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STRATEGIC ANALYSIS, PROPOSED STRATEGIC PLAN, AND RECOMMENDATIONS FOR MICHIGAN PUBLIC VARIETY FIELD SEED AND SEED POTATO PRODUCERS

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By

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ABSTRACT

STRATEGIC ANALYSIS, PROPOSED STRATEGIC PLAN, AND RECOMMENDATIONS FOR MICHIGAN PUBLIC VARIETY FIELD SEED AND SEED POTATO PRODUCERS

By

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The Michigan Crop Improvement Association commissioned the Agricultural Economics Department at Michigan State University to study a ten year decline in the: (1) number of public variety field seed and seed potato producers, (2) certified acres of publicly released seed, and (3) profitability of public variety seed production.

Competitive analysis was used to explain low profitability, while analysis of strengths, weaknesses, opportunities and threats revealed Michigan seed producers had few competitive advantages, many competitive disadvantages, and they faced a mix of opportunities and threats.

Four broad recommendations were generated as a result of the strategic planning process: (1) initiate educational programs at the producer and industry level, (2) reposition Michigan seed producers as involved marketers, (3) establish a common marketing association, and (4) encourage all seed producers to support the development and promotion of Michigan grown seed. Specific recommendations designed to carry out the broad recommendations were also developed.

ACKNOWLEDGMENTS

I am thankful for the assistance of many people in the course of this project. In particular, I wish to thank Dennis Greenman and the rest of the Michigan Crop Improvement Association staff for their willingness to support this research, their patience in unearthing answers to many questions, and for their dedicated efforts to improve the Michigan seed industry.

I also wish to thank those seed producers and seed industry people who took time out of their busy schedules to share their insights regarding seed industry issues. I not only have a better understanding of the seed industry in Michigan, I have new friends.

I owe a special thanks to my project supervisor and mentor, Dr. H. Christopher Peterson. The insights provided by Chris have clarified my thinking and enabled me to attain a deeper understanding of strategic planning, and allowed me to bridge the gap between theory and its application to real world situations.

I would also like to thank my advisor Dr. Stephen B. Harsh. His constructive criticism and insightful comments regarding various drafts of this thesis helped me to "boil down" vast amounts of written analysis common to the case study approach into a succinct, professional document that is both informative and scholarly.

Finally, I wish to thank my family, especially my wife Joan, for her comments on the "rough" drafts of this thesis, and for her unwavering support in our family's future throughout my graduate-school process.

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CHAPTER 1
RESEARCH SETTING

This chapter is divided into three sections: the statement of the research issues, the statement of objectives, and the organization of the research findings.

1.1 Statement of the Research Issues

During the past ten years, Michigan public variety field seed and seed potato producers have experienced declining product usefulness in the eyes of seed buyers and declining competitiveness relative to private field seed producing companies and seed potato producing areas outside of Michigan.

Many factors influence the viability of a seed market. These factors include: (1) the size and proximity of the seed buying market to the seed producing areas, (2) the number of seed producers, (3) the number of acres of seed produced by variety, and (4) the ability to be isolated from disease problems (e.g., physical location and climate).

Evidence of declining product usefulness and competitiveness included: (1) a decline in the number of Michigan public variety field seed and seed potato producers, (2) a decline in the number of acres of public variety seed and seed potatoes being certified[1], and (3) a decline in the number of new seed varieties offered by Michigan public variety field seed and

[1]The actual reduction in numbers of seed producers and certified seed acres is presented in chapters 3 and 4. The data was provided by the Michigan Crop Improvement Association (MCIA).

seed potato producers relative to the number of new varieties offered by private variety field seed and non-Michigan seed potato producers.

In addition to problems of usefulness and competitiveness, seed producers indicated during interviews that the profitability associated with producing public variety field seed and seed potatoes was declining. The Agricultural Economics Department at Michigan State University was commissioned by the Michigan Crop Improvement Association (MCIA) to study potential causes for the decline in producer numbers and certified acres, lack of profits, and to design a strategic plan to increase the usefulness, competitiveness, and the likelihood of sustained industry profitability.

The remainder of this chapter outlines the economic relationships to be researched, while providing an overview of the Michigan seed industry, including the agents and institutions involved in the breeding, production, promotion and distribution of certified seed. The problems facing Michigan public variety field seed and seed potato producers are highlighted, and the problem-solving nature of this research emphasized, as a valuable tool for generating possible solutions.

1.1.1 Description of the U.S. and Michigan seed industries

This subsection describes the economic relationships found within the U.S. and Michigan seed industries.

1.1.1.1 The U.S. seed industry

Butler and Marion (1985) described the U.S. seed industry as including all of those interests that breed, produce, condition, market and distribute seeds of all kinds (see

Figure 1.1). An economic definition of an industry would include groups of firms which produce products that are close substitutes for each other. Different species of seed, such as, corn, potatoes, dry beans are not close substitutes. The loose collection of wheat, soybeans, dry beans, small grains, and seed potato firms, commonly referred to as the seed industry, actually constitute several economic industries or markets (Shepard, 1989). This loose collection of firms has been adopted as the definition of an industry for this research.

Many crop varieties in the U.S. are classified as private or public according to their method of propagation and release. Private varieties are developed and released by private seed companies. Often, these varieties are propagated[2], wholesaled and retailed through a vertically coordinated production and distribution system. In some cases firms, such as, grain elevators make up part of this chain, providing conditioning, processing and sales functions. Private firms actively seek to control the marketing and distribution of their varieties as a means to extract as much economic rent as possible out of their products.

Public varieties are those varieties which are propagated by public institutions, such as, land grant universities and the state agricultural experiment stations associated with them. Traditionally, most of the production, conditioning and distribution functions occurred through a network of public variety handlers made up of certification agencies, crop improvement associations and farmer seedsmen.

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[2]The process of growing and advancing seed stock from one generation to another.

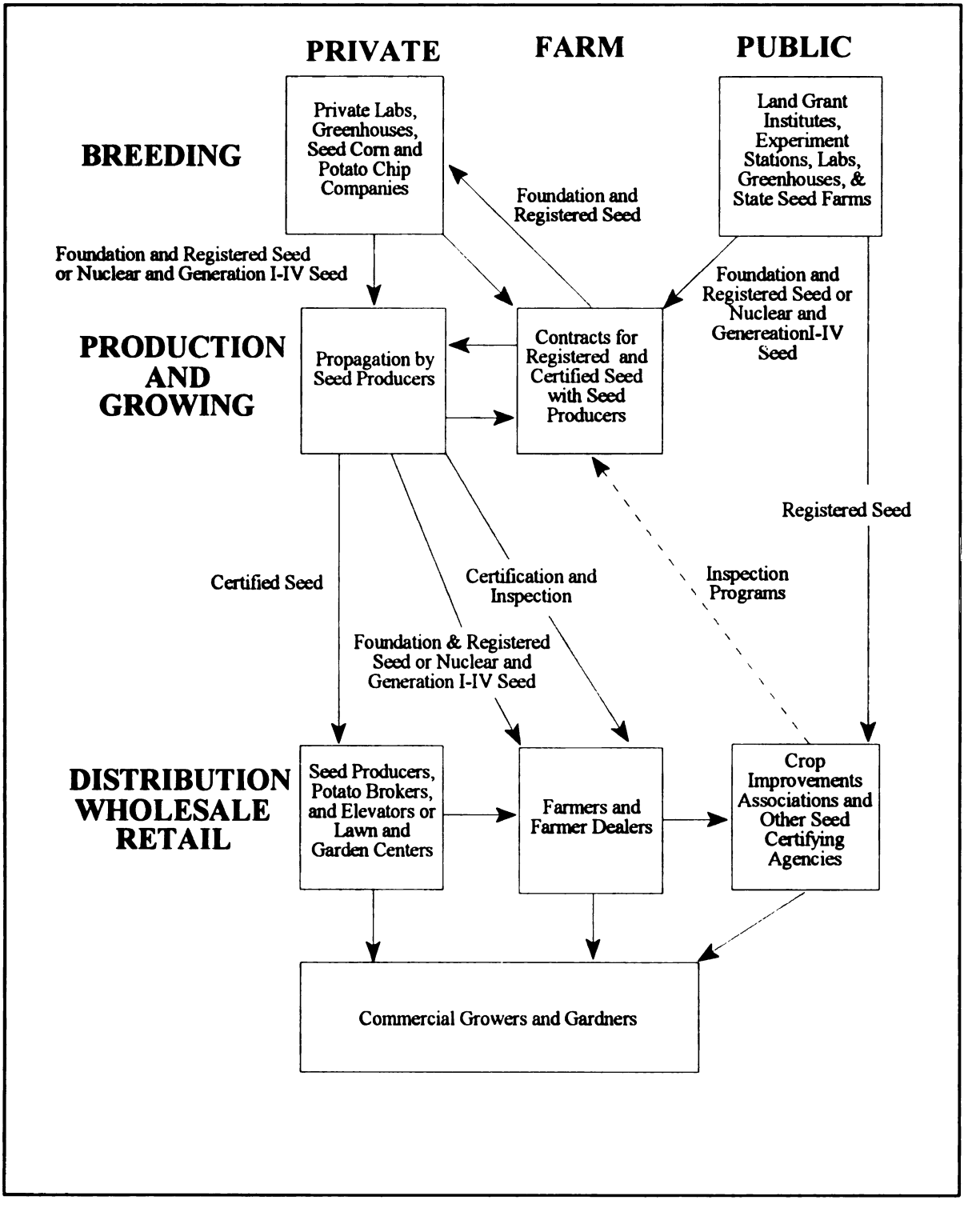

Figure 1.1 Vertical organization in the U.S. seed industry

Source: Adapted from Butler and Marion (1985). "The Impacts of Patent Protection on the U.S. Seed Industry and Public Plant Breeding," N.C. Project 117, Monograph 16

These varieties were freely released to individuals wishing to propagate and market them, or for utilization in their own breeding programs. In general, the production and distribution system for public varieties was much less tightly coordinated and controlled by the initial source of the variety when compared to private varieties (Shepard, 1989).

The purpose of seed certification is to monitor the seed propagation process to assure that genetic purity is maintained. The U.S. seed certification program is part of the Federal Seed Act, but is carried out by individual state agencies, state departments of agriculture or crop improvement associations, such as, MCIA (Crop Science Society of America, 1985). These agencies are coordinated through the Association of Official Seed Certifying Agencies (AOSCA). Twenty five of these certifying agencies are crop improvement associations. The primary mission of MCIA is to inspect and certify seed in the state of Michigan, and to assure seed buyers of the genetic identity and characteristics of the seed being purchased.

1.1.1.2 The Michigan public variety field seed and seed potato industries

The seed industry in Michigan was composed of: (1) small to large-sized seed producers who grew seed to be sold through (2) seed brokers, elevators, lawn and garden centers, and directly to (3) small to large-sized commercial producers who grew crops for animal and human uses. Like most seed, the grading and certification of seed was regulated by the government, while basic genetic material was developed by public institutions, such as, Michigan State University, and private firms, such as, Pioneer Hi-Bred, International. The structure of the Michigan seed industry was similar to other seed producing states.

The value of field crops for food and livestock feed remains the cornerstone of Michigan agriculture. The value of field crops at the farm level during 1993 was $1.82

billion, up eighteen percent from 1992 ($1.54 billion). This increase is a result of a combination of yield and price increases over 1992 (Michigan Agricultural Statistics Service, 1994). For example, there were increased yields in the production of dry beans (up 42%) corn (up 2%), hay (up 3.86 tons per acre), and soybeans (up 5 bushels per acre). The following crops experienced price increases from 1992: corn (average of $2.65 versus $1.95 in 1992), and soybeans ($6.50 per bushel versus $5.53 in 1992). Based on information provided by the Michigan Agricultural Statistics Service, it appears that the largest share of the increased value of field crops from 1992 to 1993 came from an increase in yield and total production.

Michigan ranked first in the production of cranberry beans, black turtle beans, navy beans, and all dry beans in 1993. Michigan also ranked fourth in the production of dark red kidney and light red kidney beans. This would seem to indicate that dry bean seed producers in Michigan should have easier access to a large local market relative to competitors from other geographic areas. This was true for a long time, until disease problems caused a shift away from Michigan for the production of selected dry beans (e.g., navy beans) which took its toll on both the commercial and seed production of dry beans in Michigan.

In addition to disease problems and production shifts, companies, such as, Asgrow began entering into licensing agreements with major producers of dry bean seed in the state of Michigan. These firms agreed to produce and market dry bean varieties produced from Asgrow seed stock, much of which had been propagated in the Western U.S. (Dean Peterson, 1994), further increasing the competitive pressures facing Michigan seed producers.

In 1993, Michigan ranked first in summer potato production (round white varieties) and ninth in fall potato production, and Michigan seed potato producers had access to the

fourth largest potato growing state (Wisconsin). Even though Michigan was located near substantial potato producing areas, it continued to remain a seed deficit state. Even if all of the seed potatoes that were produced in Michigan were sold to commercial Michigan potato growers, there would still not have been enough seed potatoes to meet the needs of the Michigan commercial potato growers. Michigan commercial potato growers were forced to seek sources of seed outside of Michigan.

In 1994, there were approximately 180 public variety field seed producing units in the state of Michigan growing about 27,000 acres of seed annually. Buyers had many sources of public variety seed to choose from in the field seed industry. On the other hand, the seed potato industry had only 27 seed producing units growing approximately 2,700 acres in 1994. On the surface, one might have expected that fewer seed producers would have meant more profit for existing producers. This was not the case because buyers had less variety to choose from and they often preferred buying seed potatoes from growing areas with a larger concentration of seed producers.

1.1.2 Importance of strategic analysis and planning research to the Michigan seed industry

The problems facing the Michigan public variety field seed and seed potato industries lent themselves to competitive strategic analysis and planning because they were marketing-oriented verses operational or personnel-oriented in nature. In general, Michigan public variety field seed and seed potato producers were competent at the technical aspects of producing seed.

Based upon preliminary discussions with seed industry leaders, it appeared Michigan seed producers were not losing ground to competition because they lacked operational or personnel skills. Michigan public variety field seed and seed potato producers were struggling because of: (1) who they competed against; large proprietary seed companies with trained sales forces, in the case of field seed; and organized, aggressive non-Michigan seed producers in the case of seed potatoes, and (2) what they were marketing; public variety field seed, seed potatoes, and services that were viewed as mediocre[3] verses proprietary field seed, seed potatoes, and services from non-Michigan sources.

The case study approach to research was employed to gather primary data. This data was then used to carry out the competitive strategic analysis. Conducting separate case studies on the Michigan public variety field seed and Michigan seed potato industries was justified because: (1) they were separate divisions within the MCIA, (2) the field seed industry was distinct from the seed potato industry; in terms of customer base and some key aspects of production technology used, and (3) Michigan seed potato producers derived the majority of their farm income from seed potato production, while many of the Michigan public variety field seed producers obtained a relatively small portion of their farm income from field seed production.

While it was justifiable to separate the field seed and seed potato industries into separate cases, there were comparable production and distribution technologies employed in each. Both seed industries relied on public and private breeding programs for genetic material. Michigan seed producers were responsible for increasing the genetic stock of a

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[3]In depth interviews with seed buyers and professionals associated with the Michigan seed industry indicated that in most cases, Michigan seed was viewed as average.

particular variety to a point where enough material was available for commercial sale. Many individual seed producers took on the responsibility for marketing the seed they produced directly to commercial producers, while others utilized brokers, elevators, or other middlemen to perform this function. The field seed and seed potato industries relied on MCIA to certify the varietal purity and genetic integrity of the seed they produced.

1.2 Objectives

Two general and eight specific objectives were identified to provide focus and direction for this research. The general and specific objectives are discussed below.

1.2.1 General objectives of the research

Two general objectives were chosen as an overall guide for this research:

1. **To introduce an analytical framework that could be applied to the Michigan public variety field seed and Michigan seed potato industries**. Seed producers came to the Agricultural Economics Department of Michigan State University requesting assistance in identifying ways to improve product usefulness, competitiveness, and profitability in their respective industries.

2. **To extend the application of strategic analysis and planning to an industry context**. A significant amount of strategic planning research had been carried out using individual firms. Michael Porter's work, which utilized the structure-conduct-performance paradigm of industrial economics as the basis for a competitive strategy theory was the most well known. Little, if any, strategic management research had been done with an industry group being analyzed using firm-level techniques. This research extends firm-level strategic planning to an industry-wide strategic planning process for the respective seed industries. For a specific application of this kind of methodology, see "Subsector Strategic Coordination Toward Improved Performance: A Framework and Apple Subsector Case Study," a 1995 Ph.D. dissertation, Michigan State University by Timothy Woods.

1.2.2 Specific objectives of the research

Out of the two general objectives, eight specific objectives were identified as being necessary to carry out effective research. Each of these objectives is presented below:

1. **To provide seed producers with an improved understanding** of the interdependency between seed producers (as competitors and colleagues; as public and private producers) and university and other professionals associated with their respective seed industries.

2. **To provide an analysis of the competitive forces** facing these seed industries. These forces will be analyzed to determine whether their collective force is strong or weak. Strong competitive forces imply a reduced likelihood for sustaining industry-wide profitability.

3. **To conduct an analysis of the strengths, weaknesses, opportunities, and threats (SWOT)** confronting Michigan public variety field seed and seed potato producers. Internal strengths and external opportunities reduce the strength of the competitive forces, while internal weaknesses and external threats increase the strength of the competitive forces.

4. **To propose a mission statement** suitable for seed producer associations in Michigan. This is a vision of what Michigan seed producers are trying to accomplish and become over the long-term. It will lay the foundation for the proposed strategic plan. The mission statement specifies what activities Michigan seed producers intend to pursue in the future, and it embodies core values and attitudes necessary to sustain profitability in the long-run.

5. **To propose a statement of goals/objectives for the respective seed industries**. Goals and objectives convert the core values and attitudes of the mission statement into measurable performance outcomes that will serve as a guideline for the strategic posture.

6. **To propose a strategic posture**. The strategic posture is a core plan of action, based on the SWOT analysis, mission statement, and objectives. The strategic posture is intended to commit Michigan seed producers to a way of achieving competitive advantages that are necessary to reduce the strength of the competitive forces, thereby increasing profitability.

7. **To provide broad recommendations** for implementing the strategic plan. This is a concise statement of the major actions to be pursued by Michigan seed producers.

8. **To provide specific recommendations** for carrying out the broad recommendations. Specific recommendations are specific plans of action designed to carry out the mission statement, objectives, and strategic posture.

1.3 Organization of the Research Findings

The remainder of this thesis is divided into four chapters: Chapter 2, literature review; Chapter 3, research propositions, research strategies, and proposed data collection procedures; Chapter 4, the strategic analysis, proposed strategic plan, and specific recommendations for the Michigan public variety field seed and seed potato industries; and Chapter 5, conclusions and implications for further research.

Chapter 2 is a review of the existing literature regarding the issues facing the seed industry, and a review of strategic planning/management literature. Where appropriate, this chapter distinguishes between the Michigan public variety field seed industry and the Michigan seed potato industry.

Research propositions, which are used to guide the research process, are presented in the beginning of Chapter 3. Possible research strategies common in the social sciences are then presented followed by a theoretical justification for the use of the case study research strategy. Chapter 3 concludes with a detailed discussion of the specific data collection process that was employed. These propositions are analyzed in chapter 4, and the results of the analysis evaluated against these propositions in Chapter 5.

