduction

The vegetable industry has witnessed many dynamic changes in the past few years. These include changing consumer preferences, government regulations, technological developments, increased competitive pressures and greater customer quality requirements (Ricks, 1995). These are further accentuated with globalization. Compelling pressures in the form of demanding phytosanitary and food safety standards have also affected this industry. In order to effectively deal with these changes, it becomes imperative to improve industry level performance and competitiveness. This strategic positioning study of the Michigan vegetable industry aims to provide needed background analysis and understanding for development of a broad set of industry-level strategies.

1.1 Objectives of the paper

In recent years, the Michigan vegetable industry has been facing severe challenges. The future of the industry remains uncertain as well. These challenges require that the industry players, which include the growers, processors, shippers and packers, critically understand the strategic issues present and develop effective strategies to face the uncertain future. Hence the specific objectives of this paper are twofold.

- To identify and analyze the strategic issues of the Michigan vegetable industry.
- To more specifically analyze and develop strategies for facing uncertainty.

1.2 Research Methodology

This research paper is a subsector planning study of the Michigan vegetable industry. The framework for this study was developed after reviewing the theoretical concepts and ideas from several related disciplines.

1.2.1 Theory and concepts reviewed

Porter's five-forces competitive framework was reviewed in order to understand the forces that influence the competition and ultimately the profit potential in the industry. The strategic management framework for entrepreneurial agribusinesses by Peterson (1996) and the strategic management model by Pearce and Robinson were used to structure the analysis of strategy formulation and implementation. Strategic planning techniques developed by Ricks and Woods (1996) helped incorporate strategic planning concepts in the broader context of a regional commodity industry. To identify the techniques for managing uncertainty, materials on scenario analysis by Schoemaker and Peterson were utilized. Based on the concepts and articles reviewed, a framework for the strategic positioning study on the vegetable industry in Michigan was developed.

1.2.2 Data sources

Data and Information about the Michigan vegetable industry was obtained from secondary sources: key industry informants and the author's participant observation of the 2002 Michigan Produce Marketing Conference and a scenario analysis workshop conducted by Michigan State University Extension.

The Michigan produce marketing conference held at Grand Rapids helped gain insight into various aspects of the Michigan produce industry including

issues such as the supply chain, food safety and alliances. The information for the scenario analysis section has been heavily drawn from a scenario analysis workshop titled "Managing Uncertainty". This workshop helped gain insight into the future of the Michigan Vegetable industry. Participants included Dr. Peterson (workshop facilitator), members of the Vegetable Area of Expertise team of Michigan State University Extension, Michigan vegetable producers and channel members. The goal of the workshop was to have participants construct future scenarios for the industry.

1.2.3 Framework of the analysis

Review of the theoretical concepts justified the need for strategic analysis in order to identify the critical strategic issues, and scenario analysis to help manage uncertainty in the future. The specific approach used to conduct each of these analyses is now presented.

Strategic analysis: The first stage was the performance assessment of the industry, and the goal was to identify whether the actual performance warranted the need for strategic analysis and planning. Subsequently, SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis of the industry was carried out. Drawing on the prior analysis and putting the overall industry situation in perspective, the core competencies and competitive advantages of the industry were identified. The industry's current position was also located on a SWOT grid, and the strategic issues that need to be addressed for a successful future were articulated.

Scenario analysis: The participants of the scenario analysis workshop identified the trends and forces that would impact the future of the industry. Future scenarios were envisioned based on the plausible combinations of the uncertain forces. Strategies were developed for each scenario and the ones consistent across the different scenarios were identified as the means for managing the uncertain future.

1.3 Organization of the paper

The remainder of the paper is organized as follows. The second chapter gives an overview of the global and Michigan vegetable industries, the general industry trends and the changing dynamics in the vegetable supply chain. The goal of this chapter is to acquaint the readers with the industry situation before entering into the details. Theoretical concepts pertinent to the study are reviewed in the third chapter. This review helps in justifying the analytical procedure adopted in the study. In the fourth chapter, the critical strategic issues of the Michigan vegetable industry are identified using the strategic analysis techniques. The future scenarios of the Michigan vegetable industry and the competitive strategies to manage uncertainty in the future are presented in the fifth chapter. The sixth chapter summarizes the entire paper and draws relevant conclusions from the work.

CHAPTER 2

Overview of the Vegetable industry

The purpose of this chapter is to provide an overview of the vegetable industry. This chapter is organized in the following manner. The first section includes background information on the global and the U.S domestic vegetable trade and general industry trends. The second section gives a brief description of the various product categories in the vegetable industry. In the third section, a broad overview of the Michigan vegetable industry is presented. The changing dynamics of the supply chain in the vegetable industry have been elaborated in the fourth section.

2.1 Global and U.S domestic trends

Globalization has increased the range and availability of foods in different parts of the world. Instead of living on canned vegetables in winter, U.S. consumers can choose fresh produce from Chile or Guatemala any time of the year. Food consumption patterns have also changed (Regmi, 2001). For example, in the U.S, the consumption of red meat has declined significantly in the past 30 years while the consumption of poultry has increased. Changes in the consumption pattern of one region affects the production and trade patterns in other countries. The composition of world agricultural trade has also undergone dramatic changes. As a result, it is observed that fruits and vegetables as a group are one of the largest traded commodity groups in global agriculture. In 2000, the total world agricultural exports were US \$275 billion, and fruits and vegetables as a group accounted for a 14.5% share of these exports (ERS, USDA, 2002).

An increase in the demand and supply of fresh produce has led to an increase in the global trade in these commodities. Global trade of fresh fruits and vegetables are valued to be more than US \$40 billion. The United States and the EU are major producers and traders of fresh produce. As a single country, the United States is the largest exporter and importer of fresh produce (fruits and vegetables combined) with a trade deficit of about US \$1 billion (Cook, 1999). The U.S. share of global fruit and vegetable exports reached a new record level of 15.7% in 2000. When the global trade in vegetables is considered, U.S had imported vegetables worth \$4.128 billion and exported vegetables worth \$3.314 billion in 2000 (refer to Exhibit 2.1). When only fresh vegetables are considered, the total value of vegetables produced in the U.S in 2000 was worth \$8.640 billion, imports had increased by 4.9% and exports had increased by 14% (refer to Exhibit 2.1).

In order to increase the availability of fresh produce throughout the year in the northern hemisphere, there has been an increase in exports from the countries in the southern hemisphere to the ones in the north (Zuurbier, 1999). There has also been a supplier country diversification. In the 1980's Chile, New Zealand and Mexico were the new players, and in the 1990's China, Brazil, Peru and Guatemala have emerged as fresh produce suppliers (Reardon, 2002).

The demand for vegetables has increased for many reasons. Vegetable consumption is positively correlated with income levels, and their supply is highest in the high-income countries (Pollack, 2001). In the U.S, the per capita consumption of vegetables increased from 423 pounds in 1992 to 469 pounds in

2000 (ERS, USDA April and November 2001). A wider variety of vegetables are available for the population due to the increase in global trade. The availability of convenient forms, e.g., fresh cut and minimally processed vegetables, has also increased the demand for vegetables. A rise in the proportion of immigrants from various parts of the globe in the U.S has resulted in the increasing popularity in ethnic diets typically high in fresh vegetables. The increasing health consciousness by the aging baby boomers has also boosted the demand for fresh vegetables.

With the increase in income level in developing countries, consumers are shifting from starchy diets to diets richer in animal proteins, vegetables and more value added produce throughout the year (Cook, 1999). It is hence expected that the global scenario for consumption would be similar to the U.S.

Global trade has increased the market opportunities for firms, especially in the rest of the world, which is in contrast to the slow growth mature markets of the U.S and Europe. The increase in global trade has also resulted in several concerns. Consumers show an increased interest in features, such as, nutritional content, genetic composition and pesticide residues (Epperson, et al, 1999). The fear of health hazards from the use of pesticides and possible food contamination issues has resulted in demanding phytosanitary and food safety standards throughout the world.

To summarize, it is clear that factors such as availability, affordability, convenience and health concerns have influenced the consumption of vegetables. The consumers have access to a wider array of vegetables due to global trade. In

addition to this, consumer concerns regarding food safety have also increased. These concerns have in turn driven the need for increased use of Phytosanitary measures by the producers. In order to increase the competitiveness of their produce in the global market, it becomes crucial for producers to adopt good agricultural practices and good management practices.

2.2 Product Categories in Vegetables¹

Increasing health consciousness and the growing demand for convenience products have lead to an increase in the product categories for vegetables. Buyers tend to prefer suppliers who can offer a wide array of product lines, hence there is a growing trend among shipper-growers to offer diversified mixed vegetables with many product lines in different product categories.

Vegetables can be broadly classified as processed and fresh. Processed vegetables include canned, frozen and pickled vegetables. Fresh vegetables can be further classified as commodities, value added and fresh cut (fresh processed) based on the degree of processing that is undertaken. The demand for fresh ready-to-eat vegetables has spurred the need for some processing even in the fresh category.

Commodities are the least differentiated products, and they may or may not be branded. Even if they are branded, the brands are mostly not recognized by the customers. The commodities require a minimal amount of processing, and they are generally sold in bulk as individual items or simple combinations. For example, a mixture that has various types of whole lettuce is categorized as a commodity.

¹ This discussion draws heavily on an article by Glaser, Thomson and Handy (2001).

While the value added fresh products require greater processing as compared to the commodity items, they require less processing as compared to the fresh cut products. The processing operations for the value added products can be performed in modified packing sheds with less expensive processing equipment. The value added products are bagged in simple cello packs, and they may or may not have universal product codes (UPC). An example is useful in making the distinction between the commodity and the value added categories, Broccoli crowns or leaf lettuce sold in bulk are considered commodity products, while broccoli florets that are sold as washed ready-to-cook items in 16-ounce packages are considered as value added products.

Fresh cut vegetables, which include bagged salads, are highly differentiated products that are usually branded and possess a UPC code. They are more like packaged goods than produce. Processing plants with substantial capital investment of plant and machinery are required for this purpose. Sophisticated packaging techniques have to be used to pack the bagged salads as their transpiration and respiration rates have to be maintained to extend their shelf life. Specific procedures are used to maintain the cold chain from processing to the retail display level. Asset specificity and the high cost of these facilities leads to significant barriers to entry in this segment.

2.3 The Michigan vegetable industry²

Agriculture is Michigan's second largest industry, with an annual contribution of about \$37 billion to the State's economy. The state leads the

² Statistics pertaining to Michigan agriculture was obtained from Michigan Agricultural Statistics 2000-2001.

nation in the production of 10 crops and ranks fifth or higher in 32 crop categories (Michigan Department of Agriculture).

As a group, vegetables constitute the fourth major commodity group in Michigan agriculture. The Michigan vegetable industry includes the vegetable growers, processors and shippers as well as the other industry organizations associated with these groups. Vegetables are cultivated for fresh and processing markets in Michigan.

The majority of the vegetables are grown in the southern half of the Lower Peninsula of the state and the production systems range from conventional to organic. Some growers have small farms while some manage hundreds of acres. The fresh market produce grown in Michigan is shipped to major markets throughout the nation, and the processors both inside and outside the state use the vegetables cultivated for processing.

In 2000, nationally, Michigan was ranked sixth and seventh in the processed vegetables and the fresh vegetables sales respectively. Michigan growers produced 815,230 tons of fresh and processed vegetables with a total value of US \$236 million. There has been an increasing trend in vegetable production (in the fresh and processed categories) in the state since 1998 (Exhibits 2.2 and 2.3).