Chapter 4 compares and contrasts the Michigan public variety field seed case study to the Michigan seed potato case study. The strategic analysis and strategic plans for the Michigan public variety field seed and seed potato industries are laid out in detail. In addition to strategic analysis and development of a strategic plan, broad and specific recommendations necessary to carry out the individual strategic plans are outlined.

Finally, Chapter 5 compares and contrasts the key findings of the two case studies presented in Chapter 4 to the research propositions stated in Chapter 3. The likelihood of industry adoption for each strategic plan is assessed and possible barriers to implementation suggested. Possible contributions to strategic management theory and areas requiring further research are discussed at the end of the chapter.

A glossary of terms and appendices, containing copies of the questionnaires used to collect data and a chronology of the research process, can be found in the back of the thesis, as a supplement to this work.

CHAPTER 2
LITERATURE REVIEW

Specifically, this review is divided into two sections: (1) seed industry issues, and (2) the use of strategic analysis and strategic planning in strategic management research.

The review of the issues facing the seed industry begins with an explanation of the role of certification and how it is changing. Key factors which will define the U.S. seed industry in the future are then discussed.

The review of strategic management literature begins with an explanation of the difference between strategic analysis, strategic planning, and strategic management. Next, the principles of strategic analysis and strategic management are presented. This is followed by the advantages of strategic planning, and by an explanation of the role of economics in strategic management. Finally the review of strategic management concludes by highlighting Michael Porter's influence on strategic management.

2.1 Issues Confronting the Seed Industry

Literature pertaining to the U.S. seed industry[4] has been reviewed in order to: (1) provide an overview of the existing literature regarding the changing seed industry, (2) add credibility to strategic analysis as a useful tool in analyzing the nature of these changes within

[4]The Michigan public variety field seed and seed potato industries are part of the larger U.S. seed industry.

the seed industry (e.g., the effects of private labeled seed on competition), and (3) identify possible opportunities and threats facing the seed industry (e.g., biotechnology, new public varieties).

2.1.1 The role of seed certification

The concept of seed certification was developed during the early 1900s to bring high quality seed of public varieties to farmers. Certification provided a way that farmers could have access to improved crop varieties developed by agricultural experiment stations. In recent years, there has been a rapid increase in the number of private seed varieties available for sale and use by commercial producers. Private seed varieties intended for export are much more likely to be certified because most importing countries require some form of certification. Much of the turf and forage seed sold in the U.S. is also certified. However, most of the private varieties of non-turf and forage seed sold to U.S. commercial producers is usually not certified. This was especially true for small grains, soybeans and corn (Copeland, 1993). The trend away from certification did not imply that the quality, vigor, and yield of these private varieties was less than seed that had been certified. Companies, such as, Pioneer invested heavily in research and development in order to create seed that met strict internal standards for quality, vigor, and yield, to establish brand identity in the marketplace.

There was a growing concern among seed certification agencies, such as, MCIA, about the future of certification programs. There had been a rapid increase in the number of private varieties that were not certified. These private varieties were usually targeted at the major field crops, such as, soybeans and wheat. There was also concern about the increasing use of "home-grown" or "bin-run" seed (seed that was planted by a farmer one year and a

portion of the crop was set aside to plant the next year), which reduced the demand for certified seed.

According to Gil Barber, a seed producer from Virginia, the advantages of seed certification can be summarized as follows: (1) commercial farmers have been educated to use certified seed and generally believe in it[5], (2) a third party inspector in the field, such as, a seed certification agent, helps to keep quality more consistent, (3) certification can be used effectively in some states to police and enforce public variety patent plants, and (4) working closely with various seed certification programs keeps seedsmen current for the betterment of the seed industry.

The disadvantages of seed certification, according to Barber were: (1) lost sales due to shipment delays because of holdups in state seed laboratories, (2) increased costs to the seedsmen due to the inspection, tag costs, etc., (3) some inspectors may lack experience in certain crops (inspectors are forced to be a "jack of all trades"), and (4) crop improvement personnel often create problems by interpreting what they believe a good variety should be and not allowing the breeder the freedom necessary for describing variation in a variety (Crop Science Society of America, 1985).

2.1.2 Forces of change in the U.S. seed industry

External forces which are shaping the seed industry include the industrialization of agriculture, changing intellectual property rights and patents, and breakthroughs in biotechnology. A separate subsection is devoted to each of these topics below.

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[5]The author believes this is changing because of marketing efforts of proprietary companies, such as, Pioneer.

2.1.2.1 Industrialization of agriculture

Fundamental changes are underway in the U.S. food system, changes that are altering traditional marketing relationships. Parts of the U.S. food system are becoming tightly integrated, such as, the poultry subsector (Barkema, 1993). The U.S. poultry subsector experienced dramatic restructuring during the 1960's. Economists refer to this as the "industrialization of agriculture". Agricultural industrialization is characterized by a shift from commodity-oriented products to consumer-specific products and a shift from spot markets to direct market channels, such as, production contracts (Drabenstott, 1994).

The seed industry has not been immune from the industrialization of agriculture. This industrialization has manifested itself in the form of fewer and larger commercial producers who purchase seed. All else being equal, fewer and larger buyers can translate into increased buying power for those producers who remain in business.

The traditional seed customer group (people who farm as a lifestyle) is declining. According to Gregory I. Wickham (1994), director of business redesign for Agway's Agricultural Group, two groups of business farmers are in farming to make a profit: the "cost group," and the "production group." The cost group tries to reach a profit by having the lowest cost per unit. These farmers want value and they demand it at reduced prices. Supplying seed to these fewer and larger seed buyers requires improved selling skills and tougher negotiation skills.

The primary goal of the production group is yield. These farmers want products that deliver maximum yield, but not at any price. To achieve maximum yields, varieties must be adapted to specific soils and climatic conditions. Private seed companies have done a better

job than public varieties at developing new varieties that meet these specific geographic and climatic needs.

Fewer and larger producers (concentration issues), the replacement of labor with technology, and the need for higher management skills are just a few products of the industrialization of agriculture. The industrialization of agriculture as it relates to the Michigan seed industry is explored in greater detail in Chapter 4.

2.1.2.2 Changing intellectual property rights

Intellectual property rights will play an increasingly important role in the U.S. and world seed industries. Germplasm is a crucial resource whose importance will be further increased by its role as the essential raw material of the new biotechnologies. In November, 1983, FAO's 22nd Biennial Conference adopted a resolution with the premise that plant genetic resources are a heritage of mankind and should be available without restriction. The purpose of this resolution was to encourage worldwide preservation, evaluation, and exchange of germplasm. However, there are differing world views as to what constitutes plant genetic resources. Third world advocates maintain that the rich, but gene-pool poor northern hemisphere is dependent on the poor, but gene-rich southern hemisphere, and they complain there are inequities in the international system of gene exchange.

In addition to primitive cultivars, land races, and wild plant relatives, the FAO undertaking implies that the term "plant genetic resources" includes elite and current breeders' lines and hybrid parents. Therefore, according to the FAO, these materials must also be freely exchanged. This enlarged view of genetic resources has been wholly unacceptable to those nations with highly private seed industries (Kloppenburg and Kleinman, 1987). Alfred A.

Schmid argues intellectual property rights are ineffective because of the genetic nature of most seed. Buyers are able to purchase one unit of seed, which gives them the genetic blueprint and factory for making more (Schmid 1988).

While Kloppenburg and Kleinman's paper supports the idea of some form of plant variety protection for third world countries, others disagree. H.G. Wilkes (1987) states that "Once payments are made to the developing world for genetic resources, there will be no reversing the current trend of owning the marketing rights to genes by patenting life forms." There is also the problem of establishing which genes and how many were used, or what country will pay for them. This debate is yet to be settled and is likely to turn into a lengthy legal battle. The main concern for Wilkes is that cultivated plants are a part of our heritage and this public good should not be allowed to become a private good.

2.1.2.3 Patents

The use of patents is common in the seed industry. A patent is the awarding of exclusive ownership of a new invention, enabling the developer to obtain whatever rewards (economic rents) that might accrue. A government-granted patent confers certain rights and privileges on its owner and is considered private property. The idea behind a patent is to create an incentive for new product development by granting a period of exclusivity (recently extended to 20 years), after which the process, technology, or proprietary information is available to all as a public good.

Patent protection is often in conflict with the conditions necessary for the efficient functioning of a competitive market. Patents may create barriers to entry, impede the flow of information and the mobility of factors of production. By definition, a patentable product

is unique, implying the absence of comparable products (one of the goals of strategic planning is to find ways to differentiate a firm or product from the competition).

If the use of patents fly in the face of competitive markets, why are they allowed? There are two reasons: (1) the patent is not viewed as government regulation, but as a fundamental part of the institution of private property, as protection against theft, and (2) whenever the social marginal value product is greater than the private marginal value product of an activity, and the social marginal cost is less than the private marginal cost, it is in the government's best interest to direct resources toward the activity, since societal welfare can be improved (Claffey, 1981). For example, society has benefited greatly from new seed varieties in terms of increased food security. It could also be argued that the cost to society (in the form of monopoly prices on seed for the life of the patent) is outweighed by society's increased access to new genetic technology and material.

The counter argument against the patenting of new plant varieties is usually stated as "does patenting result in a loss of genetic diversity and increase the tendency for significant economic concentration among a few firms?" The economic concentration issue arises from concerns that patents impede the flow of information, create barriers to entry, and enable undue price enhancement.

A case for the patenting of plants can be supported from the viewpoints of both large and small seed firms. Large seed companies, such as, Asgrow, invest large sums of money into research and development of new plant varieties and patents to provide one form of insurance against competitors who hope to copy Pioneer's varieties without spending as much on research and development.

From a small seed company's perspective, without some form of intellectual property rights protection, such as, patents, only the largest seed companies could afford to spend money on research and development of new varieties. A patent helps level the playing field between smaller and larger firms in the seed industry.

The Plant Variety Protection Act (PVPA) was enacted into law on December 24, 1970. The preamble of the act reads as follows: "To encourage the development of novel varieties of sexually reproduced plants and to make them available to the public, providing protection available to those who breed, develop, or discover them, and thereby promoting progress in agriculture in the public interest." The PVPA enabled patents to be obtained for sexually reproduced plant varieties (Asgrow Seed Company, 1982). The PVPA was amended in 1980 to broaden the list of plants eligible for patenting and in 1994 the law was again amended to allow the inclusion of potatoes under plant variety protection.

2.1.2.4 Biotechnology

Biotechnology is defined as any technique that uses living organisms or processes to make or modify products, to improve plants or animals, or to develop microorganisms for specific uses. Scientists using recombinant deoxyribonucleic acid (RDNA) and cell fusion can isolate, clone, and study the structure of an individual gene and explore the gene's function. This new knowledge and skill allows scientists to exercise new control over biological systems. Scientists have been working on incorporating living natural enemies in plants to reduce pest populations; for example, incorporation of the Bt gene in potatoes for control of the Colorado potato beetle. Other recent uses of biotechnology include the BST for increased

dairy production and the Flavr Savr® tomato, with its increased shelf life. This rapid pace of technological change has been aided by changing public policy.

In the mid 1980s, a controversy arose in Europe over whether new plant varieties produced by genetic engineering methods could or should be patented. Several large European chemical companies had been investing large sums of money in research involving biotechnology. These companies claimed their investment could only be justified if they were able to obtain patent rights to all plants that may eventually result from the use of the research results. This level of protection was opposed by traditional plant breeders who had ownership of any new plant variety they could create, regardless of who held the rights to the "parent" variety. Many plant breeders were concerned that if patent rights are allowed on new varieties produced by genetic engineering, it could lead to a virtual take-over of their profession by large chemical and pharmaceutical companies, such as, Bayer and Merck (Dickson, 1985). Many third world countries have been critics of plant breeders' rights claiming that they have lead to environmentally damaging agricultural practices and a reduction in the world's bio-diversity.

In 1980, the U.S. Supreme Court, in the case of Diamond versus Chakrabarty, ruled that investors in new microorganisms, whose inventions otherwise met the legal requirements for obtaining a patent, could not be denied a patent solely because the innovation was alive. One interpretation of this ruling is that life forms are patentable. Many biotechnologies will substitute for conventional purchased inputs (e.g., biopesticides). Some biotechnologies will complement existing technologies (e.g., plant breeders incorporating biotechnology-induced traits into commercial lines).

Successful adoption of specific biotechnology will result in additional profits for some (especially early adopters). Late adopters will be faced with lower product prices and declining profits (Boone and Kurtz, 1977). Adoption of new technologies may require a higher quality of management. For example, using BST to increase milk production will not pay for itself unless its application is carefully managed. Intellectual property rights protection is one of the most important incentives for the commercial development of biotechnology because it provides protection to the owner of the intellectual property right (Office of Technology, 1992).

One outcome of changing intellectual property rights within in the U.S. seed industry is the increased use of methods to restrict access of genetic material produced in the public sector. These methods include: (1) the release of a new public variety to a group of seed producers instead of to individuals, (2) access restrictions based on uses, such as, research, (3) licensing and promotional fees, (4) royalties, and (5) the use of labeling (Shepard, 1989).

2.1.3 Conclusions regarding seed industry issues

The literature review of seed industry issues illustrates the dynamic nature of the U.S. seed industry and the critical need for strategic analysis and planning on the part of Michigan public variety field seed and seed potato producers to determine appropriate future directions. The increasing popularity of private varieties which do not go through normal certification channels could weaken the importance of certification in the eyes of commercial buyers, as well as suggest that publicly-released variety seed growers consider alliances with private seed companies to maintain sales and profits.

At the time this research was conducted, the U.S. legal climate favored the increasing use of patents, even for those plant varieties developed with biotechnology. Public variety seed producers will continue to face pressure from both buyers and suppliers. Buyers continue to become fewer and larger in size, which means they are able to exert considerable influence on the seed development and buying process. Seed producers wishing to sell products and services to these fewer and larger seed buyers are likely to need improved marketing skills.

Regarding suppliers, it is quite possible that through the use of new technology, such as, biotechnology, seed may become the means by which the huge chemical and pharmaceutical companies choose to market their products and technology (e.g., Roundup® resistant soybeans). These companies will seek only the best possible seed channels to market their products and services and this may not include public variety seed producers.

2.2 The Use of Strategic Analysis and Strategic Planning in Strategic Management Research

According to Miller and Dess (1996) strategic analysis consists of three parts: (1) consideration of the organization's strategic intent, (2) exploration of the opportunities and threats present in the internal environment, and (3) a study of the organization's internal strengths and weaknesses. This paper defines strategic analysis as the process of challenging assumptions and beliefs, both inside and outside the firm (similar to SWOT analysis as represented by Miller and Dess), as well as choosing the firm's desired accomplishments (e.g., establishing a mission and setting goals and objectives).

Strategic planning could be defined as "focusing on the market environment facing the firm resulting in an in-depth understanding of competitors and customers, increasing the ability to anticipate changes that have strategic implications (Aaker, 1988)." Pearce (1994) defines strategic planning as an on-going process, a mind set that is used to improve performance through the development and implementation of better strategies. For the purpose of this paper, strategic planning is defined as the process of developing and/or altering and implementing strategies based on strategic analysis.

In this paper, strategic management is described as an on-going dynamic process that is composed of strategic analysis and strategic planning leading to a set of decisions and actions resulting in the formulation and implementation of plans designed to achieve a company's performance objectives (Pearce, 1994 and Peterson, 1994).

Managers devise strategies to guide how a company's business will be conducted, and to help make reasoned choices among alternative courses of action. Performance could mean profits, market share, sales, customer satisfaction, etc. Major goals of this research and resulting strategic plan include finding and presenting ways to improve competitiveness, product usefulness and profitability for Michigan public variety field seed and seed potato producers.

There can be several possible scenarios about how an industry will evolve and what future conditions will be. For this reason, strategic analysis leaves room for differences of opinions. While there may be different viable scenarios, this doesn't imply that shortcuts should be taken when conducting the analysis (Thompson & Strickland, 1995). For example, Michigan seed producers may believe that profitability is low in their respective seed industries, and they may have strong opinions regarding why there is a lack of profitability.

Competitive analysis may reveal contributing factors to the lack of profits, such as, numerous substitutes, the high bargaining power of buyers, the threat of new entrants into the seed industry, and intense rivalry among seed producers.

The following subsection is divided into five parts: (1) principles of strategic analysis and strategic management, (2) the advantages of strategic management, (3) the role of economics in strategic management, (4) Michael Porter's influence on strategic management theory, and (5) conclusions regarding the use of strategic planning/management in research.

2.2.1 Principles of strategic analysis and strategic management

According to Arthur A. Thompson and A. J. Strickland (1995), business professors at the University of Alabama, the strategic planning process should include at least five steps:

> "1. Deciding what business the company is in and forming a strategic vision.
> 2. Converting the strategic vision and mission into measurable objectives and performance targets.
> 3. Crafting a strategy to achieve the desired results.
> 4. Implementing and executing the chosen strategy efficiently and effectively.
> 5. Evaluating performance and making adjustments to the strategic plan." p. 3

These five interrelated managerial tasks are illustrated in Figure 2.1. The five components listed in Figure 2.1 define what is meant by the strategic management process. The competitive analysis, SWOT analysis, strategic posture, broad recommendations, and specific recommendations presented in this thesis are all based on these five tasks of strategic management.

This research will focus on the first three steps: (1) deciding what business Michigan public variety field seed and seed potato producers are in, (2) converting strategic vision and mission into measurable objectives, and (3) crafting a strategy to achieve the desired results.

The final two steps of implementation/execution, and evaluation are the responsibilities of Michigan public variety field seed and seed potato producers.

The seed industry is constantly changing, which implies that competitive analysis must utilize a method which takes into account this changing environment. Seven questions must be answered (Thompson & Strickland, 1995):

"1. What are the industry's dominant economic traits?
2. What competitive forces are at work in the industry and how strong are they?
3. What are the drivers of change in the industry and what impact will they have?
4. Which companies are in the strongest/weakest positions?
5. Who is likely to make what competitive moves next?
6. What are the key success factors for the industry?
7. How attractive is the industry in terms of its prospects for above average profitability?" p. 61

The interview process developed for this research was designed specifically to address these seven questions. The answers to all seven questions can be found in the case studies presented in Chapter 4.

Competitive analysis is the process by which a company attempts to define and understand its industry, identify its competitors, determine the strengths and weaknesses of its rivals, and anticipate their moves. Proper competitive analysis helps a company avoid surprises in the marketplace by anticipating competitors' moves, and shortening the time required to respond to them. Therefore, competitive analysis serves as the foundation for a firm's strategy formulation processes. Competitive analysis also contributes to the successful implementation of a company's strategy (Zahra et. al.,1993).

The essence of formulating competitive strategy is relating a company to its environment. Although the environment is very broad, encompassing social as well as economic forces, the key aspect of the firm's environment is the industry or industries in

which it competes. Industry structures have a strong influence in determining the competitive rules of the game as well as the strategies potentially available to the firm. Forces outside the industry usually affect all firms in the industry. The key is found in the differing abilities of firms to deal with them (Porter, 1980). This is the primary purpose of conducting a competitive analysis followed by an analysis of the strengths, weaknesses, opportunities and threats facing the Michigan public variety field seed and seed potato industries.

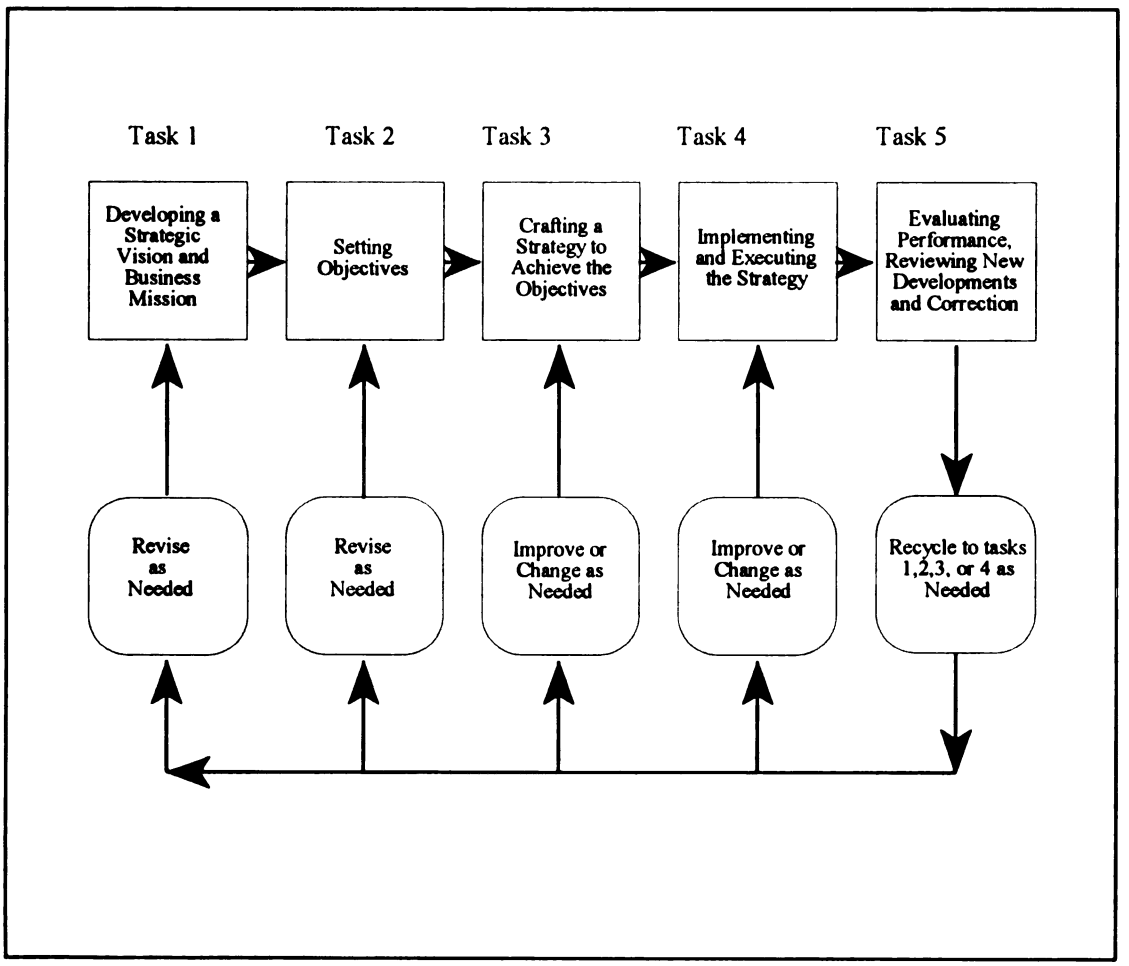

Figure 2.1 The five tasks of strategic management

Source: Crafting and Implementing Strategy by Thompson and Strickland 1995

Crafting a strategy is an analysis-driven exercise, not an activity where managers can succeed solely on good intentions and creativity. Judgement about what strategy to pursue are grounded in the probing of a company's external and internal environments. A company's strategy must be well matched to both external and internal circumstances (Thompson & Strickland, 1995). Strategy is a deliberate search for a plan of action that will develop a business's competitive advantage and compound it. The search should be an iterative process that begins with recognition of where the company is now and what it has now (Henderson, 1991).

2.2.2 Advantages of strategic management

There are several advantages of first-rate strategic analysis/planning and strategic management. These advantages[6] include:

1. Better guidance for the entire organization on the crucial point of what it is, and what the business is trying to do and to become.

2. Makes managers more alert to the winds of change, new opportunities, and threatening developments.

3. Provides managers with the rationale that argues strongly for steering resources in a direction that supports the strategic plan.

4. Helps to unify the numerous strategy-based decisions that an organization makes.

5. Creates a more proactive management versus a reactive style.

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[6]Adapted from "Crafting and Implementing Strategy," 6th ed., by Thompson and Strickland (1995).

Doing a good job of managing requires sound strategic thinking and consistent strategic management. Today's seed producers must think strategically about their companies' positions in the marketplace and about the impact of changing conditions on their survival.

2.2.3 The role of economics in strategic management

During the last 25 years, there has been an infusion of economics into strategic management, driven by five forces: (1) the need to interpret performance data, (2) the experience curve, (3) the problem of persistent profit, (4) the changing nature of economics, and (5) the changing climate within business schools (Rumelt et al., 1991).

In the early 1970s, strategy researchers began to look systematically at corporate performance data in attempts to link results to managerial action. Changes in market share and changes in profitability were related in every context examined. It was impossible to interpret these results without economic theory and advanced econometrics ( ). Rumelt, etal. (1991) go on to say:

> "Strategic management and economics are not the same thing, in research or practice. While new economics offers the most promise, its the old economics in the form of industrial organization that, thus far, has made the greatest contribution. Strategic management has clearly profited from the infusion of economic thinking. It is vital to recognize that this infusion has come only after the weakening of the orthodoxy within economics. While economics has been chiefly concerned with the performance of markets in the allocation and coordination of resources, strategic management is about coordination and resource allocation inside the firm. This distinction explains why so much of economics is not readily applicable to the study of strategy." p.5

Strategy researchers also began looking at experience curves to explain differences in performance. The idea behind the experience curve is that cumulative production

experience, not scale, could be a primary driver of unit costs. This implied a value in doing business apart from the immediate profits earned. Strategy researchers have long noticed that some firms in an industry do better than others, over long periods of time. Neoclassical economics would predict that competition would erode the extra profits earned by such firms. The problem of persistent profits drove strategy researchers to search for additional theoretical explanations.

During the last 30 years, economics has made attempts to develop theories that better explain persistent profits. These attempts include the theories of uncertainty, asymmetric information, bounded rationality, opportunism, asset specificity, organizational behavior, and positive agency theory. Beginning in the 1950s, business schools began reacting to allegations that they needed to be infused with more rigor, methods and content. The rapid growth of business schools created an excess demand for faculty positions. Some of these positions were filled by economists.

Specific examples of how economics has affected strategic management include: (1) traditional entry-barrier theory yielded the concepts of scale economics and sunk costs; mobility barrier theory stressed the importance of learning and first-mover advantages in making specialized investments, (2) the Chicago school supported the notion that high profits were returns to specialized high-quality resources, (3) game theory provided models of firms which use preemption, brand crowding, dynamic limit-pricing, signaling, and reputation for toughness to strategically protect market positions, (4) the economics of innovation brought a focus on Schumpeterian competition, intellectual property, and the costs of technology transfer, and (5) transaction cost economics (Rumelt et al., 1991).

Transaction cost economics has the greatest affinity with strategic management. Much work has been done in applying the transaction cost framework to issues in organizational structure. Transaction cost economics theory was developed by Ronald Coase and enlarged by Oliver Williamson. This theory argues that contractual arrangements among and within firms are the result of efficiency-seeking behavior in a world of limited information and incomplete enforcement possibilities (Oster, 1994).

2.2.4 Michael Porter's influence on strategic management theory

The most influential change in the 1980s came from Michael Porter in his work titled *Competitive Strategy*. Porter's work was built on the structure, conduct, performance (S-C-P) paradigm of industrial economics. At the same time, the University of Chicago saw a particular industry structure as reflecting efficiency outcomes rather than market power. In this tradition, differences in performance tend to signal differences in resource endowments (Rumelt et al., 1991).

There has been a great deal of work aimed at synthesizing these ideas into coherent frameworks (the most prominent being Porter's work). Porter changed the Industrial Organization perspective from that of the industry, to the viewpoint of the firm, and formulated what had been learned from this perspective into a theory of competitive strategy. The research in this thesis extends Porter's analytical framework from the application of strategic analysis and planning on a firm by firm basis to the application of strategic analysis and planning across a collection of firms in an industry. The strategic plan presented in this research is a strategic plan for all the seed producing firms in the Michigan public variety field

seed and Michigan seed potato industries. The collection of firms in these industries are treated as "a singular firm" in the style of Michael Porter's work.

Strategic planning examines the way in which firms can compete more effectively to strengthen their market position. Any such strategy must occur within the context of socially desirable rules for competitive behavior, established by ethical standards and public policy. These rules of the game cannot achieve their intended effect unless they are designed to anticipate correctly how businesses respond strategically to competitive threats and opportunities (Porter, 1980).

2.2.5 Concluding remarks regarding the use of strategic management in research

Michigan public variety field seed and seed potato producers are facing a number of complex issues including the industrialization of American agriculture and the increasing role of biotechnology in the production of seed. The strategic management paradigm utilizes a comprehensive framework of analytical techniques to help a firm analyze its industry as a whole and predict the industry's future evolution, to understand its competitors and its own position and to translate this analysis into a competitive strategy for a particular business.

There are two important aspects regarding the development of a strategy for analyzing an industry. The first is to determine just what it is one is looking for. Second, it is crucial to have a framework for systematically collecting and analyzing data (Porter, 1980). The approach used in this research is based on such a framework.

CHAPTER 3
RESEARCH PROPOSITIONS, RESEARCH STRATEGIES, AND THE PROPOSED DATA COLLECTION PROCESS

This chapter is divided into three sections: research propositions, research strategies, and proposed data collection process. Research propositions are used in this study instead of hypotheses because propositions direct the researcher's attention to something that should be examined within the scope of the study (Yin, 1994), while hypotheses are preliminary assertions regarding some unknown phenomena (Ghauri, 1995). While these two definitions could be interchanged, it is traditional to associate propositions with case studies and hypotheses with other research strategies.

The research strategies section presents alternative research methods and discusses the appropriateness of each method under various scenarios. The case study method of research is then offered as the most appropriate research strategy given the parameters of this study.

The proposed data collection process section includes a discussion of the potential "blind spots" in competitive analysis and the use of multiple-strata quota sampling procedures appropriate for this type of research. This section concludes with an explanation of the proposed questionnaire to be used for the collection of data from face-to-face and telephone interviews.

3.1 Research Propositions

This research does not lend itself to the creation of multiple hypotheses or propositions that can be tested with sophisticated statistical techniques. The detailed nature of the analysis, limited number of observations, and lack of specific numerical data prohibit standard hypothesis testing. This research does lend itself to the testing of research propositions by comparing the findings of the strategic analysis and recommendations of the two case studies. One case consisting of the strategic analysis and plan for Michigan public variety field seed producers and the other, the strategic analysis and plan for Michigan seed potato producers.

Given the need to study the "contextual conditions" of the cases and the nature of the propositions (there are likely to be more variables of interest than there are data points) it is not entirely clear how to test the propositions. Yin addressed this issue stating:

> "Unlike statistical analysis, there are few fixed formulas or cookbook recipes to guide the analysis for novices. Instead, much depends on an investigator's own style of rigorous thinking, along with the sufficient presentation of evidence and careful consideration of alternative interpretations" p. 102-103

Additional justification for the case study research strategy as an appropriate method for testing research propositions is presented in an upcoming section of this chapter entitled "Case study as the preferred research strategy".

In the beginning of the research process, six research propositions or areas of study were identified:

1. ***Day to day competition between producers is only a partial explanation for the lack of profitability in the Michigan public variety field seed and seed potato seed industries.***

When MCIA approached the department of Agricultural Economics, day to day competition, or rivalry, was offered as the primary cause of the lack of profitability. While rivalry can contribute to low profitability, it is only one of five competitive forces that ultimately determine the potential for profits in an industry. Therefore, the relative importance of rivalry and the interaction between the intensity of rivalry and the other forces needs to be studied.

2. ***Michigan public variety field seed and seed potato producers have few competitive advantages, many competitive disadvantages, and face limited opportunities and a myriad of threats.***

Lack of profitability in their respective industries drove the Michigan public variety field seed and seed potato producers to seek outside help in developing a strategic plan to correct the lack of profitability. Analysis of strengths, weaknesses, opportunities, and threats (SWOT) often indicates that firms which suffer from low profitability usually have many competitive disadvantages, few competitive advantages, have limited opportunities and face many threats. Again, this warrants further study.

3. ***The perception of Michigan public variety field seed and seed potato producers regarding their products and services is different than the perception of the buyers of Michigan public variety field seed and seed potatoes, leading to reduced competitiveness and product usefulness.***

Michigan public variety field seed and seed potato producers are likely to view their products and services to be of equal value or better than competitors products and services, while buyers of Michigan public variety field seed and seed potatoes may view them as below average. If there is a significant difference in perceptions between producers and buyers, the nature and extent of this difference must be analyzed, if meaningful implications are to be derived.

4. ***Michigan public variety field seed and seed potato producers' best chance for long-term viability in the seed industry is to work together in a cooperative manner.***

Working cooperatively is only one possible alternative action that seed producers might pursue. Other courses of action include: (1) "going it alone" in the marketplace and letting the price wars continue, (2) individual Michigan seed producers could form strategic alliances with proprietary seed firms or with seed producers from other geographic areas, and (3) individual growers may decide to engage in some form of vertical integration (e.g., using centralized control down stream in their seed value chain).

A review of the literature revealed that the size and vertical coordination capabilities of leading firms and groups in the respective seed industries may add pressure on the Michigan public variety field seed and seed potato producers to cooperate more in the future. For example, Pioneer is the largest seed corn company in the U.S. with 45% of the market. Pioneer is very skilled at leveraging this market size to sell products that compete directly with Michigan public variety field seed. Further analysis is needed to determine the competitive advantages and disadvantages of Michigan seed producers in order to assess which course of action is appropriate.

5. ***The best plan of action for Michigan public variety field seed and seed potato producers may be to exit their respective industries.***

   If the strategic analysis, which includes analysis of the competitive forces, and SWOT analysis verify propositions one and two, and the seed producers are not able to find more ways to work together (proposition four), then a strong case could be made for Michigan public variety field seed and seed potato producers to exit their respective industries.

6. ***Implementation of an industry-wide strategic plan will not take place until a critical mass of producers in each industry believes their individual livelihoods are in jeopardy.***

   Given the expected interdependence between seed producers, successful implementation requires more than the adoption of the industry strategic plan by a few leading firms. This proposition also suggests that it is all too common for agricultural producers to be preoccupied with the technical aspects of their business, which contributes to their unwillingness to change until their way of life is threatened.

These research propositions will be compared to the actual findings of the strategic analysis and recommendations of the two cases. The results will be presented in Chapter 5: Conclusions and Implications for Further Research.

3.2 Research Strategies

This section on research strategies examines (1) alternative approaches for addressing the research problem, and (2) the case study as the preferred research strategy. Several alternative approaches to conducting social science research are examined. Their applicability

to various types of research questions are then presented. The case study as the preferred research strategy section contains a brief explanation of the major concepts, followed by the strengths and limitations of the case study research strategy, and concluding remarks.

3.2.1 Alternative approaches for addressing the research problem

There are several ways to approach social science research, including experiments, surveys, histories, case studies, and the analysis of archival information. Each strategy has its advantages and disadvantages, depending upon three conditions: (1) the type of research question being asked, (2) the control the investigator has over actual behavioral events, and (3) the focus on contemporary as opposed to historical phenomena (Yin, 1994).

The type of research strategy (experiments, surveys, histories, etc.) used in a particular study depends upon the phase of the research. Research phases can be either: (1) exploratory, (2) descriptive, or (3) explanatory in nature. Exploratory research is primarily concerned with answering "what" questions. Descriptive research is best suited to answer "who" and "where" questions, and explanatory research is based on answering questions of "how" and "why."

Table 3.1 presents the relevant situations for different research strategies. The five research strategies: experiment, survey, archival analysis, history, and case study are presented. Each strategy is assessed according to the three conditions described above. The importance of each condition, in distinguishing among the five strategies is discussed below.

The type or form of research question being asked

The first condition is the type or form of research question being asked. One categorization for these types of questions is the familiar "who", "what", "where", "how", and "why." Research questions that focus mainly on "what" questions are exploratory in nature. For example, Michigan seed producers could be asked "What are your strengths as a seed producer?" Any of the five research strategies can be used as an exploratory study. In this study, exploratory research could be carried out by the use of face-to-face, phone interviews, and an extensive review of literature.

Table 3.1 Relevant Situations for Different Research Strategies

Strategy	Form of Research Question	Requires Control Over Behavioral Events?	Focuses on Contemporary Events?
Experiment	How Why	Yes	Yes
Survey	Who What Where How How Many Much	No	Yes
Archival Analysis	Who What Where How How Many Much	No	Yes or No
History	How Why	No	No
Case Study	How Why	No	Yes

Source: COSMOS Corporation

The second type of research questions are based on "who", "where", "how many", and "how much", and are descriptive in nature; for example "how much of your entire farm revenue is derived from seed production?". These questions favor survey strategies or archival analysis, common to agricultural economics research. These strategies are most

advantageous when the research goal is to describe the incidence or prevalence of a phenomenon or when the goal is to be predictive about certain outcomes. In this study, descriptive research could be carried out by the use of face-to-face, phone interviews, and study of archival records that could be requested from the MCIA.

Explanatory research is best accomplished by asking "how", and "why" questions and are likely to lead to the use of case studies, histories, and experiments. Such questions deal with operational links needing to be traced over time, rather than mere frequencies or incidence (Yin, 1994). For example, seed producers could be asked "why are you willing to pay up to $7.00 more per bag for Pioneer brand seed as opposed to Michigan public variety field seed?" In this study, explanatory research could be carried out by the use of detailed, and sometimes lengthy, face-to-face and phone interviews.

Does the researcher have control over behavioral events?

Of the five research strategies, only one, experiment, requires that the researcher has control over behavioral events. In this study, the researcher is likely to have little control over behavioral events. This means that conducting an "experiment" to achieve the explanatory power sought would not be advised. However, the case study and historical archival strategies do not require control over events and still could be used for explanatory purposes.

Does the research focus on contemporary events?

Of the two remaining strategies suited for explanatory purposes, only the case study method focuses on contemporary events. In general, case studies are the preferred strategy when "how", and "why" questions are being posed, when the investigator has little control

over events, and when the focus is on a contemporary phenomenon within some real-life context (Yin, 1994).

3.2.2 Case study as the preferred research strategy

It will be argued in this sub-section that the case study research strategy is best suited to accomplishing the objectives of this research as stated earlier. The case study is a research strategy which focuses on understanding the dynamics present within single settings. Case study research involves a detailed examination of a relatively few persons, items, or entities. The case study approach, while used extensively in medical and psychological research, is just beginning to gain acceptance in the agricultural economics profession as a valid research tool. In social science, the case study is typically not of an individual, but an organization or community.