There was not much variation in the harvested acreage for vegetables during the period 1996-2000 (Exhibit 2.4). Though there was a 4 % decrease in the fresh vegetable acreage in 2000, for comparable crops, the acreage has increased by 20 % when all crops were considered. It is also observed that despite

a 2% decrease in the harvested acreage under processed vegetables, their production had increased by 1% in 2000.

Cucumbers (processing), celery, asparagus, snap beans (processing), carrots (fresh and processed), tomatoes (processing), pumpkins and squash are some of the important vegetables cultivated in Michigan. The state leads the country in pickle cucumber production.

Though Michigan was ranked third and fourth in fresh carrot and processed carrot production respectively in 2000, the harvested acreage (Exhibits 2.5 and 2.6) and the production had declined from the previous year. Carrots are the second highest volume fresh market vegetable grown in Michigan. Traditionally, the Michigan growers have produced large carrots (carrots packed in 3-pound cello). However, there has been a shift in the carrot consumption pattern and consumers now prefer baby carrots as compared to the large carrots. Most of the Michigan fresh market producers have not yet shifted to value added products (i.e., from large carrots to baby carrots). Hence, in contrast to the increasing trend in the per capita consumption of carrots in the U.S, there has been a declining trend in the production of carrots in Michigan.

The state is ranked fourth in the country in tomato (processing) production. While the processing tomato acreage has shown a declining trend, the fresh tomato acreage has fluctuated around 2600 acres (Exhibits 2.5 and 2.6). Heinz, Hunts and Campbell moved their processing facilities out of Michigan, which affected the tomato processing in the state.

Though the Asparagus season is short in Michigan, the state ranks third in asparagus production nationally. In 2000, the total production of fresh asparagus increased by 20%, while the total production of processed asparagus decreased by 10 % as compared to the previous year (Exhibits 2.5 and 2.6). Michigan's asparagus is mostly grown near the Lake Michigan shoreline where the moderate temperatures and loamy soils make for excellent production conditions. The Michigan asparagus growers have traditionally focused on the processing industry, but future growth is expected to be in the fresh segment. The fresh-picked, tender Michigan asparagus is an ideal product for the fresh market (Michigan Department of Agriculture). The Asparagus growers hope to reap significant benefits in the future by adopting a proper product positioning strategy (Project GREEN, 2001).

Michigan ranks second in the nation in celery production. Since 1996, both the celery acreage and the production have shown a declining trend. However, in 2000 there was an 11% increase in the total production of celery from the previous year. The Michigan celery growers face stiff competition from their counterparts in California and Florida. In order to remain competitive, the celery growers will have to refine their pest management practices and produce quality products (Wysocki and Peterson, 1997).

Although the fresh vegetable segment has been growing at a faster rate than the processed vegetables globally, the shift from processed to fresh vegetables has been relatively slow in Michigan due to a variety of reasons. Market outlets are different for fresh produce, infrastructure facilities required for

fresh produce are different and the initial costs to growers are higher than their returns. It has therefore been rather difficult for a large proportion of Michigan vegetable growers to make the shift.

Many forces have impacted the vegetable growers in Michigan in recent years. Consumers are demanding high quality vegetables. The government regulations are increasing the costs of various inputs. Food Quality Protection Act regulations and the cost of pest management practices have increased the concerns for growers. The development of resistance by pests (especially *Phytophthora*) towards chemical fungicides is also posing a severe challenge to the growers.

Michigan vegetable growers are in a highly competitive environment. At the national level, they face severe competition from California shippers. They also face stiff competition from the vegetable growers in Canada and from other global suppliers.

2.4 Supply chain –The changing dynamics

Vegetables are marketed in the Michigan vegetable industry through two main marketing channels, fresh and processing (as illustrated in Exhibit 2.7), with several distinct vertical stages. The fresh marketing channel is used for vegetables that are sold in fresh form or minimally processed form to consumers. The fresh market provides the growers with higher returns and also requires a higher set of quality characteristics, e.g., finish and appearance. The processing market provides a large volume alternative for vegetables including those that do not meet the fresh market requirements.

In the vegetable industry, growers and shippers may be different or the same. Shippers market their produce to a range of customers (Glaser et al, 2001). Their customers include the processors, retail supermarkets, food service firms, mass merchandise stores (large stores that also have grocery departments), wholesale markets, brokers (agents that negotiate transactions between buyers and sellers without taking title to the merchandise) and exporters. Shippers either sell to a full range of customers or specialize with a few. Some growers sell their produce directly at farmer's markets or at roadside stands.

2.4.1 Demand for fresh produce

The demand for fresh produce varies with different customers (Glaser et al, 2001). At the retail and the wholesale level, the demand for fresh produce can vary substantially every week. There are some products that are available throughout the year with the same consistent quality, and there are other products that are seasonal. Since the demand for seasonal product varies and their supply also fluctuates, their prices and volumes are volatile. Due to fixed menus and prices, the demand for fresh produce by the foodservice firms is fairly consistent.

2.4.2 Mind Set of retailers

The vegetable suppliers have to deal with retailers who have different viewpoints. Some retailers (Wal-Mart) believe that there can be an increase in sales by having low price programs, while another set of retailers believe that value added services generate additional sales. This latter set of retailers believe that convenient forms, extended shelf life and other similar services satisfy customer needs; and, hence even with an increase in the selling price per unit of

produce, they would still be able to maintain a competitive image. It becomes imperative that shipper growers understand the diverse requirements of the wholesaler/retailer while segmenting their products. This would enable them to provide an appropriate mixture of attributes i.e., price, quality and value added services (Epperson et al, 1999).

2.4.3 Retail Dynamics in the U.S.³

The retail dynamics for the produce industry have changed since the 1990's. The supply chain issues faced by the produce industry today are a lot different from what it was earlier. In the 1990's there was friction between the buyers and sellers, and today there is an increasingly cooperative relationship among buyers and sellers.

The space allocated to the produce department in grocery stores has increased as contribution to the total profits from the sale of fresh produce in the retail stores have also increased.

Technological advancements have brought about changes in procurement methods. Retailers prefer precise inventory management. Suppliers are sharing the responsibility of marketing services, such as, in store promotion and point of purchase materials. Retailers are thus able to lower their marketing costs and improve the in-store marketing effectiveness. Retailers charge for access to shelf space, and there is an increase in private label products.

The shipper growers are segmenting their customer base. They have had to move from the sale of commodities to the sale of bundles of commodities and

³ Section 2.4.3 is based on a talk given by McLaughlin in 2002

services. There has been a trend towards contracts due to changes in the procurement process.

2.4.4 Consolidation

Supermarket chains have been consolidating which in turn reduces the number of buyers. In addition to retail consolidation, the top 10 integrated wholesalers accounted for 60% of the total 1998 food sales in the U.S. Consolidation has led to an increase in consistent demand for good quality produce. The retailers (buyers) try to introduce procurement methods in order to manage their supply chain efficiently. They are also interested in obtaining high value produce at lower cost. Through consolidation, retailers are able to lower the unit cost of goods by negotiating lower wholesale prices. They then try to have preferred suppliers in order to solve their supply problems.

In order to serve their large buyers, the shippers too are moving towards consolidation. This enables the shippers to meet their buyer demands more efficiently and to provide continuous consistent supply of good quality produce throughout the year at lower cost. A further result of consolidation is the emergence of multi-location joint ventures driven by supply chain management (Cook, 1999).

2.4.5 Vegetable trade expansion

Trade liberalization has affected the vegetable trade. Strategic alliances and joint ventures have allowed the medium and small vegetable firms to go global and have also enabled nontraditional firms, e.g., the grower/shippers, to enter the international trade (Cook, 1999). The multinational grower/shippers and

multinational firms (e.g., Green Giant) have invested in land and production facilities in Mexico, Chile and elsewhere to be more competitive in the global market (Reardon, 2002). The multinational firms who were already present in the global market are trying to develop global brands and have also started diversifying their product lines. Supermarket chains have also expanded globally, which has spurred vegetable trade internationally.

Advances in information technology have spurred the growth of trade in fresh vegetables. Precise inventory management systems link producers, shipping companies and large retailers. The use of controlled atmosphere technology and remote monitoring systems in the refrigerated transportation containers has extended the shelf life and the quality of fresh produce. Shippers are able to deliver fresh vegetables with no substantial loss in quality to buyers who are miles away.

To increase their competitiveness in the global market, the Michigan producers will need to use supply and marketing information as well as technology as efficiently as possible. Shippers who are flexible and responsive to the growing demands in the supply chain will manage to survive.

2.5 Chapter Summary

Globalization has increased the variety and availability of vegetables throughout the year. Increase in the global vegetable trade has expanded market access and has increased consolidation among retailers globally, which has in turn increased the strategic alliances among suppliers worldwide. Advances in technology have also influenced the supply chain activities. There have been changes in the

consumer demand patterns. The growth in the demand for convenience has lead to an increase in the vegetable product categories.

Consumers also show an increasing concern for food safety issues. The changes in the vegetable trade have impacted the Michigan vegetable industry. In order to survive in the highly competitive global environment, the Michigan vegetable industry will have to offer products suitable for the changing consumer and be flexible in response to the growing demands of the supply chain.

Exhibit 2.1: Data on the U.S Vegetable Industry

	Total Vegetables			Fresh Vegetables			Processed Vegetables		
	1999	2000	%Change	1999	2000	%Change	1999	2000	%Change
Area harvested (1000 acres)	7152	6824	-4.5%	1911	1924	0.6%	1513	1450	-4.16%
Value of production (\$mill)	13732	14298	4.12%	7548	8640	14.5%	1743	1513	-15%
Imports(\$mill)	3995	4128	3.32%	2171	2279	4.9%	858	762	-11%
Exports(\$mill)	3289	3314	0.8%	1068	1219	14%	700	687	-1.8%
Per capita consumption (Pounds)	456	464	1.75%	171	176	2.9%	129	128	-0.7%

Source- Vegetables and specialties situation outlook, November 2001

Exhibit 2.2: Production of Fresh vegetables in Michigan

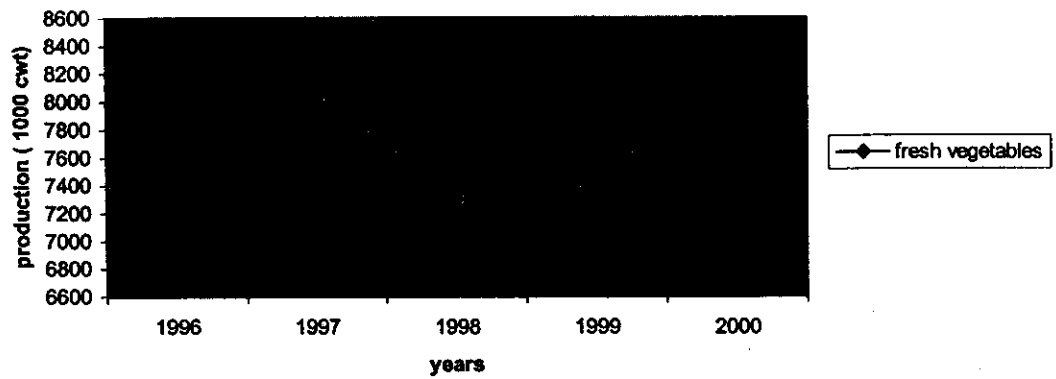
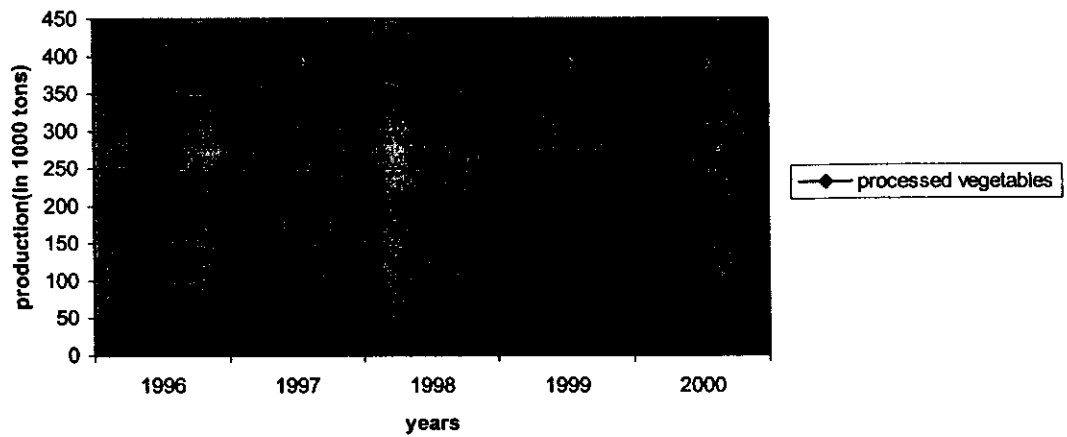