There has been a transition in academic research from using clinical case studies of actual situations to develop generalizations through induction[7], to a new research style based on deductive[8] methods utilizing the falsification method of Popper[9] and the statistical methods of multi-variate analysis (Rumelt et al., 1991). Case study research is well suited to inductive research methods. However, there is a place for case study analysis in deductive research. Case studies typically combine data collection techniques, such as, archives, interviews,

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[7]The inductive method of reasoning states that science starts with experience and proceeds through observation and experiments to the framing of universal laws and theories.

[8]Deductive reasoning seeks to derive hypotheses from theory. Observations are gathered that supports, expands or contradicts theory and suggests further study.

[9]According to Popper, you can never demonstrate that anything is materially true, but you can demonstrate that some things are materially false. For a more detailed explanation of Popper's views see Blaug (1992). "The Methodology of Economics or How Economists Explain."

questionnaires[10], and observations. The evidence may be qualitative, quantitative or both (Eisenhardt, 1989). Multi-variate analysis is designed for use in the interpretation of quantitative data, while the case study method can be used for both qualitative and quantitative data.

The case study method is better conceived as a simultaneous treatment and observation that can be made over a period of time. The case study research strategy focuses on understanding the dynamics present within single settings (Eisenhardt, 1989). Case analysis lends itself readily to include single or multiple cases. This would fit the need to study both the Michigan public variety field seed industry and the Michigan seed potato industry.

3.2.2.1 Strengths of the case study research strategy

Traditionally, case studies were thought only appropriate for the exploratory phase of an investigation, that surveys and histories were appropriate for the descriptive phase, and that experiments were the only way of doing explanatory or causal inquiries (Yin, 1994). This hierarchal view of the research phases reinforced the idea that case studies could not be used to describe or test propositions. A more appropriate view of these different strategies is that a case study strategy can be used for all three purposes: exploratory, descriptive, and explanatory.

The unique strength of a case study is its ability to deal with a full variety of evidence: documents, artifacts, interviews, and observations. The case study lends itself to the task of

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[10]A copy of the questionnaire used in face-to-face interviews is included in Appendix A.

investigation of a complex process that contains many uncontrollable variables of unknown importance a priori. It is the method of choice under such conditions where it is desirable to obtain a wealth of detail and primary data about the subject of interest (Simon, 1978). The case study itself is best regarded as a self-contained analysis of an often complex situation, relationship, or system that seeks to test an explanation of what is observed rather than a single variable or factor (Woods, 1995).

Studies of individual cases allow the researcher to learn intricate details and provides insight into the problem being considered, which aids in the process of prescribing a course of action (Kennedy, 1979). This detailed insight is required when it is necessary to probe deeply into systems governing behavior and the interrelationships between people and institutions: to establish and explain attitudes and beliefs, and to show why certain behavior occurs (Casley and Lury, 1987).

The case study uses a mixture of methods including: personal observation, the use of informants for current and historical data, straightforward interviewing, and the study of relevant documents and records. The concentrated, skill-intensive nature of the case study enables the use of both objective methods of measurement and the detailed probing of attitudes and background. The case study is best employed when the analyst is presented with an unusual opportunity to examine and interact with an actual, on-going process in its real-life context (Yin, 1981).

The case study method can be invaluable in the formative stages of investigation when hypotheses or propositions are not fully formed, and when engaging in the pursuit of clues or guidelines for further research. The challenge facing the researcher then is to investigate

objectively and to describe what could be seen or confirmed by another observer (Simon, 1978).

3.2.2.2 Weaknesses of the case study research strategy

Case studies have often been viewed as a less desirable form of inquiry than either surveys or experiments. The greatest concern has been over the lack of rigor of case study research. Unfortunately, all too often the case study investigator has been sloppy and has allowed equivocal evidence or biased views to influence the direction of the findings and conclusions. What is often forgotten is that bias can also enter into the conduct of experiments and the designing of questionnaires, etc. Problems of bias are common to all five of the research strategies mentioned earlier, but in case study research, they may have been more frequently encountered and less frequently overcome (Yin, 1994).

The second concern about case studies is that they provide little basis for scientific generalization. How can one generalize from a single case? The answer to this question is not an easy one. One could ask the same kind of question of an experiment: "How can you generalize from a single experiment?" Yin addresses this topic specifically in his book "Case Study Research: Design and Methods" published in 1994:

> "Case studies, like experiments, are generalizable to research propositions and not to populations or universes. In this sense, the case study, like the experiment, does not represent a "sample," and the investigator's goal is to expand and generalize theories (analytic generalization) and not to enumerate frequencies (statistical generalization)." p. 10

A common criticism of generalizing from a small sample to a larger population is that the researcher must be careful to avoid oversimplification. Inferences based on generalizations are always tentative. Data might offer confirming or disconfirming evidence,

but never conclusive evidence. Data observed from the case can include complex system inter-relationships that may or may not be unique to the conditions under which they were observed. Inferences drawn from these data may be improved by combining observations from the case study with economic, business, or organizational theory and other cases, even if unrelated (Kennedy, 1979). In fact, the strategic planning paradigm is based on industrial economic theory.

An additional question regarding generalizing from case studies is, can a researcher generalize from the statements of purposely selected respondents? How can one generalize from the statements of witnesses not randomly selected to validate statements about the whole group under study? The key lies in the homogeneity of the group being studied. If a group is sufficiently homogeneous, then it is possible that limited inquiries may work satisfactorily (Casley and Lury, 1987). The producer characteristics of the Michigan public variety field seed and seed potato industries will be studied to determine if seed producers share common experiences and physical market locations and therefore can be considered a homogeneous group. Both groups of producers are considered sufficiently homogenous to make it possible to carry out a separate case study for each industry.

The level of detail and time demanded to conduct a case study limits the number of case studies that can be conducted. This implies a need to select subjects in a way that is not random, but selected in such a way as to assure representation of the various types of interest within the two industries studied. If selected at random, some interests would be over-represented, while others under-represented. Stratification may resolve this problem allowing for random selection in each stratum. Although a single case study may be too small to make generalizations on a population (in this case an industry), one may be able to reject existing

generalizations (Casley and Lury, 1987). A large sample or number of cases is not needed to develop theory. Theory can be developed, and conclusions drawn, without direct observation. The difficulty is not in generating theory, but in generating good theory (Boughton, 1985).

The subjects in this study will be chosen by a steering committee of the Michigan Crop Improvement Association (MCIA). The goal of the steering committee is likely to be the attainment of a stratified sample of field seed and seed potato producers that would represent their respective seed industries.

The primary researcher plays a key role in the case study approach. That is, the primary researcher must work hard to obtain useful data and be careful to remain objective. The researcher for this particular study used the feedback of key non-industry participants (e.g., his masters committee and university faculty outside of agricultural economics) as a check against research bias.

The case study approach is often criticized for being limited by researcher's preconceptions. The researcher must be on guard against building a theory or arriving at conclusions which are too narrow or idiosyncratic. However, a researcher using a case study approach must continually juxtaposition conflicting realities which may in fact lead to the generation of theory and conclusions with less researcher bias (Eisenhardt, 1989).

3.2.2.3 Concluding remarks regarding the case study research strategy

In summary, a case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when, the boundaries between phenomenon and context are not clearly evident. Case study inquiry: (1) copes with the

technically distinctive situation in which there will be many more variables of interest than data points, and as one result, (2) relies on multiple sources of evidence, and as another result, (3) benefits from the prior development of research propositions to guide data collection and analysis (Yin, 1994).

Often the case study is contrasted to other research strategies in an effort to argue the superiority of one research strategy over another. This disguises the fact that any research strategy has its limitations and problems. The main issue is what strategy is most appropriate to the research being conducted (Casley and Lury, 1987). Given the form of research questions to be asked, the researcher's lack of control over behavioral events, and the focus on contemporary events, the case study research strategy is a superior tool for carrying out strategic analysis and planning for the Michigan public variety field seed and seed potato industries.

The case method of research makes sense for analyzing the problems facing Michigan public variety field seed and seed potato producers for three reasons: (1) the relatively small number of producers in their respective Michigan seed industry makes it easier to draw industry-wide conclusions based on a limited number of detailed observations (comprising the Michigan public variety field seed case and the Michigan seed potato case), (2) the complexity of the issues facing Michigan seed producers require in-depth study and analysis to understand the dynamics present in the respective Michigan seed industries, and (3) due to the prescriptive nature of the research, as requested by MCIA, the case study method allows the seed producers to adapt specific parts of this analysis to individual circumstances.

3.3 Proposed Data Collection Process

The literature review provided the researcher with a general knowledge of the U.S. seed industry and issues facing breeders, seed producers, and other interested parties. Once it was determined that the case study method was the preferred research strategy, specific data was needed to understand the unique characteristics of the Michigan public variety field seed and seed potato industries. There were approximately 210 seed producing operations in Michigan that were part of MCIA at the time this research was undertaken.

There are basically two types of data about industries: published data and data gathered from interviews with industry participants and observers. This research, while utilizing both sources, relied heavily on data collected from face-to-face and phone interviews with industry participants and observers.

Zahra, et.al. (1993) identified six potential "blind spots" that exist in some competitive analyses. These blind spots result from a company's mistaken or incomplete view of its industry and competition. The six flaws or blind spots include:

1. Misjudging industry boundaries
2. Poor identification of the competition
3. Overemphasis on competitors' visible competence
4. Overemphasis on where, not how
5. Faulty assumptions about the competition
6. Paralysis by analysis

These blind spots can slow a company's response to its competitors' moves or even cause the selection of the wrong competitive approach. Flawed competitive analysis, resulting from these blind spots, weakens a company's capacity to seize opportunities or interact effectively with its rivals, ultimately leading to an erosion in the company's market position and profitability. The primary investigator will be aware of these blind spots throughout the

research process and he will try not to fall prey to them. The use of an iterative data collection process will reduce the likelihood of falling prey to potential blind spots. Utilizing an iterative process includes pretesting the survey instrument and receiving feedback during data collection to juxtapose preliminary findings against the knowledge and experience of industry and university professionals. At the same time, it is hoped that competitive analysis will reveal where seed industry producers may have fallen victim to these blind spots in their strategic thinking. These findings will be presented in the next chapter.

The data for this research was mainly collected from face-to-face interviews, telephone interviews, and was set against the researcher's background and past experience. The process began with an analysis of the competitive forces facing the Michigan seed industries. This was followed by: (1) an analysis of the strengths, weaknesses, opportunities and threats facing the seed industries, (2) a proposed mission statement for firms in each seed industry, (3) a proposed statement of objectives for firms in each seed industry, (4) a proposed strategic posture for firms in each industry, (5) broad recommendations for implementing the strategic plan, and (6) specific recommendations designed to carry out the broad recommendations.

The remainder of this section is divided into the following sub-sections: (1) use of a multiple-strata quota sample, and (2) the use of a questionnaire as a survey instrument. The multiple-strata quota sampling method is argued to best capture the breadth of analysis needed in this study, while the use of in-depth interviews based on well planned questionnaires will allow the researcher to better codify the data collected.

3.3.1 Use of a multiple-strata quota sample

A MCIA steering committee composed of field seed producers, seed potato producers, and MCIA staff directed the research process. The steering committee felt that a multiple-strata, quota sample[11] would lead to better research results than a random sample given: (1) the amount of detailed data needed to carry out a strategic analysis, (2) the diversity of producer backgrounds, (3) how geographically dispersed MCIA members were throughout lower and upper Michigan, and (4) the range of opinions regarding the causes and possible solutions to the problems facing the seed industry.

Multi-strata, quota sampling is a search for respondents meeting pre-selected criteria. For example, the steering committee wanted the research results to represent views from: (1) small, medium and large seed producers, (2) seed producers who wanted to see changes in the way their respective industries operated, (3) seed producers who were satisfied with the way things were in their respective industries, (4) seed producers located across Michigan, (5) buyers and potential buyers of Michigan seed, (6) professionals associated with the Michigan seed industry with a vested interest in the long-term health of the industry.

The advantages of using a multi-strata, quota sampling method were that is was: (1) easy to implement, (2) relatively inexpensive versus trying to qualify potential respondents from the MCIA membership directories, (3) a quick way to reach the broad range of opinions sought by the steering committee, and (4) the best way to capture the knowledge of a small segment in the population (in this situation, the respective Michigan seed industries).

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[11]This definition is taken from class notes received in AEC 891C: Field Data Collection and Analysis, Summer 1995.

The disadvantages of using a multi-strata, quota sampling method are: (1) there was no basis to estimate population parameters from sample values, since sampling was not random, and (2) it was likely to result in a biased sample (this would be minimized if appropriate selection criteria and experience were used). However, it was felt, given the objectives of research and use of the case study method in the context of strategic analysis and planning, the advantages of using the multi-strata, quota sampling method outweighed it's disadvantages.

Potential respondents, selected by the MCIA steering committee included: (1) seed producers chosen from seed directory lists (the steering committee physically went through the names of seed growers in the three seed directories published by MCIA each year, and selected those they wanted to be interviewed), and (2) a list of names of buyers and potential buyers of Michigan seed, and (3) professionals associated with the Michigan seed industry (this was the result of a "brain storming" session). A list of 65 potential respondents was generated as the target sample for this study.

3.3.2 Questionnaire as a survey instrument

The target population (the respective Michigan seed industries) for this research consisted of: (1) all MCIA seed producing member units (180 field seed and 30 seed potato), (2) MSU university personnel that work with the seed industry (plant breeders, crop and soil science specialists, and extension specialists), and (3) other professionals associated with the seed industry, such as, elevator operators, potato brokers, consultants and processors.

The survey instrument used to gather data for this research was a questionnaire. The questionnaire was administered by the researcher (sole enumerator) via face-to-face and

telephone interviews. An effort was made to conduct as many face-to-face interviews as possible in order to gather the detailed data needed for the case study and to access multiple sources of similar data in order to triangulate information. A total of 31 face-to-face and 17 telephone interviews were conducted in the first stage of the research. A separate round of 20 telephone interviews was conducted with contacts outside of the Michigan seed industry which included crop improvement and other state seed certifying organizations (field seed and potato) to collect information on what programs they have used to help their respective seed industries.

The survey instrument was designed to be "conceptually equivalent". In other words, do equivalent "concepts" of strategic analysis and planning exist in the seed industry? While the researcher was familiar with strategic management concepts and jargon, it would be unlikely that individuals in the seed industry would interpret the concepts and jargon in the intended manner. The researcher was careful to phrase questions in the questionnaire in such a way that the average seed producer could understand. For example, seed producers were asked what made it harder for new seed producers to enter the seed industry, instead of asking what were the barriers to entry in the seed industry?

The questionnaires were reviewed by Dr. H. Christopher Peterson, Agribusiness Economist in the Department of Agricultural Economics at Michigan State University. The questionnaires were then pre-tested on Dennis Greenman, Manager of MCIA. Suggestions from these "pre-tests" were incorporated into the final versions. Examples of the questionnaires are included in Appendix A.

The majority of the questions in the survey instrument were open-ended. For example, question 12 of the seed producer questionnaire asked for a description of the

relationship between the seed producer and his customers. The number of closed-ended questions were limited to questions pertaining to the age of the principal owner, the ages of other partners, the type of seed operation and percentage of total farm income generated by seed production. Upon completion of the interview stage, answers to the open-ended questions were aggregated to fit the strategic analysis framework presented in the next chapter.

Once the face-to-face and phone surveys were prepared, approval was sought and granted from the Michigan State University Committee for Research Involving Human Subjects (UCRIHS). Participants were assured of anonymity and confidentiality and participation was strictly voluntary. A copy of the letter sent to potential respondents can be found in Appendix B.

Face-to face and telephone interviews with seed producers, buyers and interested professionals began on October 1, 1993 and were completed by November 15, 1993. This resulted in a total of 48 completed questionnaires that served as the base line data for the strategic analysis. A total of 20 additional telephone interviews with various state certifying agencies were completed during the period of January 15, 1994 to March 15, 1994 to collect information on what programs, including promotional and common marketing associations, they have been involved in to help their respective seed industries.

In addition to formal interviewing, the researcher attended seed industry functions to gain additional insight into the seed industry. These industry functions included: (1) the 1993 Montcalm potato field day on August 19,1993 (commercial and seed potato producers gather to view MSU potato test plots), (2) a pre-planning session of the Seed Potato Division of MCIA on November 1, 1993 (seed producers invited a select number of Michigan commercial

potato growers to discuss issues facing the Michigan seed potato industry), (3) a presentation of preliminary findings of the project to MCIA members at their annual banquet on December 11,1993, and (4) a presentation of the strategic plan to the executive committee on March 24,1994. The initial response was favorable. There was a request to take the project one step further and to develop a set of specific strategies or recommendations that could be used to implement the strategic plan. These specific recommendations were presented to the respective industry groups in the Summer of 1994.

3.3 Concluding Remarks Regarding Research Propositions, Research Strategies, and the Data Collection Process

The six propositions (see pages 34-36) stated in the beginning of this chapter do not lend themselves readily to the creation of hypotheses that can be tested with sophisticated statistical techniques. However, based on a discussion of various research strategies and the nature of the propositions, an argument was made for the case study approach as the preferred research strategy.

Data collection was carried out through an iterative process to reduce researcher bias and to avoid potential blind spots associated with case study methodology. In-depth face-to-face and telephone interviews were used to administer a questionnaire across a multi-strata sample of Michigan public variety field seed and seed potato producers, seed buyers, and interested industry professionals knowledgeable in matters pertaining to the U.S. seed industry. A detailed explanation of the research findings are presented in Chapter 4.

CHAPTER 4
STRATEGIC ANALYSIS, PROPOSED STRATEGIC PLAN, AND SPECIFIC RECOMMENDATIONS FOR THE MICHIGAN PUBLIC VARIETY FIELD SEED AND SEED POTATO INDUSTRIES

In this chapter, two case studies of the strategic analysis, proposed strategic plan, and specific recommendations for Michigan public variety field seed and seed potato producers are presented. This chapter uses a comparative case structure to compare and contrast the Michigan public variety field seed case to the Michigan seed potato case. In situations where the analysis was the same for both cases, the findings are presented together. In situations where the analysis for Michigan public variety field seed producers was different from the analysis of the Michigan seed potato producers, these differences are presented separately. This method of presentation was selected to highlight the differences and similarities between the two cases and to reduce the amount of redundancy of presenting the cases separately.

The chapter begins with an overview of the Michigan public variety field seed and seed potato industries. A strategic analysis is then presented including a detailed investigation of the forces driving competition in these Michigan seed industries. The strategic analysis concludes with a SWOT (strengths, weaknesses, opportunities, and threats) analysis, which highlights the competitive advantages and competitive disadvantages, as well as the most important opportunities and threats facing Michigan public variety field seed and seed potato producers.

The strategic plans for the Michigan public variety field seed and seed potato industries are laid out, beginning in section 4.3. The proposed strategic plans include a discussion of the proposed mission statement, statement of goals and objectives, strategic posture, broad recommendations designed to achieve the goals specified in the strategic plan, and specific recommendations to carry out the broad recommendations.