Exhibit 2.3: Production of processed vegetables in Michigan



**Exhibit 2.4: Comparison of Harvested acreage of
Processed vs Fresh vegetables in Michigan**

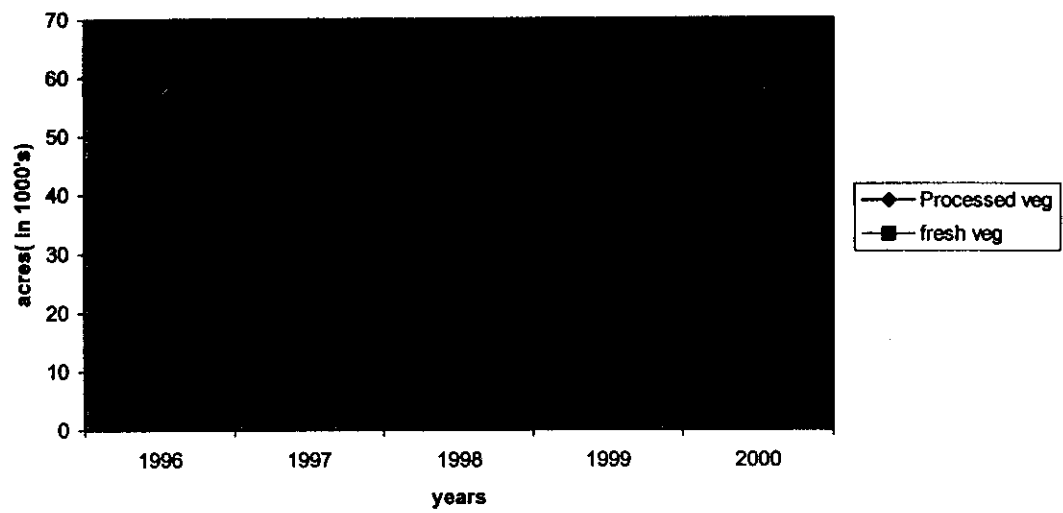


Exhibit 2.5: Harvested acres of processed vegetables by crop in Michigan

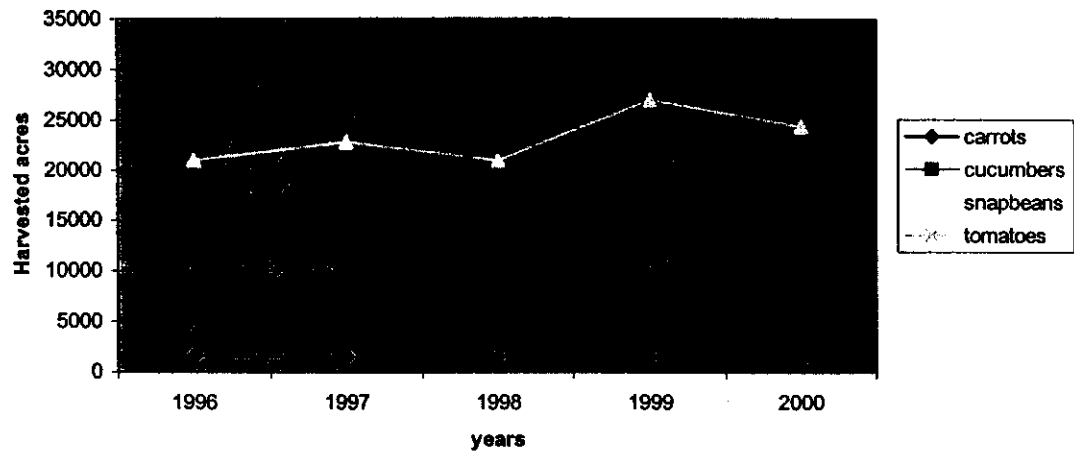


Exhibit 2.6: Harvested acres of fresh vegetables by crop in Michigan

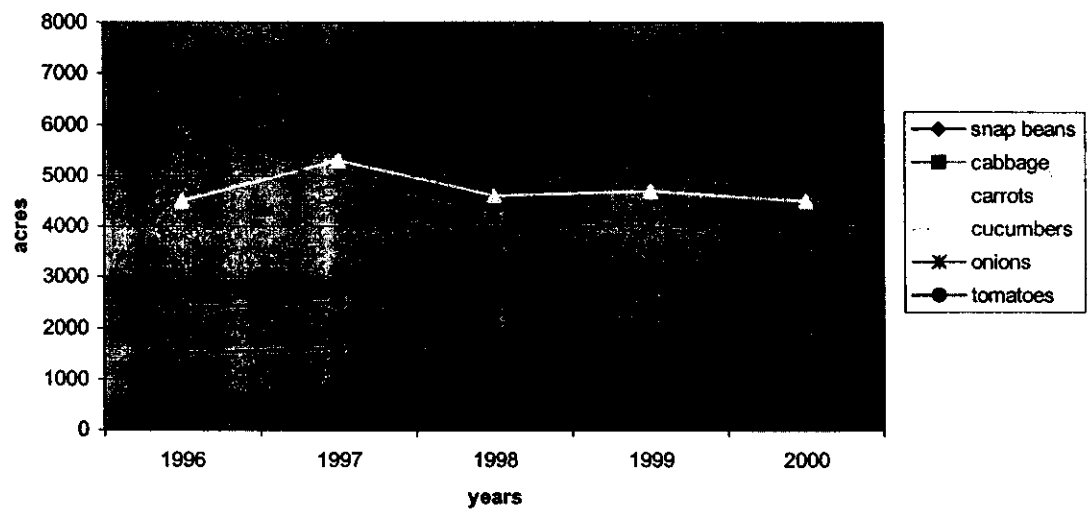
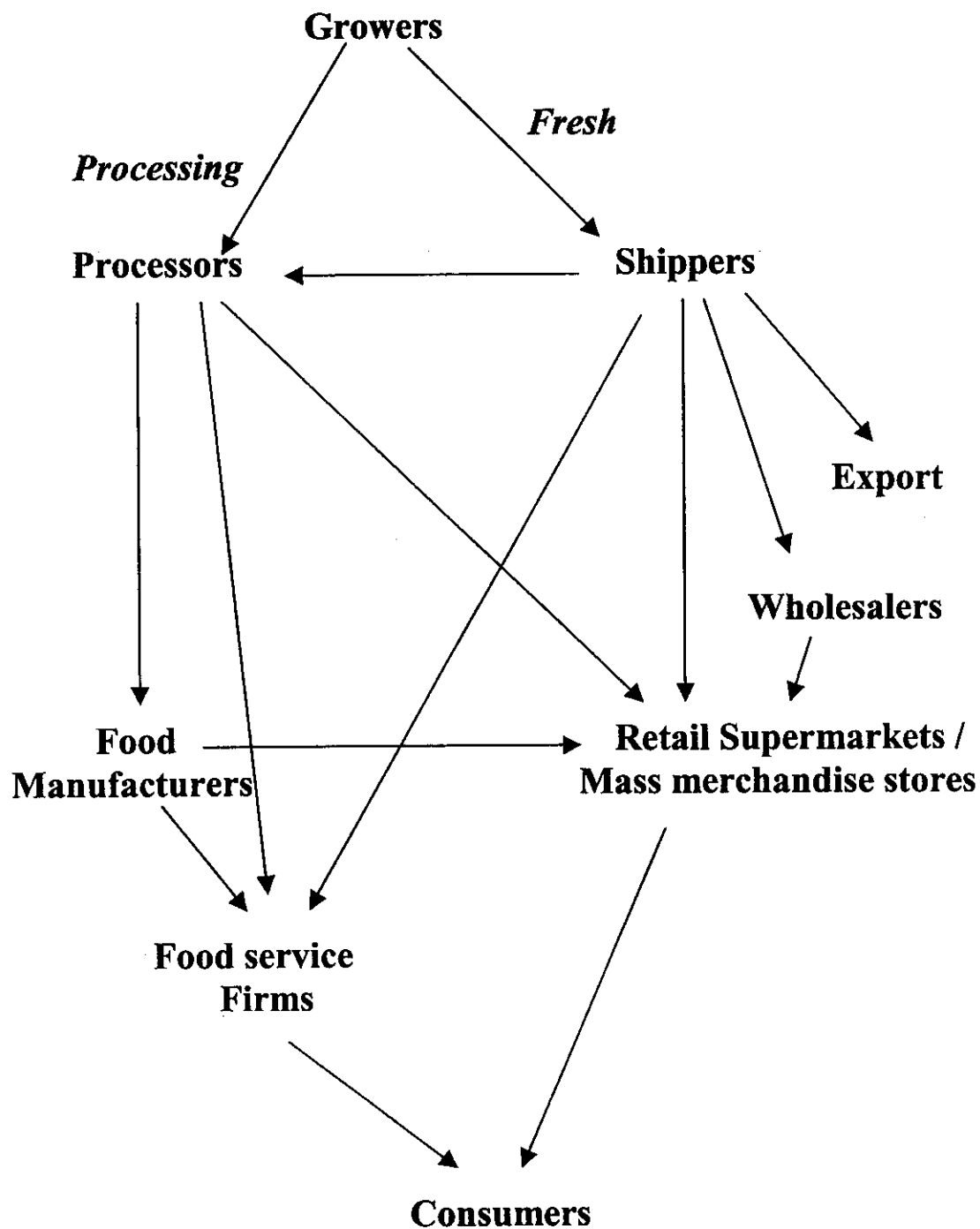


Exhibit 2.7

Supply Chain in the Michigan Vegetable Industry



Source: Adapted from Lyford, 1998

Chapter 3

Theoretical framework for the study

Relevant theory and literature were reviewed in order to develop a framework for this subsector study on the Michigan vegetable industry. The purpose of this chapter is to corroborate the validity of the research procedure adopted in the study. The first section includes a review of Porter's Competitive Forces analysis. In the second section, strategic management concepts and frameworks are presented. The third section reviews the strategic planning techniques for commodity industries. Finally, the scenario analysis technique utilized in managing uncertainty is reviewed.

3.1 Competitive analysis of industries

Porter introduced the concept of industry environment and its impact on strategic planning in his book *Competitive Strategy*. This section includes a review of Porter's analytical framework in which he explains the forces that shape competition in an industry.

The five forces that drive competition are the threat of new entrants, threat of substitutes, bargaining power of suppliers, bargaining power of buyers and rivalry among existing firms. These forces jointly influence the profitability of the industry and the strongest forces become crucial from the point of strategy formulation.

Once the forces affecting competition in an industry and their causes are analyzed the firm is in a position to identify its strengths and weaknesses relative to the industry. The structural analysis thus forms the basis for formulating

competitive strategy. The purpose of competitive strategy for a business unit in an industry is to find a position wherein the business unit can defend itself best under the competitive forces or can try to influence the forces in its favor.

3.2 Strategic management concepts

Strategic management concepts and frameworks relevant to this study are presented in this section. These concepts are useful in the strategic planning and implementation process.

According to Pearce and Robinson, strategic management is a set of decisions and actions that results in the creation and execution of plans designed to achieve a company's objectives. Their model views strategic management as a process, which begins with the development or reevaluation of the company's mission. Subsequently, the external and the internal environment of the firm are assessed. This is followed by the strategic choice stage. In this stage the firm evaluates and chooses strategies that will enable them to create a sustainable competitive advantage. The phases that follow in order are the definition of long-term objectives, design of grand strategies, definition of short-term objectives, design of operating strategies, implementation of the strategies, review and evaluation. Pearce and Robinson represent one example of the standard, broadly accepted paradigm for strategic management.

Peterson presents a strategic management framework for firms based on the fundamentals of several strategic management approaches. He has synthesized the strategic management frameworks of Pearce and Robinson, and several others. His framework is based on three distinct stages: challenging assumptions and

beliefs about a firm's strategic position, strategy selection and strategy implementation through short-term operations.

Challenging a firm's assumptions and beliefs is done through a situation analysis focused on understanding the internal state of the firm within the context of the external environment in which it operates. The assessment of the firm's capabilities and constraints are included in the internal analysis. Peterson's change forces analysis and Porter's competitive forces analysis are used as a basis for the external threats and opportunities analysis. The internal and external analysis together is popularly known as the SWOT (Strengths, weaknesses, opportunities and threats) analysis.

Strategic issue synthesis is then built on the earlier analysis. In this portion of the strategic process, the core competencies, competitive advantage and the critical strategic issues are identified. Subsequently the vision and mission for the firm are developed.

The knowledge gained from this first stage is then used in developing strategy for the firm. The development of a core strategy is based on a set of five strategic choices: (1) the approach that the firm uses to create customer value and competitive advantage, (2) the direction/size of the business that is required for future success, (3) the scope of business activities that the firm requires, (4) the overall role of the firm in the industry and (5) the relationship that the firm wants to maintain with each key customer and supplier. The evaluation of the various alternatives thus leads to the development of a complete core strategy.

Implementation of the core strategy is the final phase, which evolves from appropriately detailed action strategies and tactics. The various stages in strategic management can also be reevaluated based on changing circumstances. The strategic management process is thus iterative. Peterson's framework aids in the development of sustainable competitive advantage for a firm.

3.3 Strategic planning techniques for commodity industries

Ricks and Woods developed strategic planning techniques in the broader context of a regional commodity industry. Strategic planning with commodity industries is complex and different from strategic planning at the firm level. Commodity industries, such as, the vegetable industry, are comprised of many small-sized firms along with a few medium sized and medium large firms. These industries also involve a number of complex vertically linked industry participants, i.e., growers, shippers, processors and other industry support organizations who have many common interests and who are jointly impacted by a number of key driving forces. Though the various firms in the industry compete with each other and with other regional industries, selected key issues and elements of common interest, such as, expanding generic demand and improving quality standards, can be better addressed by strategic planning at the industry level. For these certain broad aspects, which are of importance to the whole industry, individual firm strategic planning needs to be supplemented by industry strategic planning.

Apart from situation analysis, components such as gap analysis, determination of priority issues for the industry, analysis of action alternatives,

follow up on alternatives, impact analysis, and strategy review and reevaluation are also included in the industry strategic planning approach.

3.4 Scenario Analysis¹

Scenario analysis is a technique used in strategic management for managing uncertainty. According to Knight, uncertainty arises when the probability distribution for future events cannot be estimated. The scenario analysis method attempts to capture a whole range of possibilities, stimulating decision makers to consider changes they might otherwise ignore.

A scenario is a story about a possible future state of the world. Scenario analysis begins with the identification of trends that influence a business environment. These trends are then separated into two distinct categories, one including trends that are relatively certain and the other including trends that are uncertain. Reliable combination of these uncertainties is subsequently used to construct different scenarios. These scenarios should be internally consistent and should also be plausible. Since uncertainties present today can be resolved in a number of ways in the future, multiple scenarios are required to better understand the shape of the future. In the following stage, strategies relevant for operating in each different scenario are considered. Strategies relevant across different scenarios become useful for implementation in that these strategies are the means for managing uncertainty.

In scenario planning the joint impact of the various uncertainties that influence the future are considered. By visualizing a wider range of possible futures, decision makers are in a better position to take advantage of the

¹ This section draws heavily on the articles, by Peterson and by Schoemaker.

unexpected opportunities that will come along. This technique can include elements that cannot be formally modeled. Hence when subjective interpretations are required beyond purely objective analysis, scenario analysis is a better technique.

3.5 Chapter Summary

Situation analysis helps in identifying issues that are critical both at the firm level and at the industry level. This technique has been used in the strategic management framework for firm level strategic planning and also in the broader context of commodity industries. SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis is used during the situation analysis to better understand the internal capabilities and constraints and the external opportunities and threats in the firm-level and in the industry-level strategic planning. Drawing on the SWOT analysis and putting the overall situation in perspective, the core competencies, competitive advantages and the critical strategic issues of a firm are identified in the framework developed by Peterson. This stage is known as the strategic issues synthesis.

This study is a subsector planning study of the Michigan vegetable industry. One of the objectives of this subsector study is to identify and analyze the critical strategic issues of the Michigan vegetable industry. The review of the relevant theoretical concepts thus validates the use of strategic analysis, i.e., SWOT analysis followed by strategic issue synthesis, as the appropriate research procedure for identifying the critical strategic issues of the Michigan vegetable industry.

The second objective of this study is to specifically analyze and develop strategies for facing uncertainty in the future. Scenario analysis has been identified as one of the best techniques for analyzing uncertainty. Scenario analysis captures a whole range of possibilities in detailed alternative scenarios that then allow the development of strategies relevant under these different scenarios. Managers are thus better prepared to manage the uncertainties that they face. Hence the use of this technique seems to be the most appropriate one to achieve the second objective of the study.

CHAPTER 4

Strategic analysis of the Michigan vegetable industry

The goal of this chapter is to identify the critical strategic issues that the Michigan vegetable industry must address in order to ensure a successful future. Strategic analysis is the technique applied to achieve this goal. The chapter is organized in the following manner. The first section includes an assessment of the performance of the industry. A SWOT (strengths, weaknesses, opportunities and threats) analysis of the Michigan vegetable industry is presented in the second section. Strategic issue synthesis, which includes the core competencies, competitive advantage, change grid and the critical strategic issues, is described in the third section.

4.1 Performance Analysis of the Michigan vegetable industry

Performance analysis is the first step in the strategic analysis process. The performance of the Michigan vegetable industry was assessed in the areas of customer satisfaction, competitiveness, productivity and profitability. The objective of the assessment was to ascertain whether the problems faced by the vegetable industry warranted strategic analysis and planning.

The participants of the scenario analysis workshop (refer to section 1.2 for details) evaluated the performance of the Michigan vegetable industry. (See Exhibit 4.1). The participants rated each factor on a scale of 1 to 5. Note that the material below includes the views of the participants with additional analysis added by the author.

Customer Satisfaction: The Michigan vegetable industry was given an average rating of 3.4 for customer satisfaction. The overall ranking in vegetables and the crop-by-crop market shares justify the average rating for customer satisfaction. Nationally, Michigan was ranked seventh and sixth in the fresh and processed vegetable sales, respectively. Crop-by-crop analysis reveals that Michigan is the leading state in processed cucumber cultivation (with a market share of 29.4%), second in the cultivation of celery (with a market share of 5.4%), and third in asparagus (with a market share of 12.5%).

The customer satisfaction was found to be better in the processed vegetable segment as compared to the fresh vegetables. On the whole, the inability to provide year-round continuity in supply was one of the major reasons for low customer satisfaction.

Competitiveness: The assessment has revealed average competitiveness for the industry with a score of 3.3. The industry has the ability to provide a wide range of vegetables. Michigan growers are competitive in the cultivation of processed cucumbers, celery, asparagus and fresh carrots. Proximity to major markets and availability of irrigation water are some of the major factors that have enabled the Michigan vegetable industry to be competitive against the other vegetable producing regions in the country. Nevertheless, the inability to provide year round supply of vegetables has been a limiting factor for the industry.

Productivity: The performance assessment has revealed moderate productivity with an average value of 3.6 for the industry. Severe pest/disease

attack and the development of resistance to chemical measures by the pathogens have restricted the productivity in the industry.

Profitability: The profitability of the industry has not been impressive. The participants gave an average rating of 2.25 for profitability. Factors such as price volatility, changes in the supply pattern, government regulations and cost of pest management practices have lead to variability in and low levels of profits for this industry.

The performance assessment of the Michigan vegetable industry has revealed three moderate ratings and one low rating. The inability to provide continuity in supply throughout the year has been identified as a limiting factor for the industry. The industry operates in a highly competitive environment. They need to address these issues at a broader industry level to increase their competitiveness as compared to the other vegetable producing regions. Hence, operational changes at the individual firm level alone are not likely to be enough. Fundamental or long-term strategy changes at the industry level would be required to achieve long-term growth.

4.2 SWOT ANALYSIS

In order to gain an overview of the strategic situation of the vegetable industry in Michigan, a SWOT analysis of the industry is presented in this section. SWOT analysis includes both the internal and external analysis of the industry. See Exhibit 4.2 for a summary of all the individual SWOT elements assessed.

Internal Analysis

The identification of the specific strengths and weaknesses of the Michigan vegetable industry is included here.

Strengths

A wide variety of vegetables are grown in Michigan: Vegetables are cultivated for fresh and processing markets. Cucumbers, tomatoes, asparagus, celery and carrots are some of the leading crops that are cultivated in the state. Buyers tend to prefer suppliers who can offer them a full line of products. The ability to cultivate a full range of vegetables thus becomes an advantage for the growers.

Pickle cucumber production: In 2000, Michigan was the top state in pickle production (Michigan Department of Agriculture) and was also the leading state in cucumber (processing) cultivation (29.4% of the total U.S production). Numerous pickle-processing facilities are located within Michigan. The production season for the pickling cucumbers is short and does not conflict with the planting and harvest schedules of other crops, hence it allows for efficient use of labor. This crop requires relatively lower inputs in terms of capital investment. Varieties suitable for midwestern cultural conditions have also been developed.

Proximity to major markets: Michigan is generally within a two-day drive of 60% of the U.S population. The Michigan producers are close to some major metropolitan markets, e.g., Detroit, Chicago and the East coast, and they also have a shipping cost advantage as compared to some other states.

Availability of natural resources: Michigan's abundant land and water resources enables the producers to have lower costs for some factors of production as compared to their competitors in other states. For example, irrigation water is difficult to obtain and is more expensive for producers in California.

Weaknesses

Weather: The yearly fluctuations in the production of vegetable crops can be attributed to the weather conditions. Michigan has a variable spring, with frost, winds and heavy rains that makes it difficult for early season planting and establishment of the vegetable crops.