4.1 An Overview of the Michigan Public Variety Field Seed and Seed Potato Industries

The Michigan public variety field seed industry

The field seed division of MCIA was comprised of 180 field seed producing units (these units could be a single operator or a corporation), growing approximately 27,632 acres[12] of certified field seed in 1994.

MCIA had seen a significant decline in the number of acres of field seed being certified over the ten year period from 1984 to 1994. Figure 4.1 is a graphical representation of the general downward decline in total certified field seed acreage from a high of 45,482 acres in 1989 to a low of 27,632 in 1994. Within the greater seed industry, private variety seed use increased, especially in the soybean and dry bean seed markets, while public variety seed usage diminished. Figure 4.2 compares the 10 year record of certified seed acreage for wheat, navy beans, and soybeans in the state of Michigan. While the certified acreage for all three varieties had decreased over this period, the rate of decrease was greater for soybeans than wheat or navy beans.

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[12]MCIA actually approved 52,103 acres for certification in 1994. Of this total, 24,471 acres of seed corn grown by proprietary seed corn companies like Pioneer, was approved for certification for export purposes.

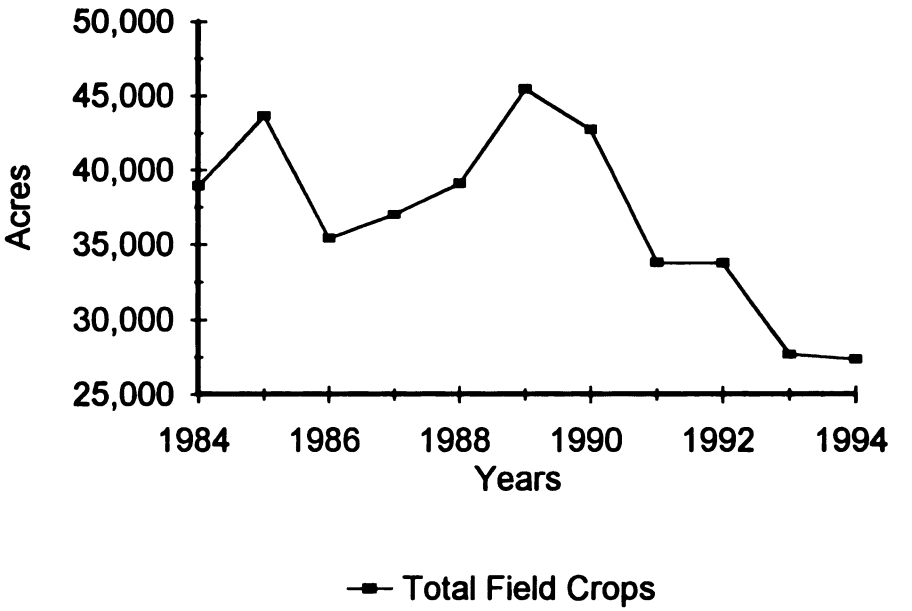

Figure 4.1 Total Certified Field Seed Acres 1984-1994

Source: Certification records from MCIA.

Rivalry, as well as the bargaining power of buyers, the threat of new entrants, and the threat of substitute products[13] were intense within the Michigan public variety field seed industry resulting in reduced profitability. These trends suggested that both the traditional role and future of public variety field seed producers were being threatened.

[13]These competitive forces are explained and examined in the strategic analysis of Michigan public variety field seed section of this report.

The Michigan seed potato industry

The potato division of MCIA was comprised of 27 seed producing units[14] (these units could be a single operator or a corporation), growing approximately 3,000 acres (Seed Piece, 1995) of certified seed potatoes in 1994.

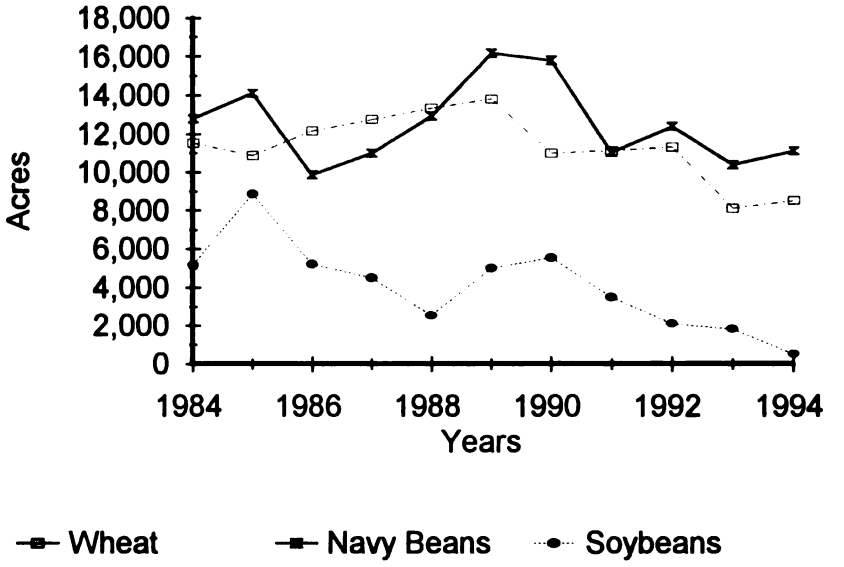

Figure 4.2 Wheat, Navy Bean, and Soybean Certified Seed Acreage 1984-1994

Source: Records from MCIA.

MCIA members had seen a significant decline in the number of Michigan seed potato producers and number of seed potato acres being certified over the ten year period from 1984 to 1994. Figure 4.3 is a graphical representation of the decline in certified seed potato

[14]These numbers have been provided by the Michigan Crop Improvement Association.

acreage from a high of 4,578 acres in 1984 to a low of 2,459 in 1993. If this downward trend were to continue, certification and inspection cost could become prohibitive.

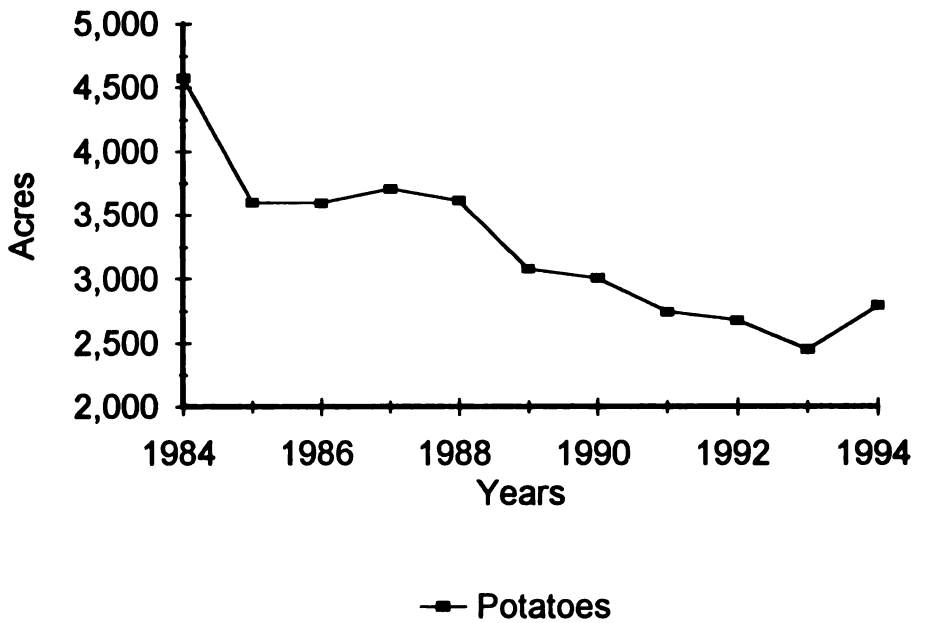

Figure 4.3 Certified Seed Potato Acreage 1984-1994

Source: Records from MCIA.

Michigan seed potato producers had experienced increasing competition from other seed potato producing states, most notably Wisconsin. Rivalry , as well as the bargaining power of buyers, the threat of new entrants, and the threat of substitute products were high within the Michigan seed potato industry resulting in reduced profitability. The analysis of the competitive forces[15] suggested the future of Michigan seed potato producers was being threatened.

[15]These competitive forces are explained and examined in strategic analysis of the Michigan seed potato industry section of this report.

4.2 Strategic Analysis of the Michigan Public Variety Field Seed and Seed Potato Industries

This strategic analysis consists of two sections: (1) forces driving competition in the Michigan public variety field seed and seed potato industries, and (2) a SWOT analysis. The purpose of conducting an analysis of the competitive forces was to evaluate the profit potential of the Michigan public variety field seed and seed potato industries. Stated another way, were firms likely to be profitable in these seed industries? The purpose of conducting a SWOT analysis was to assess forces within, and outside, the control of the industry which had an impact on industry profitability. Forces under the control of producers in the industry can be used to reduce the effect of the competitive forces and to increase profitability. Forces outside the control of the producers in the industry were examined to determine if they were threats or opportunities. Both kinds of forces required actions by the industry to reduce threats or seize opportunities in order to increase profitability.

4.2.1 Forces driving competition in the Michigan public variety field seed and seed potato industries

The lack of profitability in the Michigan public variety field seed and seed potato industries could be explained in large part by applying Michael E. Porter's five basic competitive forces[16]. Figure 4.4 is a graphical representation of the findings regarding the competitive forces within the Michigan public variety field seed and seed potato industries. The five competitive forces are: ***threat of entry***, ***bargaining power of suppliers***, ***threat of substitutes***, ***bargaining power of buyers***, and ***rivalry among existing firms***.

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[16] Michael E. Porter. *Competitive Strategy*, 3 -33. New York: The Free Press, 1980.

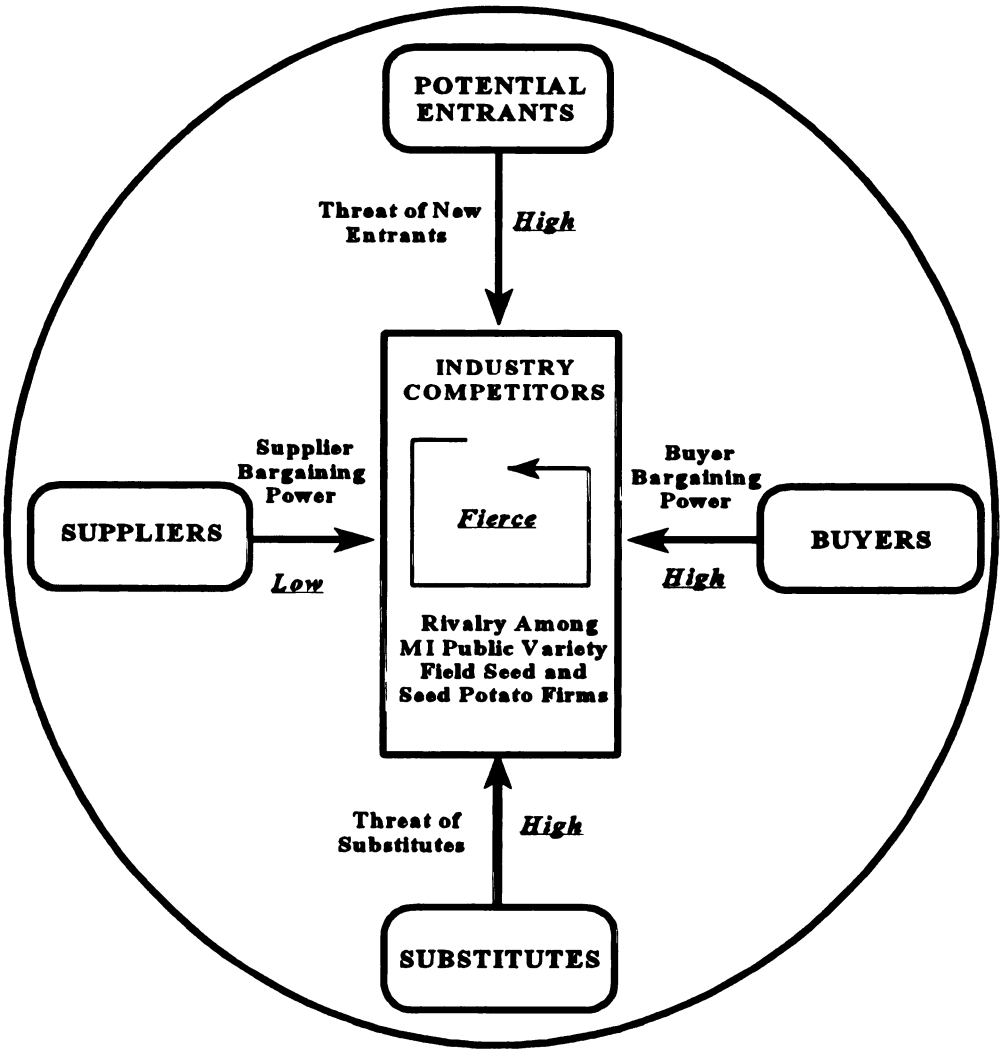

Figure 4.4 Forces Driving Michigan Public Variety Field Seed and Seed Potato Industry Competition[17]

Source: Face-to-face and phone calls made to Michigan public variety field seed and seed potato producers as a source of data collected for the 1993 Michigan public variety field seed and seed potato industry strategic plans.

[17]Adapted from a book by Michael E. Porter. *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. New York: The Free Press, 1980.

Each of these forces is examined in detail to determine if the threats are high or low, if the bargaining power of buyers or sellers is high or low, and if the rivalry among existing firms is mild or fierce. As the collective strength of these competitive forces increases, the potential for profit decreases. One goal of this research was to devise a plan defining a position in the seed industry where the Michigan public variety field seed and seed potato producers could best defend themselves against these competitive forces.

4.2.1.1 The threat of entry was high

It is important to consider the threat of entry into an industry because established firms competing in an industry, where it is difficult for new firms to enter the market, are more likely to obtain higher profits (holding the other four competitive forces constant) because the number of competitors are limited. Unfortunately, it was easy to enter the Michigan public variety field seed industry. Anyone with access to a moderate amount of land, labor, machinery, and capital could become a seed producer.

It was also easy to enter the Michigan seed potato industry. For example, Michigan commercial potato growers planted approximately 50,000 acres of potatoes[18] in 1993. A general rule of thumb in the potato business is that one acre of seed would plant 10 acres of commercial potatoes[19]. This meant Michigan seed potato producers could have grown 5,000 acres of seed in 1992 to support the commercial acreage planted in Michigan. However,

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[18]United States Department of Agriculture. *Annual Crop Production Summary*. January 1994: A65. The actual number was 53,000 acres including 3,000 acres of seed potatoes.

[19]This rule of thumb was verified by Dr. Richard Chase, Department of Crops and Soil Science at Michigan State University.

Michigan seed potato growers only raised 2,541 acres[20], leaving a deficit of 2,459 acres. This gave competing seed producing areas, such as, Wisconsin an even greater opportunity to enter the market. In fact, Wisconsin seed potato producers had been increasing their share of the Michigan seed potato market since the mid 1980s.

The following is a detailed discussion of why the threat of entry was high in the Michigan public variety field seed and seed potato industries. This subsection examines both the common and unique threats facing the Michigan public variety field and seed potato industries. Please note, not all of the findings increased the threat of entry.

Threats of entry common to both
Michigan public variety field seed and seed potato industries

- **Michigan public variety field seed and seed potato producers did not distinguish their seed from competitors' seed** to the same extent that the competition did. Potential entrants are more likely to enter a market characterized by undifferentiated products because entrants will not have to spend heavily to overcome existing customer loyalties. Porter defines product differentiation and its effects on market entry in the following manner:

> "Product differentiation means that established firms have brand identification and customer loyalties, which stem from past advertising, customer service, product differences, or simply being first into the industry. Differentiation creates a barrier to entry by forcing entrants to spend heavily to overcome existing customer loyalties. This effort usually involves start-up losses and often takes an extended period of time. Such investments in building a brand name are particularly risky since they have no salvage value if entry fails." p. 9

For example, public variety field seed, such as, those developed by Pioneer Hybrids International successfully utilized a farmer-dealer network that provided information on seed varieties and industry trends as well as high quality product. Michigan public variety field seed producers provided little

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[20]Michigan Crop Improvement Association. *Michigan Potato Seed Directory 1993*: 24-25.

information to differentiate their seed from other varieties, public or private. They often relied heavily on being priced below the competition to move their seed.

For another example, there were some Wisconsin seed potato growers were willing to size their seed according to the specifications of a large Michigan commercial potato grower, while Michigan seed producers were unwilling to do the same. As a result, this Michigan commercial grower did not buy any Michigan seed potatoes.

- **The capital and growing expertise required for seed production was similar to the capital and expertise required to grow commercial crops**. This meant that firms could decide to move into or out of the seed business at relatively low cost.

  For a public variety field seed example, the only difference in equipment between Michigan public variety field seed and commercial grain and bean producers was the conditioning equipment. There were firms across Michigan that would condition seed for others, so potential entrants did not have to invest in conditioning equipment.

  For a seed potato example, there were commercial potato producers that would grow seed potatoes if they thought they could make more money than raising potatoes for commercial uses. A few potato growers even switched back and forth between seed and commercial potato production.

- Most **seed buyers switched seed sources readily if disease or marketing problems occurred**. There are always competitors from other geographic locations waiting to step in and take over when a current seed supplier had problems.

  As an example in the public variety field seed industry, dry bean seed sales dropped dramatically as a result of verticillium wilt problems in the mid 1980s. This resulted in opportunities for seed firms outside of Michigan (seed producers from western states) to enter the public variety field seed business.

  Any seed potato grower who ever had problems with late blight or ring rot would know how fast customers switch from one seed grower to another. There were always opportunities for new firms ready to enter the seed potato business if Michigan seed potato producers experienced disease or marketing problems.

Threats of entry unique to the Michigan public variety field seed industry

- **Modest capital and certification and inspection costs[21] made it easier to get into, or out of the public variety field seed industry**. Long-time Michigan public variety field seed producers expressed resentment for those seed producers who jumped in and out of the seed business because this created confusion in the customer's mind and usually resulted in excess supply and reduced profits for the entire industry.

  Michigan public variety field seed producer applicants were not required to go through a selection process that judged what kind of a job the seed producers would do in terms of growing, harvesting, conditioning, and marketing of seed. The only requirement of public variety field seed producers was that they pay the member, inspection, and certification fees and meet the minimum standards set by the state of Michigan regarding seed quality and purity.

- Generally speaking, **seed production accounted for only a small portion of the total farm income of the field seed producers interviewed**. For example, 84 percent of the Michigan public variety field seed producers interviewed indicated that income from seed operations accounted for less than half of their total farm income, while 58 percent indicated that income from seed operations accounted for less than a third of their total farm income.[22] Michigan field seed producers did not have the time to focus their efforts on any one part of their operations, which resulted in less time being spent on developing ways to make entry into the public variety field seed industry more difficult.

  Potential entrants could bring in additional (excess) capacity, and a desire to obtain market share. There was a large, low-cost public variety soybean seed producer in Northern Ohio that was consistently able to saturate the Southwest corner of Michigan with less expensive public variety soybean seed resulting in decreased market share and profits for those Michigan public variety field seed producers who did business in that geographic market.

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[21]Michigan Crop Improvement Association. *Michigan Certified Seed: 1993 Fall Directory*: 37.

[22]A total of 19 Michigan public variety field seed producers responded to this question.

Threats of entry unique to the Michigan seed potato industry

Not all factors affecting entry into the Michigan seed potato industry were found to increase the threat of entry. Two factors were found to decrease the threat of entry and are discussed below:

- **Seed potato growers must reach a certain size to justify the expense of owning and operating specialized potato equipment**. It was not as easy for a non-potato producer to decide to raise seed potatoes as it would be for a commercial field crop producer to raise field seed. This reduced the threat of entry in the seed potato industry. High asset specificity could be said to raise barriers to exit for an organization. Lacking an alternative use for an asset, the organization would find it rational to continue deploying those assets in markets in which the accounting returns were exceedingly low. These assets could be said to have low opportunity cost. In the case of specific assets, there were few, if any, alternative opportunities for the asset. This applied to the potato seed industry (Oster, 1994).

- **There was buyer loyalty in the seed potato business**. Seed potato buyers considered planting seed from a new seed potato producer moderately risky. New entrants must prove themselves and grapple with learning a new business. This reduced the threat of entry.

While the above two factors decreased the threat of entry into the Michigan seed potato industry, overall the threat of entry remained high in the Michigan seed potato industry because those factors that increased the threat of entry common to both seed industries outweighed those factors that decreased the threat of entry. Since the threat of entry was high in the Michigan seed potato industry, there was increased pressure on price or on the existing players to increase their service level to fight off competitors. For example, Michigan seed potato producers could pay for an additional test on their seed. This test is able to detect the presence of viruses and bacterial organisms, such as, potato ring rot and potato leaf roll.

Although each test cost approximately $30.00 per sample,[23] it did give seed producers an added dimension of quality.[24]

Concluding remarks regarding the threat of entry into the Michigan public variety field seed and seed potato industries

Most Michigan public variety field seed and seed potato producers and their customers treated public variety field seed and seed potatoes as commodities. If Michigan seed producers would have differentiated their seed, it would have been harder for competitors to enter the Michigan seed markets because seed buyers were increasingly looking for seed that was designed to meet specific needs.

4.2.1.2 The bargaining power of suppliers was low

Suppliers to the Michigan public variety field seed and seed potato industries include those organizations that supplied inputs for the seed propagation process (e.g., genetic material, seed treatment, fuel, fertilizer, etc.). When suppliers are powerful, they can squeeze profitability out of an industry, if the industry is unable to pass along cost increases in its own prices. "By raising their prices, for example, chemical companies have contributed to the erosion of profitability of contract aerosol packagers because the packagers, facing intense competition from self-manufacture by their buyers, accordingly have limited freedom to raise

[23]This information was obtained during a phone interview with Dave Roberts, Director of the MSU Plant Pest Diagnostics Clinic. Results from ELISA testing can be obtained in a matter of days compared to the 3-4 months required to get results back from the Florida Winter tests.

[24]This is in addition to the annual Florida Winter tests.

their prices" (Porter, 1980 p. 27). However, the bargaining power of suppliers was low in the Michigan public variety field seed and seed potato industries.

This subsection is divided into factors reducing the bargaining power of suppliers common to, as well as unique to, the Michigan public variety field and seed potato industries. The bargaining power of suppliers serving the Michigan public variety field seed and seed potato industries was low for the following reasons:

Factors leading to reduced supplier power common to both Michigan public variety field seed and seed potato industries

- The "public" nature of the Michigan public variety field seed and seed potato industry promoted **easy access and equitable distribution of genetic material from the plant breeder to the seed producer**. Seed producers anywhere in the U.S. had access to these genetics.

- **Suppliers** serving the Michigan public variety field seed and seed potato industries, which often possessed considerable resources and marketing power, **had to contend with direct competition for their products and services**. This improved seed producer profitability because suppliers could not easily raise prices or reduce quantity of goods and services without risking loss of their own market share.

Factors leading to reduced supplier power unique to the Michigan public variety field seed industry

- **There were few suppliers for major inputs such as, seed treatment and paper bags**. *Normally, the presence of a limited number of suppliers would increase supplier power* relative to producers in the Michigan public variety field seed industry and suggests the likelihood of monopoly-like pricing practices. However, unit costs of these inputs were uniform across producer-buyers (although volume discounts could be obtained), which resulted in all seed producers paying approximately the same price for these inputs.

Factors leading to reduced supplier power unique to the Michigan seed potato industry

- Although there were few Michigan seed potato suppliers for tissue cultures or mini tubers, Michigan **seed potato producers had access to tissue cultures and mini tubers from other potato producing areas** in the U.S., such as, Montana, North Dakota, Wisconsin, and Wyoming.

Concluding remarks regarding the reduced supplier power in the Michigan public variety field seed and seed potato industries

When a competitive force is weak, it implies increased profitability for those firms in the industry. However, a thorough competitive analysis demands that all five competitive forces be considered simultaneously. The collective strength of the five forces will be discussed in section 4.2.1.6.

4.2.1.3 The threat of substitute varieties was high

Substitutes increase the options available to potential buyers and essentially increases the number of firms competing for the same customers. This subsection is divided into factors increasing the threat of substitutes common to, as well as unique to, both the Michigan public variety field seed and seed potato industries. The threat of substitutes was high in the Michigan public variety field seed and seed potato industries for the following reasons:

Factors leading to increased threat of substitutes common to both the Michigan public variety field seed and seed potato industries

- **Field crop and vegetable farmers had many field seed and seed potato varieties as well as other crops** to choose from in formulating a crop plan, which may not include Michigan public variety seed. For example, a potato grower could decide to plant red, white, yellow, or russet type potatoes.

- **Michigan grown and non-Michigan grown public and proprietary field seed and seed potato varieties competed for common customers**. Not only were buyers able to select from a number of crops to plant, they were

also able to choose seed varieties from a number of different sources. Seed buyers viewed seed from various seed-growing regions and sources as substitutes.

There were numerous soybean varieties, public and proprietary, that a commercial grower could decide to plant. A good example of this was Pioneer's top variety of red wheat. This red wheat variety typically cost producers twice as much as a comparable public variety. Farmers were willing to pay this difference because they believed the difference in yield would more than make up for the increase in price.

For another example, seed potatoes grown by other seed producing areas were easily substituted for Michigan seed potatoes. The Snowden potato variety was a prime example of this. Wisconsin seed potato producers raised 1765 acres of Snowdens in 1993 compared to 568 raised by Michigan seed potato producers.[25] Combined with the fact that Michigan was a seed deficit state, it is easy to understand why the threat of substitutes was high in the Michigan seed potato industry.

Factors leading to increased threat of substitutes unique to the Michigan public variety field seed industry

- **Bin-run seed**[26] was a substitute for Michigan public variety field seed. The possibility existed for commercial growers to hold back a share of their yearly production to replant the following season as seed. Estimates went as high as 50 percent of all wheat planted in Michigan each year was bin-run.

Factors leading to increased threat of substitutes unique to the Michigan seed potato industry

- **Some commercial potato growers would purchase a high generation seed one year and set aside a portion of the crop they harvested, to plant as seed next year**. This practice was not as common as it was in the field seed industry, but it did exist.

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[25]Michigan Crop Improvement Association. Michigan Certified Potato Seed 1994 Directory, p. 20, and the Wisconsin Seed Potato Certification Agency, College of Agricultural and Life Sciences, UW-Madison. *1993 Crop Directory Wisconsin Certified Seed Potatoes*. p. 10.

[26]The use of the word bin-run in this paper refers to seed that is one year from certified seed that is replanted by the farmer who bought the certified seed or seed that is one year past certified seed and is sold to farmers (brown bagged seed).

Concluding remarks regarding the threat of substitute products in the Michigan public variety field seed and seed potato industries

Substitutes[27] tend to place a ceiling on the prices firms in the seed industry can charge (Porter, 1980). The more attractive the price-performance alternative offered by substitutes, the lower the industry profit. Michigan public variety field seed and seed potato producers were continually battling competitors who offered a wide range of price-performance alternatives. Quite often, the price-performance relationships of these substitute products was attractive to the buyers of Michigan public variety field seed and seed potatoes.

4.2.1.4 The bargaining power of buyers was high

It is important to distinguish between the economic definition of the "market power" of buyers and the "bargaining power" of buyers as used in this thesis. The economic definition of market power of buyers is usually expressed as some form of monopsony. A monopsony describes the situation in which there is only one buyer. When a few buyers dominate the market, oligopsony exists. Monopsonistic competition designates the presence of a fairly large number of buyers (McConnell, 1978). Monopsony or monopsonistic competition occurs when a buyer or limited number of buyers, buying from many potential sellers, have the latitude in fixing its price, because they face a rising supply curve (Layard and Walters, 1978). The economic definition of market power was not directly applicable to the Michigan public variety field seed and seed potato industries, in part, because there were considerably more buyers of seed than there were seed producers. However, these more

[27]The use of the word substitute in this paper is based on the author's belief that individual seed varieties were developed to meet specific growing and customer needs, which competed with *substitutes* grown by *rivals*.

numerous buyers of public variety field seed and seed potatoes were able to exert considerable bargaining power in the respective seed industries.

The concept of bargaining power, as presented in this thesis, is based on the work of Michael E. Porter. Bargaining power as described by Porter in his 1980 book, *Competitive Strategy: Techniques for Analyzing Industries and Competitors* is defined as follows:

> "Buyers compete with the industry by forcing down prices, bargaining for higher quality or more services, and playing competitors against each other--all at the expense of industry profitability. The power of each of the industry's important buyer groups depends on a number of characteristics of its market situation and on the relative importance of its purchases from the industry compared with its overall business. A buyer group is powerful if the following circumstances hold true: (1) it is concentrated or purchases large volumes relative to seller sales, (2) the products it purchases from the industry represent a significant fraction of the buyer's costs or purchases, (3) the products it purchases from the industry are standard or undifferentiated, (4) it faces few switching costs, (5) it earns low profits, (6) buyers pose a credible threat of backward integration, (7) the industry's product is unimportant to the quality of the buyers' products or services, and (8) the buyer has full information." p. 24-27

As the bargaining power of buyers increases, industry profitability will suffer if the industry isn't able to become more efficient or maintain profit margins some other way. This subsection is divided into factors increasing the bargaining power of buyers common and unique to, the Michigan public variety field and seed potato industries. The bargaining power of buyers in the Michigan public variety field seed and seed potato industry was high for the following reasons:

<u>Factors leading to increased bargaining of buyers common to both Michigan public variety field seed and seed potato industries</u>

- **Buyers had many public variety field seed and seed potato varieties to choose from**, whether they were wheat, dry beans, soybeans, white potato varieties, red potato varieties, or russet potato varieties. This factor was also found to increase the threat of substitutes.

- **Buyers incurred little cost if they decided to switch from one field seed or potato variety to another, or from one field seed or potato seed producer to another** because there was enough uniformity in the seed

industry regarding growing, shipping, and selling practices. For example, buyers were investing little more than what was involved in purchasing the seed: some time and the cost of the seed. There was nothing that locked a particular buyer to a particular Michigan public variety other than past sales history.

- **Buyers had as good or better information than seed producers regarding seed availability and price** and they used this information to reduce the cost of seed through tough bargaining based on the use of this information.

  It was reasonable to assume that most commercial growers that bought seed had a good idea regarding the current market and seed availability. Armed with this information, buyers could play one seed producer against another and they sought out producers who were willing to sell at the cheapest price, for a given level of quality.

Factors leading to increased bargaining power of buyers unique to the Michigan public variety field seed industry

- **Buyers viewed public variety field seed as an undifferentiated product**. The lack of product differentiation not only affects the threat of entry, as stated earlier, it also increases a buyer's bargaining power. Many Michigan public variety field seed producers did not try to differentiate seed from their competitor's in the marketplace. This meant that price was the primary mechanism used to distinguish one product from another.

- **Large volume buyers constantly exerted downward pressure on seed prices**. It was hard to hold the market price for seed if a volume buyer was playing seed producers against each other for a large seed order. It should be noted that seed producer had the option of not giving volume discounts. The problem of turning down a volume discount is that as seed buyers become fewer and larger in size, turning down customers who warrant volume discounts may leave fewer and perhaps less desirable buyers to sell seed to.

  The problem facing the Michigan public variety field seed industry was not that large buyers were demanding volume discounts. Michigan public variety field seed growers may not have been as efficient as their competition, and as a result, they may have incurred higher marginal costs that made offering volume discounts less profitable.

Factors leading to increased bargaining power of buyers unique to the Michigan seed potato industry

- **Commercial Michigan buyers purchased the majority of seed grown by the average Michigan seed potato producers**. For example, it was anticipated that Michigan commercial potato growers would plant approximately 50,000 acres of commercial potatoes in 1994, but Michigan only produced 2,797 acres of seed in 1993. Only a small percentage of this seed was sold outside of Michigan in the 1993-94 season. Volume seed buyers also tried to drive the seed market down. More than one seed producer said it was tough to hold a price when a large commercial buyer wanted 10,000 cwt of seed.

- **Seed represented a significant fraction of a commercial potato grower's variable cost**. Buying seed was an important and costly decision where a quarter a cwt. could mean thousands of dollars. Seed was an integral part of potato production. Buyer's were clearly motivated to bargain for the best seed they could get for the lowest cost.

- **When money was tight, buyers shopped harder**. It was not uncommon for the commercial potato growers to experience one profitable year, followed by a number of unprofitable years. This made selling seed especially tough during the unprofitable years.

- However, **differences in quality between seed varieties and seed producers** reduced buyer power. Not all the observed factors increased the bargaining power of buyers. In some cases it may have been possible that only a limited number of seed producers had the exact quality a particular buyer was looking for, thereby limiting the buyers options and reducing the buyer's bargaining power.

Concluding remarks regarding the increased bargaining power of buyers in the Michigan public variety field seed and seed potato industries

In summary, buyer bargaining power was high. Buyers bargained for higher quality, more service, reduced price, and they played competitors against one another, all at the expense of seed producer profitability. Buyers were successful because they were knowledgeable, and in many cases, more knowledgeable than seed producers. Seed producers had to earn a buyer's trust and seed order each season.

4.2.1.5 Rivalry of existing firms was fierce

A certain amount of rivalry is healthy in an industry. Rivalry can keep competition sharp and focused on customer needs. However, the rivalry that was found in the Michigan public variety field seed and seed potato seed industries appeared to cause competitors to focus too much on each other and not enough on competition from other seed producing areas or on meeting customer needs. This subsection is divided into factors increasing rivalry that is shared and unique to the Michigan public variety field seed and seed potato industries. Rivalry was fierce in the Michigan public variety field seed and seed potato industries for the following reasons:

Factors leading to increased rivalry common to both the Michigan public variety field seed and seed potato industries

- **There were numerous firms in the Michigan public variety field seed and seed potato industries**. This created an atmosphere where firms felt they could make certain moves without being noticed.

  For example, lowering the price of seed by $.05 per bag in the hopes of stealing a competitor's customer was a common practice in the Michigan public variety field seed industry. However individual producers found it difficult to charge prices higher than their neighbors, since the individual output of any single producer was small relative to the total market.

  As another example, there were neighboring seed potato producing states, like Wisconsin, in the Michigan seed potato industry (27 producers in Michigan and 36 producers in Wisconsin alone). This promoted an atmosphere where firms felt they could make moves without being noticed.

- **Seed is perishable and is generally sold by a certain time each year**. Rivalry was intense in years with excess seed or when buyers waited until the last minute to purchase seed. For example, if field seed was not sold and not treated, it could be sold as a cash crop at a price that was less than the seed price. If the seed was already treated, it could be saved until the next season, when it would have to be recertified and it would certainly lose germination rate. The other option would be to dump the seed.

- **All Michigan public variety field seed and seed potato producers did not share the same attitude towards marketing**, although they did share many of the same cultural practices and beliefs. There were many diverse competitors producing seed. Competitors with diverse strategies, origins, personalities, and relationships can have differing goals and differing strategies for how to compete and may continually run head on into each other in the process. They may have a hard time reading each other's intentions accurately and agreeing to a set of "rules for the game" for the industry (Porter, 1980).

  For a public variety field seed example, some seed producers believed their job was done after they harvested the seed crop. They may have waited for their traditional customers to call them or they called the local elevator to sell their remaining seed. Other seed producers believed they must devote time to marketing their seed crop and they were constantly looking for new customers.

  Differences in marketing philosophy was especially evident in the seed potato industry. One seed firm's main marketing philosophy centered around making sure they did not charge their customers too much for seed. This firm also sold the majority of its crop by the end of September in 1993 and probably could have sold seed for $3.00 - $5.00 more per cwt if they would have waited. This approach to marketing made it harder for those Michigan seed producers who sold their seed over a longer period to obtain the best possible market price for their seed potatoes.

- **Public variety field seed and seed potatoes were viewed as undifferentiated products**. Failure of Michigan seed producers to emphasize the differences between Michigan and non-Michigan public variety field seed and seed potatoes allowed buyers to choose Michigan seed based primarily on price and service, resulting in intense price and service pressures. For example, seed producers often exhibited a willingness to cut price as a primary response to moves made by competitors.

  This lack of differentiation not only increases the intensity of rivalry, it also leads to easier entry into an industry and increases the bargaining power of buyers. Many Michigan field seed producers got caught up in trying to sell their seed to the same customers in the same way year after year, instead of seeking out specific customers who would be willing to pay more for seed that met their specific needs. These customers existed and companies like Asgrow built a successful business out of identifying specific customer needs. This lack of differentiation will be revisited again in the SWOT analysis section as one of the weaknesses of the Michigan public variety field seed and seed potato industries.

Factors leading to increased rivalry unique to the Michigan public variety field seed industry

- **The field seed industry experienced slow growth**. When the field crop market was experiencing growth, there tended to be enough business for all the seed producers. When the demand for seed was slow, expansion-minded firms with excess capacity (many proprietary seed producers fit this description) often cut prices and used other sales-increasing tactics. Slow market growth turns competition into a market share game for firms seeking expansion. This market share competition is more volatile than is the situation in which rapid industry growth insures that firms can improve results just by keeping up with the industry (Porter, 1980).

  For example, Pioneer was able to offer early order discounts for qualified crop farmers as a way to increase sales. Most Michigan public variety field seed producers had the financial resources, but not the time or desire to match these tactics. This left public variety seed firms to fight over the remaining customers who did not take advantage of these early order discounts.

- **Excess seed production driven by economies of scale was common each year on different seed varieties**. When economies of scale dictate that capacity must be added in large increments, capacity additions can be chronically disruptive to the industry supply/demand balance (Porter, 1980). Some field seed producers would reduce the price or be forced to sell seed as a commercial crop, provided they had not already treated the seed.

  In addition to excess seed production, aggressive marketing and heavy promotion by proprietary seed companies enabled them to take market share away from Michigan public variety field seed producers. Many public variety field seed producers felt this pressure, while only a few saw an opportunity to improve their position through actions, such as, advertising, increased customer service, or product take-back programs.

- **It was easy to get in or out of the field seed business**. This same factor increased the threat of entry into the Michigan public variety field seed and seed potato industries. Firms that did not have to fight to get in or out of an industry may not have been as involved in the industry or committed to making the industry profitable.

Factors leading to increased rivalry unique to the Michigan seed potato industry

- **Michigan seed potato producers were equally sized firms**, that had the same resources and were able to wage a prolonged even-up battle for market

share. For example, the four largest Onaway seed producers in Michigan each had between 60 and 100 acres of Onaway seed. They were constantly competing for the same customers.