Short marketing window: Due to the extreme climatic conditions prevalent in the State, the producers have a short marketing window of a few months only; hence they are unable to offer products throughout the year.

Late season: Michigan's vegetable season is late hence more often it becomes a disadvantage as the early producing areas remain in the market, bringing prices down.

Pest problems: *Phytophthora capsici* could become the limiting factor in pickle cucumber production in Michigan. This pathogen has infested a number of soils. Processors have rejected whole loads of cucumbers from the infested fields. If adequate control measures are not taken, the well-established pickle cucumber industry may soon be in trouble. *Phytophthora* could also pose a threat to squashes and pumpkins in the future (Project GREEN, 2000).

Mindset of producers: Some of the Michigan producers are unwilling to adapt to the new trends in the marketplace. For example, the Michigan carrot producers have traditionally produced the large carrots (carrots packed in 3-pound cello). Despite the growing preference for baby carrots, the Michigan fresh market producers have been slow in making the transition. They continue to produce large carrots and have contracts with processors.

Similarly, though consumers demand potatoes that are uniformly shaped and packed in transparent covers, Michigan growers appear to be unwilling to change their packaging to meet the changing consumer demand. Though the fresh vegetable segment has been growing at a faster rate than processed vegetables, the majority of Michigan producers have been reluctant in making the transformation.

EXTERNAL ANALYSIS

Identification of the opportunities and threats faced by the Michigan vegetable industry in its competitive environment is considered next. Peterson's change force analysis and Porter's competitive force analysis form the basis for the external analysis of the industry.

Opportunities

Nutritional value of vegetables: There is a growing trend to eat healthier and more nutritious food. Several federal initiatives including the U.S dietary guidelines, the food guide pyramid, Healthy people 2002 and the National Cancer Institute's Five-day Program have stressed the nutritional importance of fruits and vegetables (Rangarajan et al, 2002). Consumer's increasing concern for calories, saturated fat and cholesterol is reflected in the reduced consumption of red meats

and in the increased consumption of diets low in fat and high in fiber, such as, fruits and vegetables. Increase in domestic produce consumption by 20% in the past decade further confirms the growing importance of vegetables. (Epperson et al, 1999)

Change in demographics: Consumer preferences change with a change in demographics. The populations of Europe, Japan and the U.S are aging. It is estimated that by 2030 more than 21% of the U.S population will be over 64 years of age. The aging population tends to spend more on fresh produce due to the health benefits associated with the products. Hence, we can expect an increase in the demand for vegetables.

Growing preference for convenience: Consumers also tend to look for convenience while selecting their fruits and vegetables. Precut, peeled and ready for cooking products reduce the time needed to prepare a meal (Pollack, 2001). Hence there has been an increase in the consumption of fresh cut products, e.g., baby carrots and bagged salads.

Increase in demand for fresh produce globally: The demand for fresh produce increases with increases in income. The per capita income has been increasing globally and in the developing countries. Hence with globalization and changes in lifestyle, the global demand for vegetables is likely to follow the trend in the U.S. This offers an opportunity for the Michigan growers to supply vegetables to countries abroad.

Growth in organic foods: Studies have revealed that 70 % of the U.S consumers believe that organics are better for their health. Worldwide, the

markets for organic foods have been growing at an annual rate of 15-30% in Europe, U.S and Japan (Lohr, 2001). Food scares related to diseases, pesticide poisoning issues and concerns related to genetically engineered foods have increased the demand for organic foods. This would be a future growth category where tremendous opportunities lie.

Food labeling: This is an issue relevant to both the domestic and global market. Labeling enables consumers to closely monitor their diets. It is expected that in the future consumers will demand food labels that identify the country of origin (Lohr, 2001). Use of eco-labeling is increasing in the developed countries. This could be a future niche area for the vegetable industry.

Problems in the protein meat segment: There is a growing trend towards vegetarianism due to the various problems in the protein meat segment, e.g., increases in the incidence of mad cow disease and foot-and-mouth disease. The industry may take advantage of this issue by advertising and promoting the nutritional benefits of vegetables.

Alliances: The increasing size and the decreasing number of customers-retailers means that a larger size of suppliers is needed to balance the negotiating power. In order to combat the buyer power, there is a trend towards shipper/grower consolidation in this industry. Consolidation enables the shipper/grower to offer continuous supply of vegetables throughout the year at lower cost. The Michigan farmers should explore partnership/alliance opportunities outside the state and globally.

Barriers to entry: Fresh cut products such as bagged salads require substantial capital investment of plant and machinery. The processing facilities are costly, as they contain different kinds of fixed assets with relatively limited use other than processing salad ingredients, which leads to asset specificity. Asset specificity and the high cost of these facilities leads to significant barriers to entry in the fresh cut vegetable segment. Michigan growers can take advantage of this situation by extending from mere fresh vegetable production to the production of fresh cut vegetables. This would enable the growers to differentiate their products and increase their competitiveness.

Food safety issues: With growing consumer awareness for food safety, programs such as HACCP (Hazard Analysis and Critical Control Point) are becoming increasingly important in day-to-day operations. Producers are also forced to adopt good agricultural practices and good management practices to meet the varying private standards. By adopting these measures, producers will be able to increase the competitiveness of their produce in the global market.

Access to markets: The easy access to a diverse market place (due to geographic location) dramatically increases the opportunities for niche strategy for the Michigan vegetable growers.

Positioning Michigan Asparagus: Traditionally the Michigan Asparagus industry has relied on the processing market. In recent years, due to stiff foreign competition, their market share has declined. Market research has revealed that the per capita consumption of processed asparagus is bound to decline and the consumption of fresh asparagus is expected to increase (Project Green, 2001).

Michigan asparagus, unlike asparagus from other states, is hand-snapped above the ground and this method results in a more tender and flavorful product, which is perfect for salads, main dishes and appetizers. The Asparagus growers in Michigan will have to position their asparagus to meet the growing demand in the fresh market.

Shortage of skilled labor: The shortage of skilled labor in the restaurant kitchen has been a major driving force for the increased demand of fresh cut produce by the food service industry. This offers tremendous growth opportunities for the fresh cut vegetable segment.

Pesticide harmonization act: The NASDA (National Association of State Department of Agriculture) has voted for renewed support for the Pesticide harmonization act. This would eliminate current barriers that prevent U.S farmers, dealers and distributors from buying pesticides from Canadian sources. Once this becomes a law, producers would be able to save millions of dollars in production costs.

Anti dumping: The U.S department of commerce has recently announced margin percentages on Canadian greenhouse tomatoes imported into the U.S (The Vegetable Growers news, 2002). This would in the future help the U.S greenhouse tomato industry that was injured by the imports of greenhouse tomatoes from Canada, especially since these tomatoes were sold in the U.S markets at less than fair value.

Technological advancements: With improvements in packaging, storage and handling technologies, the demand for higher quality vegetables has

increased. Shippers who take advantage of these advancements are able to maintain their competitive stance in the industry because they are able to meet changing buyer demand more effectively.

Threats

Canadian counterparts: One of the major competitors for the Michigan farmers are their Canadian counterparts. The growing, harvesting and marketing of many of the vegetable crops in Michigan and Canada coincide. The imports from Canada tend to increase the price volatility in the markets leading to a downward pressure on prices for Michigan vegetables.

Competition from California: The grower/shippers from California raise a wide variety of produce and are also involved in production and shipping throughout the year. This enables them to maintain constant contact with their customers. The inability to offer year round produce makes it difficult for the Michigan producers to compete with the grower/shippers from California.

Global competition: Trade liberalization and regional trade agreements (such as, NAFTA in North America, MERCOSUR in Latin America, and the European Union) have expanded market access enabling retailers to procure produce from suppliers worldwide. This has increased the competition for producers in Michigan and the U.S.

Exchange rate affecting exports: Since the U.S dollar is stronger than most of the currencies in the world, the Michigan producers face stiff competition in the global markets.

Cannibalism of products: The increase in demand for bagged salads has decreased the demand for tomatoes, as tomatoes are not a part of the salads. Similarly with the increased popularity of the whole peeled baby carrots from California, the Michigan cello carrots sales are likely to be hit hard.

Industry rivalry: The price competition for non-value added commodity products is high in this industry. The shippers undercut their prices in order to gain preferential access to suppliers. This increases the rivalry and decreases the profitability within the industry.

Chemical regulations: Changes in the government regulations are threatening the availability of certain pesticides. Because vegetable crops require high levels of pesticide use, these regulations can adversely impact the industry.

Labor regulations: The vegetable industry is heavily dependent on labor. Changes in government regulations that increase the cost of labor and the shortage of labor can have a negative impact on the industry.

Retailer consolidation: As retailers consolidate their bargaining power increases. They tend to prefer suppliers who can offer them a full line of products in larger quantities and with consistent quality throughout the year. Retailers also prefer suppliers who can pack their products with private labels on them and who also are willing to adapt to the changing trends.

Food safety issues: The various incidences of large-scale food contamination have increased the liability for the producers. The industry has to take extreme precautions and maintain a high level of food safety standards

because any negative public image due to food contamination can adversely impact the industry.

Summary of SWOT Analysis

The intention of the SWOT analysis is to examine the industry both internally and externally. The results of the SWOT analysis for the Michigan vegetable industry are not very encouraging. The Michigan producers have some inherent strengths - abundant natural resources, diversity of raw products and the proximity to major markets. Nevertheless the impacts of weather and the short marketing season more often become serious weaknesses for the producers. The changing consumer demand pattern, growth in niche segments and the improvements in technology are in favor of the industry. However, the Michigan vegetable industry faces significant competitive threats from the increasing bargaining power of their buyers (retailers due to consolidation) and intense industry rivalry. The changing regulations and global supply competition also pose severe threats to the industry.

4.3 Strategic issue synthesis

The strategic issue synthesis is built on the analysis presented in the previous sections. The core competencies, the competitive advantages, the need for change, and the critical strategic issues are presented.

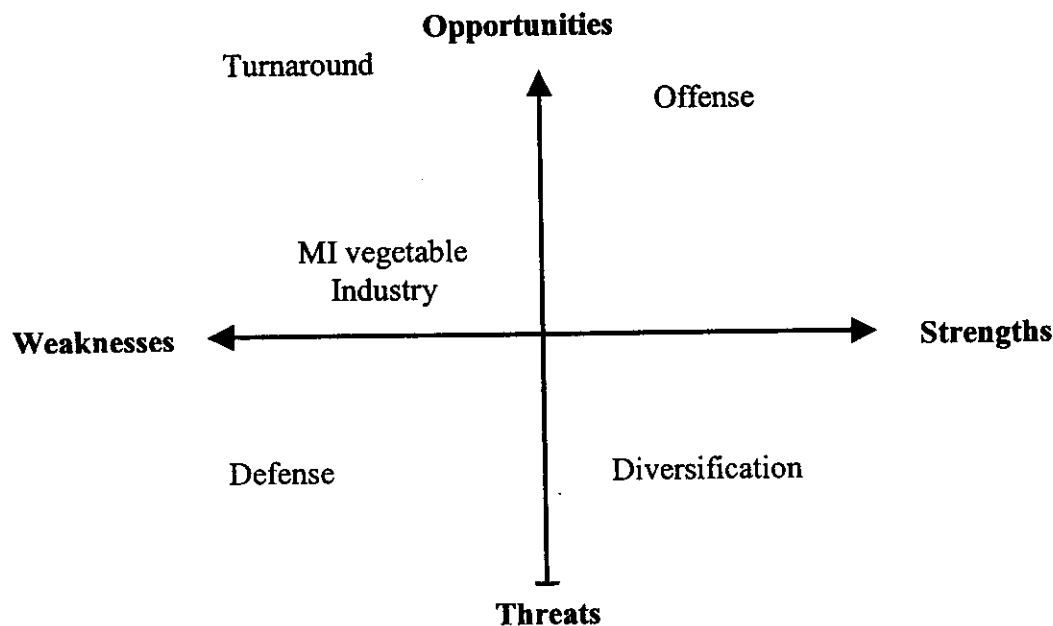
4.3.1 Core Competencies and Competitive advantage

A core competency is an area where the industry does extremely well as compared to its competitors. Further, a competency that is inimitable and that gives competitive benefit to the industry is a competitive advantage. SWOT

analysis helps in identifying the core competency and competitive advantage of an industry.