- **Wisconsin seed potato producers**, who were more numerous and larger in size, **had seized the marketing and price leadership role**. In fact, one of the weaknesses of the Michigan seed potato industry, as outlined in the next section, was their inability to look past local rivalry and to see the Wisconsin seed industry as the "real" competition in their marketplace.

  Wisconsin seed potato producers often had the ability to deliver seed to Michigan seed buyers for the same price as Michigan seed producers, who had less freight costs. These larger Wisconsin seed producers may have had lower marginal costs of seed production relative to Michigan seed producers. However, further strategic analysis revealed that seed buyers looked at more than just the cost of seed as a basis for their purchasing decisions. The resulting Wisconsin marketing and price leadership role encouraged Michigan seed potato producers to battle with each other on the basis of price.

- There was **modest growth in seed used in the production of process and chipping potato varieties**, while **growth was slower for seed used in tablestock production**. When the commercial potato market was experiencing growth, there tended to be enough business for all the seed producers. When the demand for seed was slow, expansion-minded firms with excess capacity (many Wisconsin seed producers fit this description) often cut prices and employed other sales-increasing tactics. For example, a number of Wisconsin seed producers would only sell the Snowden variety of seed to commercial Michigan potato growers if they agreed to buy a certain amount of other non-Snowden variety seed over a 3-5 year period. Michigan seed potato producers were left to fight over the remaining commercial growers who were not committed to this program.

Concluding remarks regarding rivalry in the Michigan public variety field seed and seed potato industries

At times, rivalry in the seed industry could be quite impersonal. Neighboring producers would often cooperate in the lending of equipment, the sharing of seed producing practices and so on. This was not to say that competition could not become personal in the

seed industry between neighboring seed producers. In the Michigan public variety field seed and seed potato industries, competitive moves by one producer had noticeable effects on its rivals and this often incited retaliation or efforts to counter the move. This pattern of action and reaction may or may not leave the instigating firm or their respective seed industries as a whole better off. When moves and counter moves escalated, then all firms in the Michigan public variety field seed and seed potato industries suffered and were made worse off.

4.2.1.6 Conclusions regarding the forces driving competition in the Michigan public variety field seed and seed potato industries

Analysis of the five competitive forces revealed the fact that competition in an industry goes well beyond the intense rivalry of established players. Customers, suppliers, substitutes and potential entrants are all "competitors" to the firms in an industry and may be more or less prominent depending on particular circumstances. All five competitive forces jointly determine the intensity of industry competition and profitability, and the strongest force or forces become crucial from the point of view of strategy formation (Porter, 1980).

In the Michigan public variety field seed and seed potato industries the treat of entry was high, the threat of substitute products was high, the bargaining power of buyers was high, and rivalry among existing firms in these seed industries was fierce. The collective strength of these four competitive forces was strong, which more than offset the weak competitive force of low supplier bargaining power. The conclusion being, that *industry profitability* would remain low until these forces could be weakened or their effects minimized.

4.2.2 SWOT analysis

A SWOT analysis can be thought of as a balance sheet, where the strengths, which are internal, represent competitive assets. Whereas the weaknesses, also internal, represent competitive liabilities. The Michigan public variety field seed and seed potato producers' strengths/assets should outweigh their weaknesses/liabilities if long-term industry profitability is to be sustained. Opportunities are external situations that can be taken advantage of, via strategic moves to decrease or avoid the effect of the competitive forces. Threats are external factors that increase the strength of the competitive forces and reduce profitability.

Information for the Michigan public variety field seed industry was gathered from 18 personal and 13 phone interviews to provide the background necessary to conduct a SWOT analysis. Public variety seed growers, commercial growers, elevator operators, and seed industry professionals were among those interviewed. Information for the Michigan seed potato industry was gathered from 14 personal and 4 phone interviews to provide the necessary background. Michigan seed potato producers, commercial potato growers/ shippers, potato brokers, and seed industry professionals were among those interviewed.

This SWOT analysis begins by examining the competitive advantages (strengths), competitive disadvantages (weaknesses), priority opportunities and threats facing the Michigan public variety field seed and seed potato industries. Opportunities will then be compared to advantages and threats to disadvantages to provide recommendations that suggest: (1) leading from competitive advantages to seize opportunities, (2) developing competitive advantages that match opportunities, and (3) improving performance in those competitive disadvantages that make the Michigan public variety field seed and seed potato industries most vulnerable to threats.

4.2.2.1 Competitive advantages (strengths)

Competitive advantages are those strengths or ways of doing business that a firm (in this case, an industry) does exceptionally well in comparison to its competitors. That is, competitive advantages are under the direct control of the firm. The differences between a company and its competitors forms the basis of competitive advantage. Unless a business has a unique advantage over its rivals, it has no reason to exist (Henderson, 1991). Developing and using the correct competitive advantages is essential to reducing the competitive forces and increasing profitability.

Competitive advantage can be created in a number of ways including: (1) implementation of a value-based strategy not simultaneously being implemented by a current or potential competitor, and (2) through superior execution of the same strategy as competitors. In other words, the skills and resources underlying a business's competitive advantage must resist duplication by other firms (Bharadwaj et.al., 1993). In other words, competitive advantage can arise from lower cost or from the ability to differentiate from competitors.

These advantages arise out of discrete activities which firms in an industry perform. These activities are collectively called the value chain (Montgomery and Porter, 1991). The competitive advantages of the Michigan public variety field seed and Michigan seed potato industries are presented separately below.

<u>Competitive advantages unique to the Michigan public variety field seed industry</u>

- ***Quality of the seed sold exceeded the minimum standards for seed certification*** by many public variety producers. Individual growers were able

to distinguish themselves from competing seed, public or private, by marketing superior quality seed.

- ***Ready access to the public variety seeds***. There were many fine public variety seeds that could be selected and produced. Astute public seed variety producers targeted varieties to meet specific end-user needs (e.g., matching of varieties to specific soil types).

- Several seed growers ***produced seed that had fewer defects and mechanical damage than seed sold by competitors***. These growers had invested heavily in state-of-art conditioning equipment to differentiate their seed in ways other than price.

Competitive advantages unique to the Michigan seed potato industry

- ***Some seed producers had the skill and facilities to advance seed from tissue culture to a market-ready generation***. This ability gave those individual seed producers better control when selecting for genetic characteristics and purity compared to seed producers who used a state seed farm or purchased their genetics from tissue culture labs.

- ***Michigan's proximity to selected markets***. Michigan seed producers had a definite freight advantage compared to more Western seed producing states when shipping to Michigan, Ohio, and selected East Coast markets.

- There were Michigan ***seed potato producers who did an exceptional job multiplying and marketing their seed***. One goal of this strategic plan was to convert these individual success stories into Michigan seed potato industry success stories.

Conclusions regarding competitive advantages for the Michigan public variety field seed and seed potato industries

Unfortunately, this research was unable to identify more than three competitive advantages for either the Michigan public variety field seed or seed potato industry, and even these were not outstanding. Often times it is not the distinct resources, but the competent use of resources that allow a firm to maintain a competitive advantage. Sustained advantage only occurs when frictions exist in the market to prevent imitation. Michigan public variety field

seed and seed potato producers must strive to develop sources of competitive advantage if the competitive forces are to be weakened.

4.2.2.2 Opportunities

Opportunities are situations outside the immediate control of the firm which, if taken advantage of, result in the reduction of the collective strength of the competitive forces and increases profitability. One way for a company to earn higher returns than other similarly placed organizations is for it to recognize and seize new lucrative opportunities early, before entry has accomplished its leveling function. This activity is called entrepreneurship (Oster, 1994). One of the goals of strategic planning is to promote this entrepreneurship, that is, to take advantage of changes in the environment.

Opportunities are only completely taken advantage of when a firm or an industry possesses or develops abilities and strengths that match up with these opportunities. The opportunities facing the Michigan public variety field seed and seed potato industries are discussed in detail below. The following subsection outlines common opportunities for both industries, as well as those opportunities that are unique to each industry.

<u>Opportunities common to both the Michigan public variety field seed and seed potato industries</u>

Value-based pricing. This opportunity required Michigan public variety field seed and seed potato producers to identify what buyers perceived as value and charge accordingly. This would be an improvement over pricing practices that sold at 20% above the cost of production, since buyers were interested in the price-value relationship, not the margins a producer requires.

Many Michigan public variety field seed and seed potato producers found themselves deciding whether or not to accept a buyer's offer that was less than they wanted for their seed. Establishing a price based on what the buyer values, not what seed

producers value, would enable Michigan seed producers to be more competitive and will generate higher profit margins.

Target Michigan public variety field seed and seed potato varieties to specific customer needs (e.g., milling quality of wheat and breeding varieties for specific uses, such as, processing and chipping). There was a tendency for seed companies (public and proprietary) and commercial growers (field crop and potato) to focus primarily on yield. Identifying specific customer needs would enable Michigan public variety field seed and seed potato producers to separate themselves from competition. This would effectively reduce the number of competitors and differentiated seed could be sold to customers who were willing to pay for these differences.

Promotion of Michigan grown public field seed and seed potato varieties that out performed proprietary and non-Michigan grown varieties. This opportunity is based on selling the inherent strengths of Michigan public variety field seed and seed potatoes.

As a public variety field seed example, Chelsea white wheat out yielded and had better milling characteristics compared to varieties produced by Pioneer, etc. This well known yield and quality advantage led to increased demand and reduced price pressure for this public variety field seed. There was also the question of how involved MCIA should be in the promotion of public variety field seed. This will be addressed in more detail in the discussion regarding specific recommendations.

As a seed potato example, increased participation in test plots and aggressive marketing could minimize the stereotype that Michigan seed potato producers had little consideration for the needs of their customers. Managed properly, results from this activity could be used to improve the participating producer's seed program as well as identifying characteristics that differentiate seed in ways customers were willing to pay for.

Contract selling of Michigan public variety field seed and seed potatoes. An increasing number of commercial field crop and potato growers were willing to purchase seed on a contract basis over a multi-year period. This was especially true of growers who raised crops on a contract basis, such as, sugar beets or potatoes for processors.

Contracting allows both parties to lock in costs or revenue and encourages planning beyond a one year horizon. Contracting assures the buyer of a consistent source of supply and the seller of a consistent source of revenue.

To position Michigan public variety field seed and seed potato producers as a resource for the commercial field crop and seed potato industries. Sell service, expertise and partnering, not just low-cost seed. It costs little to provide personal support and genuine interest in the customer's business, and the benefits can be

rewarding both emotionally and financially. The more valuable that Michigan public variety field seed and seed potato producers become to their customers, the harder it would be for these customers to switch to a competitor.

Extend commercial grower awareness that good seed was important beyond planting. Commercial field crop and potato growers tended to forget about the seed after it was planted. However, if a problem with the crop occurred, seed was often blamed. If the crop was good, seed quality was forgotten. Seed producers could keep themselves more in the commercial growers' minds throughout the growing season. For example, simple gestures, such as, a phone call or farm visit to a commercial grower during the growing season. This leads to loyalty, less emphasis on price and increased profitability.

Opportunities unique to the Michigan public variety field seed industry

Reduction of perceived differences between proprietary and public variety field seed through increased seed producer participation in programs that compared public varieties to proprietary varieties through test plots and aggressive marketing could lead to increased demand and profits.

Producers could take advantage of tie-in sales just as the larger proprietary seed companies did. For example, many Michigan public variety seed growers produced more than one seed variety and had the opportunity to sell another seed variety (e.g., soybeans) with their regular varietal sales.

Opportunities unique to the Michigan seed potato industry

Formation of a strategic alliance between Michigan seed potato producers and the Michigan Potato Industry Commission. The Michigan Potato Commission was willing to provide opportunities for Michigan seed producers to become more involved. Money could have been made available for seed promotion and other worthwhile activities. It will be up to Michigan seed producers to seek out the help of the Michigan Potato Commission.

To become more involved with the release of new seed potato varieties out of the Michigan State Potato Breeding Program. It was possible that an arrangement could have been made between Michigan seed potato producers and Michigan State University that would safeguard the public nature of potato breeding at MSU, provide a funding mechanism for research, and allow an orderly distribution of any new potato variety releases from MSU.

Conclusions regarding the opportunities facing the Michigan public variety field seed and seed potato industries

As the above analysis indicates, Michigan public variety field seed and seed potato producers have several opportunities to improve their competitive position and profitability. A complete list of strengths, weaknesses, opportunities, and threats, including those that were not considered to be crucial to the strategic analysis, can be found in Appendices C and D.

Greater involvement and aggressive participation in the field seed industry would give Michigan seed producers improved access to their potential customers, and a better understanding of industry trends and customer needs. While another priority of Michigan seed producers should be to overcome the stereotype of "operating in their own little world." If Michigan public variety field seed and seed potato producers understood how the needs of their customers were being met, or more importantly, not being met, it should be easier to produce products and services that customers were willing to pay for.

4.2.2.3 Competitive disadvantages (weaknesses)

A competitive disadvantage is something a company or an industry lacks or does poorly in comparison to competition. Competitive disadvantages make firms or industries more vulnerable to the effects of the competitive forces and increase the likelihood of sub-par profitability. The competitive disadvantages common to, as well as unique to, the Michigan public variety field seed and seed potato industries are discussed in detail below.

Competitive disadvantages common to both the Michigan public variety field seed and seed potato industries

- ***Failure to differentiate Michigan public variety field seed and seed potatoes from competing producers and varieties***. This failure to differentiate is considered a competitive disadvantage because non-Michigan seed producers seemed willing/able to differentiate their seed. This made it easier for competitors to enter the market, increased the buyer's power, and allowed buyers to treat Michigan seed as a commodity, with emphasis on price, at the expense of seed producer and industry profits.

  For example, 1993-94 was a good year for marketing seed and there was a tendency by some seed potato producers to ship larger sized seed than normal (especially in Onaway seed). Commercial growers who accepted the larger sized lots in that year will not forget this when seed is more abundant in future years.

- ***Lack of a well thought-out marketing plan*** by Michigan public variety field seed and seed potato producers in general. Michigan seed producers' primary focus was on production. This translated into selling the same way, to the same customers year after year despite opportunities and changes in the environment. All too often, this resulted in a shrinking customer base and reduced profits.

- ***Pricing strategies based on the commercial market, on a competitor's price, or even pricing based on the cost of production***. These pricing strategies, were all too common in agriculture and usually led to reduced profits for the producer. The simple truth was most buyers were not concerned with the seed producer's problems, they wanted the best value for the price.

  In the seed potato industry, rising costs, combined with pressure from buyers to equate the price of seed to the commercial price of potatoes, eroded profitability. Seed potato production was more costly and labor intensive, and resulted in lower yields than commercial production. For example, it cost potato seed producers $25.00 for annual membership and $34.50 per acre for inspection service fees[28] in 1993. Commercial potato growers needed to hear that seed potato yields were lower than commercial potato yields and how this benefitted the commercial grower.

- In general, Michigan public variety field seed and seed potato producers were ***not as informed as they could be*** regarding:

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[28]Michigan Crop Improvement Association. *Michigan Certified Potato Seed 1994 Directory*: p. 9.

1. New varieties and their potential to replace existing varieties.
2. Yield and other performance variables of Michigan grown public variety field seed and seed potatoes versus varieties from other seed growing areas.
3. Availability and value of seed supplies and pricing practices of competition.
4. How informed seed producers differentiate their seed in ways other than price.

Service, quality, and information could be used to negotiate price, instead of producers deciding whether or not to accept or reject a buyer's offer.

Competitive disadvantages unique to the Michigan public variety field seed industry

- ***Lack of communication or misinformation between producers of public variety field seed regarding the marketing and pricing of seed*** resulted in unwarranted lowering of profits. For example, more than one of the producers interviewed told stories of how their neighbor was selling $1.00 a bag below the market for a particular seed because they had not talked to fellow seed producers regarding the availability and market price. Major findings in the literature regarding pricing and game theory concluded firms were generally worse off financially after engaging in full-blown price competition (Porter, 1980).

Competitive disadvantages unique to the Michigan seed potato industry

- ***Lack of progressiveness, visibility and involvement in the seed potato industry***. Some of the non-seed producers that were interviewed said that Michigan seed potato producers lacked focus, direction, and leadership. Competing seed producers were able to take market share and obtain a higher price for their product through aggressiveness and involvement in the seed industry.

- ***Willingness to deviate from seed program to keep up with customer demand***. For example, it was tempting, when faced with good demand for a variety (e.g., everyone wanted Snowdens), to decide to purchase seed stock from a new source or to purchase a lower generation seed in order to keep up with demand. This short term strategy could backfire if a new disease problem occurred as a result of this, which forces the seed producer to now deal with long term disease and marketing problems.

- ***Michigan seed potato producers have traditionally been slow to change***. For example, many Michigan seed potato producers resisted the change from

the hill selection method of seed advancement to the tissue culture system. Another example is the Snowden round white potato variety, which has become a cornerstone in the Michigan chipping industry, was promoted primarily from seed potato producers in Wisconsin.

- ***A damaged reputation and hesitation among Michigan seed potato producers to share technology as well as information with each other,*** caused by a lawsuit between two of Michigan's seed producers and MCIA. This lawsuit had the potential to get messy and was using resources that could have been used to promote the Michigan seed potato industry. A strong Michigan seed potato industry depends on cooperation and sharing of technology and information.

- ***Refusal to establish a seed price early in the seed marketing season*** by many Michigan seed potato producers. Buyers stated this practice as one more reason not to buy Michigan seed. This practice was caused by a combination of not knowing costs of production and a desire not to set the price lower than necessary and apprehensiveness about losing business because of pricing too high.

The lawsuit mentioned above involved two Michigan seed potato producers and MCIA. One seed grower bought seed from another grower, which was field inspected by MCIA. This purchased seed was later found to contain a virus called Late Blight, which could potentially put a seed grower out of business. Perhaps the lawsuit could serve as a starting point for increased communication between Michigan seed producers. Michigan seed potato producers needed to find a focal point, a common sense of purpose, if they were to compete effectively with states, such as, Wisconsin.

Conclusions regarding competitive disadvantages of the Michigan public variety field seed and seed potato industries

The Michigan public variety field seed and seed potato industries have a considerable amount of weaknesses common to, as well as unique to, each industry. These relative weaknesses arise out of, but are not limited to: (1) a failure to differentiate seed and services

from competitors, (2) lack of a well thought-out, industry marketing plan that takes into consideration the uniqueness and strengths of individual seed producers, and (3) a refusal on the part of seed producers to be more involved in their respective seed industries.

4.2.2.4 Threats

Threats are situations outside the immediate control of the firm which, if not controlled or avoided, result in the collective strength of the competitive forces increasing and profitability decreasing. Threats must be evaluated and prioritized and a firm's or industry's competitive advantages must match up or be developed to reduce the effects of the most serious threats. The common and unique threats facing the Michigan public variety field seed and seed potato industries are discussed in detail below.

Threats common to both the Michigan public variety field seed and seed potato industries

The organizational and marketing structure of proprietary field seed firms and focused seed potato producers. Factors, such as, few competitors, homogeneous cost structures, healthy industries, and good public information can offset the threat of cutting prices to deter entry by rivals (Oster, 1994). The proprietary field seed and focused seed potato producers did not rely on price cutting to deter entry.