From the analysis it is evident that the vegetable industry is in the maturity stage of the market life cycle and the environment in which the industry operates is highly competitive. For long-term survival in a highly competitive environment, the industry requires a truly sustainable competitive advantage. Apart from California, Michigan is the only other state in the U.S that has the diversity of raw products. Since the buyers prefer suppliers who offer a broad line of products, the ability to cultivate a wide variety of vegetables is the only true core competency and competitive advantage of the industry.

4.3.2 The Change grid



The Michigan Industry's position in the left upper quadrant of the change grid clearly reflects the magnitudes of its weaknesses as well as the opportunities it faces. It is clear that the industry is constrained by its weak internal resources.

Although the opportunities identified in the SWOT analysis seem to be quite general, their number is significantly large to suggest a potential to overcome the threats, which are more specific. In order to turnaround the industry, a repositioning strategy needs to be adopted that would enable the industry to prevail over their current weaknesses and favorably exploit their opportunities.

4.3.3 CRITICAL STRATEGIC ISSUES

The goal of a strategic analysis is to examine an industry and identify the strategic issues it faces. Through the analysis, the following critical strategic issues have been identified for the industry.

1. How will the industry overcome the inability to offer a continuous supply of vegetables throughout the year?

The producers are unable to offer continuity in supply throughout the year due to the extreme climatic conditions prevalent in the state. This inability becomes a serious disadvantage for the Michigan producers since they lose preferential access to markets and also retailers. This was also identified as a limiting factor during the performance assessment of the industry. This issue has to be addressed in order to improve the customer satisfaction and increase the competitiveness of the industry.

2. How will the industry differentiate itself in order to create and maintain customer satisfaction and competitive advantage?

Increase in global trade has expanded market access. Consequently, the supply competition for commodity vegetables has also intensified. In addition, consumers are giving more importance to value added characteristics while

making their purchasing decisions. In response to these two trends, it becomes imperative that the industry offer differentiated products by adding value through quality or extra features. This will enable the industry to position itself against competition and also increase customer satisfaction. Therefore, this issue becomes critical and has to be addressed.

3. How will the industry face the increasing regulatory pressures?

Vegetable crops require high levels of chemicals, moreover the industry is also labor intensive. With the increasing concern on environment and food safety, the government regulations have become more stringent, threatening the availability of pesticides important for the industry. Thus the increase in regulatory pressures in the form of chemical and labor regulations increases the cost to the industry and adversely affects overall profitability. The performance appraisal revealed that the low level of profitability for the industry is a major concern. This clearly indicates that regulatory pressure is a critical strategic issue that has to be addressed with broader industry level changes.

4.4 Chapter summary

An assessment of the industry's performance has revealed moderate levels of customer satisfaction, competitiveness and productivity and a low level of profitability. This clearly suggests the need for strategic analysis in the industry. The SWOT analysis shows that the industry is constrained by weak internal resources. The analysis of the industry's external environment shows more general opportunities than specific threats. The industry's position on the change grid thus indicates the need for a turnaround-oriented strategy for the future.

Through the strategic analysis, the inability to offer continuity in supply throughout the year, the need for differentiation, and the increasing pressure from regulations have been identified as the critical issues for the industry. In order to ensure a successful future, these issues have to be addressed by any strategy adopted by the industry.

Exhibit 4.1: Performance Assessment of the Michigan vegetable Industry

Participants of the Scenario analysis workshop were divided into six groups and were asked to assess the performance of the Michigan vegetable industry. They rated the industry on a scale of 1 (low performance) to 5 (high performance). Their ratings were as follows:

	Group1	Group 2	Group 3	Group 4	Group 5	Group 6	Average
Customer satisfaction	F-2 P-4	F- 3.5- P- 3.5+	F-3	4	3	F-3 P-5	3.4
Competitiveness	F-2+ P- 2+	3	F-4	4	4	F-4 P-2	3.3
Productivity	F- 2+ P- 2-	4	4	4	4	F-5 P-3	3.6
Profitability	F- 1+ P- 1+	2	3	2	2	F-3 P-4	2.25

F- Fresh vegetables

P- Processed vegetables

Exhibit 4.2: SWOT analysis of the Michigan vegetable Industry

STRENGTHS	WEAKNESSES
Wide variety of vegetables	Weather
Pickle cucumber production	Short marketing window
Proximity to major markets	Late season
Availability of natural resources	Pest problems
	Mindset of producers
OPPORTUNITIES	THREATS
Nutritional value of vegetables	Canadian counterparts
Change in demographics	Competition from California
Growing preference for convenience	Global competition
Increase in demand for fresh produce globally	Exchange rate affecting exports
Growth in organic foods	Cannibalism of products
Food labeling	Industry rivalry high for commodities
Problems in the protein meat segment	Chemical regulations
Alliances	Labor regulations
High Barriers to entry for fresh cut products	Retailer consolidation
Food safety issues	Food safety issues
Access to markets	
Positioning the Michigan Asparagus	
Shortage of skilled labor in restaurants	
Pesticide harmonization act	
Anti dumping	
Technological advancements	

CHAPTER 5

Industry Scenarios and Competitive Strategy under Uncertainty

The purpose of this chapter is to understand the ways and means by which the Michigan vegetable industry can effectively manage uncertainty in the future. The information for this chapter is heavily drawn from the scenario analysis workshop titled "Managing Uncertainty". The participants in this workshop listed the uncertainties, envisioned the possible paths for these uncertain forces and also built the future scenarios (Refer to section 1.2 for details). Views of the participants and the analysis of the author are presented in this chapter. The key uncertainties are described in the first section. In the second section the possible alternative future scenarios are presented. The third section includes possible strategies for dealing with uncertainty.

5.1 Fundamental Uncertainties for the Michigan vegetable industry

The future of the Michigan vegetable industry is driven by a number of forces that will have relatively certain and relatively uncertain impacts in the industry's future. In order to have a better perspective of the future of the industry, it becomes imperative most especially to understand these uncertainties. In this section, seven uncertainties likely to impact the industry are briefly described. The first six of these were fully discussed in the scenario analysis workshop, while the seventh, technology, was added here to complete the analysis.

The first industry-identified uncertainty was the nature of increasing regulatory pressure. The pressure includes chemical, labor and transportation

regulations. It remains certain that regulatory pressures are bound to change in the future, however the extent and the kinds of regulatory pressure and their rate of implementation remain uncertain. The regulations may come into effect fast and they may be tough. Nonetheless, there is also a possibility that the regulations may be implemented more slowly and they may be relatively easier on the industry.

Chemical regulations are related to environment and food safety concerns. Increasing pressures at the public level have reduced the government set tolerances for certain pesticides and have also resulted in the ban of certain others. Labor regulations have also become stringent in the recent years. It becomes difficult for the industry to meet customer quality requirements due to these increasing regulations. Thus due to the uncertainty in the nature of regulatory pressure the returns to the industry also remain uncertain.

The second industry-identified uncertainty was global supply and sourcing activities. It is certain that the changing domestic and trade policy variables influences global sourcing activities, which successively affects the supply competition in the local industry. However, the openness of trade and the willingness of buyers to buy global products remain indeterminate leading to uncertainty in the global sourcing activities.

In the future, the trade policies may be more open due to the increasing multilateral and regional trade agreements, and buyers' willingness to source globally may increase due to the easy availability of good supply at low prices. Conversely, the changing trade policies could decrease the openness of trade. In

addition, the buyers may become reluctant to source globally due to factors such as stringent food safety measures. Hence the competitiveness of Michigan vegetable industry relative to the global industry remains rather uncertain.

Industry had identified the third uncertainty as urban sprawl. It is certain that Michigan is losing a significant amount of its distinctive green space to development. Tracts of farmland are being swallowed up, plowed under, and paved over for sprawling residential subdivisions. This clearly indicates that urban sprawl is bound to continue in the future. However, there are uncertainties regarding the pace and extent of urban sprawl. The sprawl can be widespread and fast due to less governmental intervention or the pace can be slow and the scope limited.

Urban sprawl increases the land prices, and farmers find it profitable to sell parts of their land for development rather than keep it in farming. Large farming operations may cease to exist in this situation, ultimately decreasing agricultural output. The impact of this sprawl on the Michigan vegetable industry nonetheless remains uncertain due to uncertainties regarding the pace and extent of urban sprawl.

The fourth uncertainty identified by the industry was changing consumer trends. It is definite that the population is aging globally and the demand for convenience foods are increasing. This indicates that the demand for fresh vegetables and fresh cut vegetables are bound to increase in the future. However there are uncertainties regarding the food safety issues and demand for organics.

The competitiveness of meat and other substitutes with vegetables are also indeterminate.

In the future, it is possible that the problems in the protein meat segment will decrease the competitiveness of meat thereby increasing the effective demand for vegetables. Further, the industry could also respond favorably to the food safety issues and the increasing demand for organics.

On the other hand, it is likely that with the increase in the competitiveness of meat and other substitutes, the effective demand for vegetables will decrease and the negative public reaction due to food contamination in Michigan vegetables could adversely impact the industry. Thus the uncertainty in the changing consumer trends leads to uncertainty in the future of the Michigan vegetable industry.

The industry-identified fifth uncertainty was the changes in the world economy. Strength of the dollar and the effective demand for the industry products remain uncertain due to the uncertainty in the world economy. A strong dollar coupled with global recession leads to a decrease in the U.S vegetable exports and adversely affects the industry, whereas a weak dollar along with an increase in the global income levels increases the exports and has a positive impact on the industry.

Thus it is certain that macroeconomic shocks such as currency exchange rates and changes in the interest rates affect agricultural prices, production, consumption and trade. However, the benefits and costs to the Michigan

vegetable industry due to the changes in the global economy in the future remain uncertain.

The sixth industry-identified uncertainty was the rate and intensity of retailer consolidation. It is certain that with increasing globalization, consolidation among retailers is inevitable. Consolidation increases the market power of retailers. They demand high quality products at lower prices. In addition, they tend to exert pressure on their suppliers.

However, it remains unclear whether this consolidation would lead to a few big retailers with global control or if the pace of consolidation would decrease resulting in big and small retailers existing together. Thus the changing relationships between the suppliers and retailers and their influence on the Michigan vegetable industry continue to remain uncertain.

The seventh uncertainty that is likely to impact the industry is technological change. It is certain that advancements in technology will continue to influence the production, marketing and distribution of the products in the industry. However, there are uncertainties regarding the rate at which these technological changes are occurring, level of adoption by the industry, and the cost of technology. It is possible that these changes may happen fast, and the level of adoption may be high, hence the industry will incur higher costs to remain competitive. Conversely these changes may happen slowly and their rate of adoption may be slow. The industry will thus have time to adapt to the changes.

Suppliers are able to meet the changing demands of the retailers due to the advancements in storage, post harvest and transportation technology. The

improvements in technology may allow the industry to reduce costs in the future. It is certain that to increase their competitiveness the industry will have to use technology as efficiently as possible. However it is not certain if they are well equipped to do so.

5.2 Possible scenarios under uncertainty

Three possible future scenarios were developed by the participants of the scenario analysis workshop based on the combinations of the outcomes of the uncertain forces. These scenarios are presented in this section.

Scenario 1: Survival of the few

The “survival of the few” scenario for the Michigan vegetable industry arises due to a number of reasons. The vegetable industry suffers from the loss of effective pesticides due to stiffened chemical regulations leading to unacceptable crop volumes. The use of IPM techniques to combat regulations and rigid labor policies increases the costs to the growers. Enforcement of stiff transportation regulations regionalizes the industry. Increased regulatory pressure from the government adversely affects both the producers and the processors. However, a few producers focusing on niches such as organic vegetables benefit from the same.

Changes in the trade policy variables and regional trade agreements increase market access. Instead of living on processed vegetables in winter, consumers purchase fresh produce procured globally from the neighborhood retail stores. The influx of global supply from retailers sourcing abroad increases the supply competition and leads to a loss of most of the Michigan vegetable industry.

Michigan producers are unable to meet the private standards of global retailers due to their lack of interest in adopting good agricultural and good management practices. Production and processing operations of the Michigan farmers are hence limited for local consumption and sale only. Marketers who integrate vegetable and non-vegetable crops manage to survive.

Dramatic increase in urban sprawl takes some of the best land out of production at a prodigious rate. Producers find it profitable to sell parts of their land for development rather than farm. Hence large farming operations cease to exist and cultivation is limited to fragmented tracts. This decreases the land available for rotation. Sprawl results in increased taxes decreasing the profits for the remaining few producers.

Food borne illnesses and deaths of consumers are traced back to poor agricultural practices and improper handling of fresh produce by the Michigan industry. Financial losses resulting from this food borne attack devastates the vegetable industry. Consumers prefer only fresh vegetables resulting in dramatic loss for processors in the state. In addition, the industry is unable to meet the growing demand for fresh cut vegetables as the demand for convenience products increases. The changing consumer trends adversely impacts the industry.

Recession in the world economy continues to appreciate the value of the U.S dollar. The strong dollar reduces exports and increases imports. Decline in demand for U.S vegetables makes it uneconomical for the producers to remain in the business.

Consolidation results in a handful of big retailers who procure from big suppliers only. Local retailers go out of business. Big retailers impose stringent private standards to emphasize food safety/quality. Small farmers find it extremely difficult to meet the demanding private standards. The few big suppliers who remain are vertically integrated with the retailers.

It also becomes mandatory for shippers to invest in improved technologically advanced storage facilities. In order to gain preferential access to retailers, shippers are forced to adopt vertically integrated network systems. Competition increases as producers from other regions such as Florida, adopt bioengineering techniques to prolong the life of fresh produce. Technologically advanced shippers survive in the state, while others find it increasingly difficult to continue.

Synopsis: The industry reduces to a few firms only. The bigger ones are vertically integrated with the retailers, and the small ones concentrate on “extreme” niches. These firms limit their operations within the state. The firms who remain are the ones that adopt good agricultural and good management practices. Consolidated retailers exert severe pressure on the suppliers. Vegetables sourced globally are available in plenty whereas it becomes difficult to find vegetables cultivated within Michigan. The Michigan producers are unable to meet the growing demands of the retailers. Both producers and processors alike find it uneconomical to continue in this industry.

Scenario 2: No Surprises

The “no surprises” scenario for the industry can be attributed to numerous causes. Regulatory pressures continue to increase in different forms. There is a slow but steady loss of labor-intensive crops due to increases in labor regulations and chemical regulations have a declining effect on the crop volumes. Increase in transportation regulations makes it difficult to compete beyond the regional boundaries. Researchers develop more environmentally friendly disease and pest control strategies to improve product quality while simultaneously reducing the amount of chemicals used. Producers adopt IPM techniques along with chemical control measures.

As global sourcing slowly expands, only good growers survive and they heavily rely on government intervention, corporate farming and forced cooperation with other supply chain participants. Producers both in Michigan and globally are forced to adopt good phytosanitary measures to meet the varying private standards.

With increasing urban sprawl, and a steady increase in land prices, the agricultural land in Michigan gets converted for non-agricultural uses. There is a slow death to production and processing as sprawl slowly expands.

Emphasis on healthy foods and year-round supply continues the attrition of producers, processors and packers. There is increasing concern among consumers for food safety issues. The increase in demand for convenience products increases the demand for fresh cut vegetables and bagged salads.

The changes in the world economy have varying consequences on Michigan. While the strong U.S dollar decreases the agricultural exports, the demand for U.S produced vegetables increases due to the emerging middleclass worldwide.

A few big retailers and some small niche retailers continue to coexist. Shippers and producers strive to have one big retailer and several small retailers in their business mix. Convenience stores become an important new channel. Some big growers and retailers are linked through advanced computer systems, while some are not.

Technological advancements in storage, post harvest and transportation technology increases the demand for fresh produce throughout the year. Growers using advanced technology manage to have a competitive edge over the others.

Synopsis: The industry is comprised of big, medium and small players. The production systems in Michigan include both conventional and organic farms. The industry is highly competitive with increasing pressures from global supply. A wide variety of vegetables are available for the consumers due to the increase in global trade. Fresh vegetable consumption increases. Specialty vegetable producers continue to serve niche markets. In order to meet the growing demands of the consolidated retailers, shippers too move towards consolidation.

Scenario 3: Renewal and Growth

The renewal and growth scenario can be attributed to many causes. An open labor border with Mexico, realistic enforcement of the Food Quality Protection Act, and decreased chemical registration costs for minor uses results in

a dramatic reduction in the impact of regulations. Research also aids in the development of IPM measures, which decreases the costs of regulations to the industry. The improvements in labor, chemical and transportation conditions fuels revitalization of the industry.

U.S tariff barriers and favorable taxes in the U.S drastically reduces the global sourcing by the retailers. The global suppliers are unable to meet the standards imposed by the U.S retailers. Label of origin regulation promotes sales of U.S produced products globally. Producers in the state adopt HACCP and other phytosanitary measures, which increase the demand for Michigan products. New processors enter the industry and the existing ones expand their production. The Michigan industry benefits from this situation.

Driven by legislation and sales of development rights, farmland preservation provides safe haven from sprawl. Land is subjected to differential tax depending on its use. Land use regulation that concentrates population reduces sprawl and increases the farm-direct products.

Michigan producers gain leadership in Integrated Pest Management and food safety, which results in dramatic increase in consumer acceptance. As the population ages, the consumption of vegetables increases and Michigan rides the change. Michigan producers take advantage of the growing importance given to convenience by producing more fresh cut products.

Strong world economy leads to a tremendous increase in the income levels in the developing world. With high-income levels consumers demand more fresh and processed vegetables from Michigan. Processing stabilizes in the state.

Consumers reject big stores due to their lack of convenience and responsiveness. There is increasing preference for local products from local producers, processors and retailers. Giant retailers discover that they cannot effectively manage size. Due to the decrease in giant retailers even small farmers who are not vertically linked with retailers manage to survive. Gourmet perishable stores emerge as a major new channel.

Michigan shippers use vegetable coatings and bioengineering techniques to provide continuity in supply throughout the year by extending the shelf life of seasonal perishable products.

Synopsis: The Michigan industry is highly profitable. The growers and processors expand their production capabilities. Vegetables produced in Michigan are available in plenty. Due to the perceived high quality standards, the worldwide demand for the Michigan vegetables increases.

5.3 Competitive strategies under uncertainty

In order to help the industry effectively manage the identified uncertainties, this section presents competitive strategies implementable under each of the three scenarios.

5.3.1 Strategy for Scenario 1

Strategic alliances for production and marketing, employing compliance specialists for managing regulations, use of IPM techniques to overcome chemical regulations and having a long-range plan were the broad strategies suggested by the industry for overcoming uncertainties in “survival of the few” scenario.

Strategies further elaborated by the author are presented herewith. In this scenario only big firms or specialty crop producers survive. In order to have a competitive advantage and earn above average returns, the big firms should pursue cost leadership strategies (best price and low cost provider), while the specialty firms need to pursue niche strategies (best value for a limited market, most focused provider).

It becomes mandatory for firms to adopt HACCP, good agricultural practices and good management practices in their day-to-day operations in order to prevent food borne illnesses and maintain high quality food safety and phytosanitary standards. Use of intense IPM programs or organic farming helps firms to overcome stringent chemical regulations. By employing government compliance specialists, the firms are able to effectively manage regulations.

Growers in Michigan should concentrate more on the fresh vegetable category and pursue diversification into the production of fresh cut vegetables and bagged salads. This would enable the firms to meet the growing demand for convenience products.

Vertical integration with retailers by big firms, and adoption of specification contracts by specialty firms allows the firms to meet the growing demands of the giant retailers. Alliances with non-competing regions and also partnerships with other growers, agencies and organizations helps them in lobbying and promoting Michigan products.

5.3.2 Strategy for Scenario 2

Formation of alliances, managing regulations, adoption of technology, educating the public on the ill effects of sprawl and use of IPM techniques were the broad strategies called for by the industry.

Further analysis by the author has revealed the following strategies. In this scenario big, medium and small firms coexist. For a competitive advantage and to effectively deal with the intense price competition firms will need to either differentiate (best customer benefits from quality/features) or have a niche strategy (best value for a limited market, most focused provider).

Marketing strategy would include market expansion and product modification. Strategic alliances and joint ventures will enable the medium and small vegetable firms to go global and enter international trade thereby expanding their market access. Firms can modify their products by adding value through increased quality or new features. Producers/processors adopting Eco labels, organic labels or IPM labels may be able to charge a price premium. Firms in Michigan will also need to aggressively promote their products to retain their market share.

To meet the private standards and increase the competitiveness of their produce in the global market, it will be essential for producers to adopt good agricultural and management practices.

5.3.3 Strategy for Scenario 3

Managing regulations, formation of alliances and focus on marketing were the broad strategies suggested by the industry for managing the third scenario.

Expansion of the strategies by the author is as follows. Firms of different sizes exist in this scenario. For competitive advantage firms may adopt cost leadership strategy, differentiation strategy or niche strategy. Strategic alliances with shippers/growers in different parts of the country/globe help in expanding their market access. They are able to cater to niches by adopting organic or IPM labels.

Regulations continue to exist; hence, firms will need to adopt strategies to effectively manage regulations. Integrating IPM along with chemical control measures will give them an added advantage. Setting high quality food safety standards will help increase the consumer perception of quality.

Educating the public on ill effects of urban sprawl with the aid of the Michigan Department of Agriculture and MSU Extension would be necessary to prevent further sprawl.

5.3.4 Strategy under uncertainty

The analyses in the preceding sections have revealed that the future of the Michigan vegetable industry remains uncertain. It is clear that if given a choice, the industry would prefer the third scenario to the first and the second. Hence, in order to effectively manage uncertainty in the future, proactive strategies that would promote the evolution of the third scenario over the first and second are essential. These strategies are now presented.

1. The vegetable industry operates in a highly competitive environment. In order to satisfy their customers and simultaneously beat competition, firms have two main options, either adopt a differentiation strategy or adopt a niche strategy.

Differentiation strategy: Differentiation is a strategy of offering a product that is perceived as being unique. The firms can differentiate their products by adding value through increased quality or new features. Producers can enhance the value of their raw products by offering specific varieties, high quality supplies or features such as environmental certification.

Consumers place emphasis on added value and quality characteristics while making their produce purchase decisions. There has also been an increased interest in features such as nutrition content, brand label, genetic composition and pesticide residues. Differentiation strategy will allow the firms to increase their competitiveness and also improve customer satisfaction. In addition, the barriers to entry increase in the industry when firms offer differentiated products.

Niche strategy: Firms that aim to serve a particular target segment can use this strategy. With global consumer interests in health and environmental concerns, niches such as organics and eco labeled products are the expected future growth categories. Eco labeled products also include IPM (Integrated pest management) labels. Firms can concentrate on these niches in order to obtain a premium.

2. Increasing regulation was identified as an uncertainty that was likely to impact the industry in the future. In addition, it was identified as a critical strategic issue for the industry. Hence strategies for managing regulations are essential for effectively managing the future. Use of IPM techniques and formation of producer groups will enable the industry to deal with this issue.

Use of IPM techniques: Integrated pest management methods seek to minimize the level of pesticide applications. Hence adoption of IPM techniques will enable the industry to quickly respond to the changing government regulations so that they can continue to produce quality products in a cost-effective manner.

Performance assessment had revealed a moderate level of productivity for the industry, which was attributed to the disease/pest problems. Some of these pests/diseases have developed resistance to chemicals that were meant to control them. Integration of IPM techniques along with chemical control measures will thus enable the industry to control pests/diseases in turn addressing the issue of low productivity.

Formation of producer groups: Organized producer commodity groups are most successful in influencing the government officials to defend their interests. The industry will be able to efficiently address the issue of increasing regulations by organizing themselves.

3. The inability to provide continuity in supply throughout the year was identified as a limiting factor during the performance assessment of the industry and as a critical strategic issue as a result of the strategic analysis. This inability decreases the competitiveness of the Michigan vegetable industry relative to the other vegetable producing regions.

Formation of strategic alliances: The alliances/joint ventures with suppliers in different parts of the country/globe will enable the industry to provide

continuity in supply year round. This will also assist the small and medium size firms to enter the global trade and gain preferential access to buyers.

The capacity to provide an array of produce and maintain steady supply will increase the competitiveness of the industry.

Green house production: Addition of green house production will allow producers to stretch their season thus overcoming the inability to provide produce throughout the year.

4. Consolidation has increased the market power of retailers. They demand consistent quality, good produce throughout the year and also negotiate lower prices. Large retailers impose severe private standards on the industry. Strategic alliances, adoption of Phytosanitary standards and use of advanced technology will allow the industry to overcome the threat of retailer consolidation.

Strategic alliances: The pressures of supply chain management have also reached the producer/shipper level. There is an increasing need to form marketing and distribution alliances among the grower/shipper firms to cut costs and improve their efficiencies. Alliances with retailers will enable the producers/shippers to gain preferential status and also expand market access.

Phytosanitary measures: Implementation of HACCP and other phytosanitary measures such as good management practices and good agricultural practices will facilitate the industry's ability to meet the demanding food safety /quality standards. This will also help prevent the industry from any negative public image due to food contamination that can have an adverse impact.

Technology: The adoption of advanced storage and post harvest technology will allow producers/shippers to increase their competitiveness. By being vertically linked through advanced network systems in the supply chain, producers/shippers are also able to meet the growing demands of the consolidated retailers.

5. Globalization has increased the supply competition. Hence it becomes essential for firms in Michigan to aggressively promote their products to retain market share.

Marketing: The industry consists of a number of small and medium sized firms; hence, coordinated efforts to promote industry products and expand markets will be essential. Industry coordinated marketing strategy such as advertising and promotion will enable the industry to communicate the desirable attributes of their products. In order to maintain a competitive edge in the global market it becomes necessary for the industry to adopt these changes.

5.4 Chapter Summary

Increasing regulatory pressure, global sourcing and supply activities, urban sprawl, changing consumer trends, changes in the world economy, retailer consolidation, and technological changes were identified as the seven fundamental uncertainties likely to impact the industry. Based on combinations of possible outcomes for the uncertainties, three possible future scenarios--survival of the few, no surprises, and renewal and growth--were developed. Competitive strategies for dealing with uncertainty under each scenario were also presented.

In order to manage uncertainty in the future, proactive strategies will need to be adopted by the industry. Formation of strategic alliances with domestic/global suppliers from other vegetable producing regions will enable the industry to provide a wide range of products throughout the year to their customers. Use of integrated pest management techniques will allow the industry to manage regulations better. Adoption of HACCP and phytosanitary measures in their daily operations will facilitate the industry's ability to meet the increasing demand for food safety standards. Industry coordinated efforts would also be required for promoting their products. These strategies will also address the critical strategic issues identified as a result of the strategic analysis.

CHAPTER 6

Conclusions

The purpose of this chapter is to highlight the key findings of the study and suggest strategic alternatives. The first section includes a review of the methodological approach. The key findings of the study are briefly described in the second section. The strategies to face an uncertain future are presented in the third section.

6.1 Framework revisited

Review of relevant literature helped identify the analytical framework for the strategic positioning study of the Michigan vegetable industry. Strategic Analysis and Scenario Analysis are the two techniques that have been used in this study. Strategic Analysis, which included both the situation analysis and strategic issue synthesis, has facilitated understanding of the critical strategic issues faced by the industry. The use of Scenario Analysis enabled identification of ways and means for successfully managing uncertainty in the future.

Identifying the critical strategic issues faced by the industry was the first objective of this study. This study was based on information collected through secondary sources, and it was highly qualitative and did not rely on quantitative data or analysis. In addition, the study was made on an aggregate basis for the whole Michigan vegetable industry and was not specific to any crop. Given these characteristics of the study, the methods adopted to achieve the first objective proved to be strongly acceptable for the task. In particular, situation analysis is a technique widely used by different industries and firms. In this study on the

Michigan vegetable industry, this accepted body of analysis was extended to include strategic issue synthesis. The combination allowed for insightful analysis of the Industry's situation and a clear articulation of critical strategic issues.

The second objective of this study was to analyze and develop strategies for facing uncertainty in the future. The uncertainties of the future events that are likely to affect the Michigan vegetable industry cannot be estimated using a probability distribution; neither can these uncertainties be easily modeled. This study drew upon industry expertise and subjective interpretations of forces changing the industry and thus influencing the future. In this case, scenario analysis proved to be a highly effective technique for gathering information from industry participants and then allowing them to formulate strategy recommendations relevant to the futures envisioned.

This study would thus suggest that both Strategic Analysis and Scenario Analysis are highly relevant to such industry studies and should be used by other academic and management personnel interested in such studies.

6.2 Key findings

6.2.1 Strategic analysis of the industry

The first step in the strategic analysis process was the performance assessment. The assessment revealed moderate levels of customer satisfaction, competitiveness and productivity, and a low level of profitability. The inability to provide continuity in supply was identified as a limiting factor for the industry. The performance assessment justified the need for broader strategic changes at the industry level in order to improve competitiveness and achieve long-term growth.

Subsequently, the SWOT analysis of the industry was conducted. The results of this analysis are not very encouraging. The industry has some inherent strengths, e.g., abundant natural resources, diversity of raw products and proximity to major markets, however the short marketing window and the influence of weather are limitations that impede their performance. Changes in consumer demand patterns, growth in niche segments and improvements in technology are in favor of the industry. Nevertheless, changing government regulations, global supply competition, intense industry rivalry and consolidation of the buyers are severe threats to the industry.

Drawing on the prior analysis and putting the overall industry situation in perspective, the ability to offer a diverse array of raw products was identified as the core competency and competitive advantage of the industry. The Michigan vegetable industry's position in which weaknesses tend to dominate strengths and opportunities slightly outweigh threats clearly calls for a repositioning strategy in order to turnaround the industry.

Through Strategic Analysis, the inability to offer year round supply, the need for differentiation and increasing regulations were identified as the critical strategic issues that need to be addressed to ensure a successful future for the Michigan vegetable industry.

6.2.2 Scenario analysis

The nature of increasing regulatory pressure, global sourcing and supply activities, urban sprawl, changing consumer trends, changes in the world economy, retailer consolidation and technological changes were identified as the seven fundamental uncertainties likely to impact the Michigan vegetable industry.

Three possible future scenarios--survival of the few, no surprises, and renewal and growth--were developed, based on the plausible combinations of these uncertain forces. In the first scenario, "survival of the few", the industry reduces to a few firms only and they limit their operations within the state. Retailers consolidate and exert severe pressure on the existing firms. It becomes impossible for the firms to survive without forming alliances with the retailers. Due to the increase in global sourcing activities, vegetables cultivated abroad are available in plenty. In this scenario both the producers and processors alike find it difficult to survive on their own.

In the "no surprises" scenario, the industry is comprised of small, medium and big players. The Michigan vegetable industry is highly competitive. Increasing labor and chemical regulations has a declining effect on the crop volumes. Retailer consolidation leads to increasing private standards in the industry, which forces producers to adopt good phytosanitary measures.

The “renewal and growth” scenario is the one that would be most favored by the industry. Open-border labor policies with Mexico, realistic enforcement of the Food Quality Protection Act, and decreased chemical registration costs for minor uses dramatically decreases the impact of regulations on the industry. The global suppliers are unable to meet the standards imposed by the U.S retailers. There is an increased demand for Michigan products due to perceived high quality standards and the industry benefits from this situation. The growers and processors in Michigan expand their production capabilities and the industry becomes highly profitable.

6.3 Recommended strategies for the future

Proactive strategies are recommended to address the critical strategic issues and to manage uncertainty in the future.

Strategic alliances with domestic/global suppliers from other vegetable producing regions will enable the industry to provide an array of products throughout the year to their customers. Alliances with retailers will help the producers/shippers to gain preferential status and also expand market access.

Effective farm strategies, such as, adoption of HACCP in day-to-day operations, will facilitate the industry’s ability to meet varying private standards. Industry coordinated marketing efforts, such as, advertising and merchandising, are required to enable the industry to promote their products. The Michigan producers will also need to use supply and marketing information as well as technology as efficiently as possible to meet the changing demands of the supply chain.

6.4 Next Steps

The Michigan vegetable industry will have to form a Michigan vegetable industry strategic group comprising of growers, processors, shippers, packers, members of Michigan state university extension team, faculty and other university officials who work on matters related to this industry.

The primary focus of this group should be to adopt a repositioning strategy in order to turnaround the industry. This would enable the industry to prevail over their current weaknesses and favorably exploit their opportunities. The industry strategic group will then need to adopt strategies to address the critical strategic issues identified in this study.

In this study uncertainties likely to impact the industry in future have been identified and strategies have also been recommended to face these uncertainties. The industry strategic group will need to help implement the strategies based on their setting of priorities and their working with individual firms to improve overall performance.

This study has been a general study on the Michigan vegetable industry. One of the limitations of this study has been the inability to focus deeper into specific issues related to specific crops. In a next phase, specific crop-by-crop studies may be conducted using similar techniques, which would thus help in overcoming this limitation.

6.5 Concluding Thoughts

Strategic analysis revealed the critical issues faced by the industry and scenario analysis has exposed the industry's increased risk and uncertainty. The

industry will need to strengthen their position and increase their competitiveness by adopting proactive strategies in order to effectively manage an uncertain future. The Michigan vegetable industry is very challenged by its environment and needs to take coordinated action if it is to meet these challenges. This study has attempted to contribute constructively to the industry's understanding of its strategic position and options.

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