For example, Pioneer limited access to their brand which enabled them to build in more profit than the public variety program. Industry leaders often effectively limit price warfare by enacting pricing standards (Scherer and Ross, 1990). Proprietary firms set the price, which includes higher margins for the producers, elevators, and the seed company. These higher margins enabled the proprietary producers to devote more resources toward research, development, and marketing.

For another example, utilization of a state seed farm encouraged more cooperation for the benefit of all participating producers than states without such a system. In addition to being a common link between seed growers, state seed farms served as the primary source of pre-nuclear and nuclear genetic material used in seed production in these states.

The ease of entry into the Michigan public variety field seed and seed potato industries was a threat. For example, if a promising potato or wheat variety was developed at Michigan State University, it was possible that non-Michigan seed producers could be the first to capitalize on this variety. This could lead to excess supply and increased rivalry, at the expense of profitability.

Tie-in sales (e.g., buy a bag of wheat in addition to the seed corn order) It is common for specific findings to appear under multiple SWOT categories. This is true for tie-in sales. Michigan seed producers had an opportunity to employ the practice of tie-in sales, but few producers took advantage of this. However, there were non-Michigan seed producers who did utilize tie-in sales as a means to gain competitive advantage.

The timing of seed sales from competitors. In the public variety field seed industry, large seed companies usually booked orders in the Fall, before most of the public variety seed producers began selling their seed. As a result, these potential customers were no longer in the market or needed less seed if they were.

Perception (sometimes there was evidence as documented by field trials) ***that proprietary varieties out yielded and out performed Michigan public variety field seed and seed potato varieties***. While the reduction in the perceived difference between proprietary varieties and Michigan public varieties may be viewed as an opportunity, the perception of this difference should be considered a threat.

As recently as 1986, Michigan certified 5,226 acres of Navy bean seed. In the mid 1980s, Michigan producers of Navy bean seed experienced severe bacterial blight problems. By 1993, certified Navy bean acreage[29] was down to 1,854 acres even though Michigan grown Navy bean seed had comparable vigor and disease resistance to its western counterpart.

The round white potato variety called Atlantic was grown by both Michigan and Wisconsin seed potato producers. There were 2,099 acres of Atlantics raised in Wisconsin compared to 254 acres in Michigan in 1993. Buyers were able to choose Atlantics from a wider selection of Wisconsin producers verses Michigan. This reduces the value of Michigan seed potatoes and placed additional emphasis on price.

Threat of substitute products was high. Public and proprietary field seed varieties in and outside of Michigan competed directly with any one Michigan grown variety. Additionally, seed potato varieties of different types (reds, whites, and russets) in and outside of Michigan competed directly with any one Michigan grown variety. The seed producer that established the best price-value relationship got the order.

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[29]These Figures were supplied by the Michigan Crop Improvement Association.

The use of biotechnology in the seed industry was a threat that was not well defined. There was a wait and see attitude towards biotechnology among the people interviewed. In general, producers and non-producers alike believed biotechnology would change agriculture, but would not change the need for seed producers.

Gregory I. Wickham, who is the director for business redesign for Agway's Agricultural Group, believes biotechnology will have a startling impact on seed marketing strategies[30] by the year 2000. Biotechnology will require seed marketers to demonstrate far more technical knowledge than they currently possess. It is uncertain what role the giant agricultural supply firms will have regarding biotechnology and seed production. These companies will probably market biotechnological advancements to commercial potato growers through seed grown by a focused and competent seed industry. It is the author's opinion that these companies will go as far as ownership in seed production, if it means a competitive advantage for them.

According to an Extension report from Purdue University[31], farmers will require more support services and technical information to correctly use biotechnology products. Management skills will become increasingly important as producers strive to maintain and interpret more detailed financial and production records. Farmers who are unwilling or unable to upgrade their management skills may not remain cost competitive, and some will exit farming.

Threats unique to the Michigan public variety field seed industry

There was growing concern among public variety producers that ***public variety breeding programs were not keeping up with proprietary variety programs in terms of the number and depth of new varieties developed.*** If this was true, it would be a matter of time before proprietary varieties out performed most public variety seed and seriously jeopardized the future of public variety seed.

Profitable alternatives to producing public variety seed. For example, growing seed for a private seed company or growing commercial crops, such as, sugar beets or soybeans. If you can make more money growing commercial dark red kidneys, why grow public variety field seed?

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[30]Gregory I. Wickham. "Key Trends for the Seed Industry." *Seed & Crops Industry* (January 1994): 26-28.

[31] Bill R. Baumgardt and Marshall A. Martin. "Agricultural Biotechnology: Issues and Choices." *Purdue Agriculture Extension Publication.* 1991.

A key difference between proprietary and public variety seed producers was the marketing of their respective seed. Studies on the effectiveness of advertising designed to differentiate product or service from those of rivals concluded it was not enough to simply advertise vigorously (Smith, 1992). Rather, some act of innovation in the product advertised and/or in the advertising itself was needed to create an advantage over rivals (Scherer and Ross, 1990). The marketing structure of many larger proprietary seed companies fostered brand identification and set proprietary varieties apart from the public varieties, thereby raising the barriers to entry. Proprietary seed companies aggressively funded and promoted research and development of their new seed varieties. Tie-in sales were the rule, and the largest share of proprietary seed was sold by the end of January.

Brand equity is a set of brand assets and liabilities linked to a brand, its name and symbol that add or subtract from the value provided by the product to a firm or the firm's customers. Components of brand equity include: (1) brand loyalty, (2) name awareness, (3) perceived quality, (4) brand associations, and (5) proprietary brand assets, such as, patents and symbols. In addition, brand equity: (1) helps differentiate the product from competitors' offerings, (2) serves as a proxy for quality and creates positive images in consumers' minds, (3) prevents market share erosion during price and promotional wars, and (4) allows a firm more time to respond to competitive threats (Bharadwaj et.al., 1993).

In contrast to proprietary field seed companies, consider the way Michigan public variety field seed was marketed. There was little brand identification (many producers grew small acreage of selected varieties), tie-in sales were few and most of the public variety field seed was sold between February and planting. Michigan public variety field seed producers needed to be involved in programs comparing the varieties they grew to promising and

established varieties from competing seed producers. Results from this activity could be used to improve the participating producer's seed program as well as identifying characteristics that differentiate seed in ways customers were willing to pay for.

Threats unique to the Michigan seed potato industry

The marketing savvy and aggressiveness of competing seed potato producing states. For example, Wisconsin seed potato producers were able to capture market share and profit from Michigan seed potato producers. Many of these competing producers attended potato industry functions that were held in Michigan. They conducted farm visits during the growing season with their customers and obtained feedback to improve their operations.

States utilizing a state seed farm were able to get a promising variety to market quickly. In a state seed farm system, the capacity to produce successive generations quickly and in large quantities can be focused on promising varieties. This ability to react quickly to changing customer needs forced Michigan seed potato producers to play catch up. For example, some Michigan producers turned existing customers away because they did not have enough Snowden seed to supply the demand. These customers were forced to go to Wisconsin seed producers for product and many did not come back after Michigan seed producers increased their supplies of Snowden seed. However, the state seed farm system can be slower if a new variety is thought not to be promising, and therefore not increased at the state farm.

Declining number of young potato growers who were interested in the seed business. This Michigan trend followed a broader national trend of concentration of fewer and larger farms, and a shrinking supply of traditional farm laborers and potential managers.

It is important to understand the benefits of a state seed farm to gain better insight into the nature of the seed potato industry. These benefits were: (1) a shared source of genetic material, (2) growers met regularly to discuss seed varieties and marketing strategies, and (3) new varieties that showed potential could be brought to market quicker than states utilizing independent genetic sources of seed. It was not suggested that Michigan adopt a state seed farm system. The political climate and condition of the Michigan seed potato industry made a state seed farm unlikely in Michigan. However, the lack of a state seed farm

was not the major problem facing the Michigan seed potato industry. The major problem was a lack of involvement and commitment to sound marketing practices that differentiated Michigan grown seed from non-Michigan grown seed. Once these problems have been addressed, it may be appropriate to look into the adoption of a state seed farm system.

Although the use of biotechnology in the seed industry as a threat in the seed industry was a threat that was not well defined, biotechnology had already left its mark in the seed potato industry. For example, Idaho seed potato growers expressed concern over Monsanto's attempt to patent Russet Burbanks with transgenic genes as a new variety, proprietary to Monsanto. The Russet Burbank had been the main stay of U.S. potato production for over 100 years. Both plant breeders and seedsmen alike were wondering how the seed industry will be affected should Monsanto be successful in obtaining this patent.

On May 5, 1995, the EPA approved the use of NewLeaf,® a biotechnically engineered potato plant that had built-in resistance to the Colorado potato beetle. NewLeaf® was developed by NatureMark, a subsidiary of the Monsanto Company. NewLeaf® was the first plant protected against an insect pest through biotechnology to be approved for commercial use. The FDA determined for its purposes that NewLeaf® potatoes were no different from other potatoes. The USDA determined that NewLeaf® potato plants did not require regulation because they were like other Russet Burbank potatoes grown (Potato Industry News, 1995).

NatureMark plans to introduce NewLeaf® seed potatoes through existing channels in the potato industry, via established seed growers and brokers. Approximately 1,600 acres of NewLeaf® potatoes were planted across the U.S. in 1995 (Michigan Potato Industry Commission, 1995).

Conclusions regarding threats facing the Michigan public variety field seed and seed potato industries

Michigan public variety field seed and seed potato producers were being subjected to a multitude of threats including, but not limited to: (1) the organization, structure, and aggressiveness of competitors, who utilized effective marketing tools, such as, tie-in sales, (2) the general perception that public variety field seed and seed potato breeding programs were not keeping up with proprietary seed companies and competing seed producers respectively, and (3) the declining amount of "young blood" actively involved in the respective seed industries.

In comparing threats to disadvantages it was clear that profitability in the Michigan public variety field seed and seed potato business was no longer guaranteed because you were a good "seed producer." Public variety field seed and seed potato producers must be aggressive and visible in the seed and commercial field crop and potato industries, possess a well thought-out strategic plan, and be constantly differentiating their product or service from competition.

4.2.2.5 Conclusions regarding the SWOT analysis for the Michigan seed potato industries

The Michigan public variety field seed and seed potato industries were in a state of decline. Proprietary field seed companies and non-Michigan seed potato firms had competitive advantage in the marketplace. There were individual Michigan public variety field seed and seed potato producers that possessed more of the competitive advantages and fewer of the competitive disadvantages than those listed. The Michigan public variety field seed and seed potato industries as a collective force needed to generate additional competitive

advantages and reduce the number of competitive disadvantages in order for individual producers to sustain profitability in the long-run.

Given the fact that Michigan public variety field seed and seed potato producers had few competitive advantages, many competitive disadvantages and faced a myriad of threats, Michigan public variety field seed and seed potato producers' best chance for increased product usefulness, competitiveness, and profitability would come from analyzing the numerous opportunities in the marketplace and generating competitive advantages that seized those opportunities.

Michigan public variety field seed and seed potato producers needed to grow for a market instead of growing to market. In other words, Michigan seed producers should know who they were growing seed for and what they expected in terms of size, quality, and price, instead of growing seed because they always planted a certain acreage.

The obstacles to profitability were not what Michigan public variety field seed and seed potato producers were doing, as much as what they were not doing. What Michigan seed producers were not doing included the following: (1) differentiating their seed, (2) getting involved in the seed industry, (3) utilizing a well thought-out industry marketing plan, (4) pricing their seed based on value, and (5) promoting those Michigan grown varieties that out perform non-Michigan grown varieties. With an appropriate plan of action, Michigan public variety field seed and seed potato producers could change their destiny.

In the next section titled "Proposed Strategic Plan For Michigan Public Variety Field Seed and Seed Potato Industries," a plan is outlined that offers suggested actions to improve the product usefulness, competitiveness, and profitability of the Michigan public variety field seed and seed potato industries.

4.3 Proposed Strategic Plan For the Michigan Public Variety Field Seed and Seed Potato Industries

The proposed strategic plan for the Michigan public variety field seed and seed potato industries consists of three parts, (1) a proposed mission statement for the Michigan public variety field seed and seed potato industries, (2) proposed objectives for the Michigan public variety field seed and seed potato industries, and (3) a strategic posture for the Michigan public variety field seed and seed potato industries.

4.3.1 Proposed mission statement for the Michigan public variety field seed and seed potato industries

Mission statements are normally applied to individual firms. A mission statement is management's vision of what an organization is striving to become. Table 4.1 is the mission statement the author proposed for the Michigan public variety field seed and seed potato industries. This mission statement captures those broad, but fundamentally important concepts that Michigan public variety field seed and seed potato producers must profess and execute if the Michigan public variety field seed and seed potato industries are to reduce the competitive forces and sustain long-term profitability.

This proposed mission statement is a vision of what every Michigan public variety field seed and seed potato producer should consider striving to become. A mission statement should be hung on the wall for all management, employees, customers, and visitors to see. This document should provide long run guidance and serve as a double-check in daily decision making.

Table 4.1 Proposed mission statement for Michigan public variety field seed and seed potato producer associations

MICHIGAN PUBLIC VARIETY FIELD SEED AND SEED POTATO PRODUCER ASSOCIATION

MISSION STATEMENT

We believe our primary business is much more than seed production. Our business is the **advancement**, **promotion**, and **marketing** of quality-based genetics, information, and service.

We are committed to being driven by **specific customer needs** and to establishing prices for our products and services that reflect the **value being offered**.

We have an obligation to ourselves to remain a **viable**, **profitable**, **well managed** and **respected** agricultural firm.

We have a responsibility to the field seed industry to preserve our reputation for **progressiveness**, **industry involvement**, and **outstanding quality** and **service**.

Source: 1993 Michigan public variety field seed and seed potato industry strategic plans. Based on information obtained from competitive and SWOT analysis.

Key words have been denoted by bold print in the mission statement. These key words state principles that producers in the Michigan public variety field seed and seed potato industries should be striving for. Michigan seed producers were skilled in seed production, but not in the marketing and promotion of seed. Additionally, Michigan seed producers did not have a reputation for progressiveness, involvement in their respective industries, nor were they known for targeting of specific customer needs. Overall, the mission statement thus provides a challenging vision for the industry to follow.

4.3.2 Proposed objectives for the Michigan public variety field seed and seed potato industries

Objectives are specific performance outcomes to be achieved within a specific time in the future. Objectives provide a structure in which daily decisions can be judged to keep the firm focused on carrying out it's mission.

What follows is a summary of suggested objectives for the Michigan public variety field seed and seed potato industries. The objectives are arranged by type: financial and strategic. Comments have been made on selected objectives to explain why they are reasonable or how they correspond to the mission statement described above.

4.3.2.1 Financial objectives

Achieving financial objectives is a must; otherwise the future of the Michigan public variety field seed and seed potato industries are at risk. Following are the financial objectives that are relevant to the Michigan public variety field seed and seed potato industries given the available financial information:

1. **Improve the profitability of growing public variety field seed and seed potatoes to a level higher than commercial field crop or potato production, including a premium for risk**. Many producers who were interviewed indicated modest or low profits from their seed operations. A more specific measurement was not possible because specific financial data was not gathered. One purpose of this research was to generate a strategic plan that improved profitability.

   More commercial potato producers would enter the seed market(increasing the seed grower base) if the profits from seed potato production were greater than commercial potato production and included a premium for risk. This risk premium was necessary to cover such things as certification and the reality of not being able to sell any of your crop as seed if one lot was found to have ring rot in it.

2. ***Increase the credit management skills of seed producers in the Michigan public variety field seed and seed potato industries.*** Most of the seed producers who were interviewed stated their need to sell to customers who would pay their bills and their desire to improve their credit management skills.

4.3.2.2 Strategic objectives

Strategic objectives measure strategic performance which is essential to sustaining and improving the market position of the Michigan public variety field seed and seed potato industries. Setting strategic objectives is the equivalent of charting a course through the murky waters of the competitive forces for the purpose of reaching the shores of profitability. Strategic objectives must: (1) lead to the development of competitive advantages that coincide with priority opportunities, and (2) lead to ways that isolate or reduce the effect of competitive disadvantages that make the Michigan public variety field seed and seed potato industries most vulnerable to threats. Strategic objectives for the Michigan public variety field seed and seed potato industries are discussed below:

1. **Increase the amount of time each year for long-range planning and marketing**. A wise person once said that failing to plan is planning to fail.

2. **Increase customer satisfaction above current levels**.

3. **Become more competitive in the public variety field seed and seed potato industries**.

4. **Increase the amount of innovation coming out, and the involvement going in, the Michigan public variety field seed and seed potato industries**. The Michigan public variety field seed and seed potato industries were often accused of lacking innovation and involvement. What was at stake was not just the survival of individual seed producers, but rather the survival of the respective Michigan seed industries.

4.3.2.3 Conclusions regarding the objectives for the Michigan public variety field seed and seed potato industries

After the strengths, weaknesses, opportunities and threats have been identified, the strategic plan is designed to capitalize on the industry's competitive advantages, limit exposure in areas where the industry is at a competitive disadvantage, counteract the most serious threats and seize opportunities. As stated earlier, the Michigan public variety field seed and seed potato industries had few competitive advantages in which to seize opportunities and increase profitability. The above stated objectives provide a challenging set of accomplishments for the respective industries to achieve.

4.3.3 Strategic posture for the Michigan public variety field seed and seed potato industries

Strategy, in effect, is management's game plan for strengthening the organization's position, pleasing customers, and achieving objectives. Managers design strategies to guide how the company's business will be conducted and to help them make reasoned, cohesive choices among alternative courses of action (Thompson & Strickland, 1995).

A strategic posture[32] is a formal or informal set of decisions that: (1) expresses how management intends to achieve a firm's long-term vision and objectives, (2) commits management to a way of achieving competitive advantage, (3) originates from awareness of the firm's internal strengths and weaknesses, and its external opportunities and threats, and (4) unifies short-term operational action plans and decisions. A strategic posture includes

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[32]H. Christopher Peterson. "Strategic Posture: Choosing A Business Direction In An Uncertain World." *Presented at the Management Clinic.* Louisville: February 6, 1994.

decisions in at least three areas: the competitive advantage strategy, the industry role, and the strategic initiative.

4.3.3.1 Competitive advantage strategy for the Michigan public variety field seed and seed potato industries

Competitive advantage strategies are the most general of the three areas comprising a strategic posture. In selecting a competitive advantage strategy, a firm is choosing an overall strategy that serves as a guide in all decision making. There are four possible competitive advantage strategies that could have been recommended to Michigan public variety field seed and seed potato producers: Price/Cost Advantage, Quality/Features Advantage, Niche/Market Focus Advantage, and Continual Improvement Advantage. Definitions of each of these competitive strategies is presented below:

> **Price/Cost Advantage:** a price driven strategy based on sound, basic products and services offered to a broad market (also known as *low cost*).
>
> **Quality/Features Advantage:** a quality driven strategy based on specialized products or services offered to a broad market (also known as *differentiation*).
>
> **Niche/Market Focus Advantage:** a customer driven strategy based on specialized products or services offered to a targeted market.
>
> **Continual Improvement Advantage:** a value-driven strategy based on continual innovation in product, service, and process.

It was recommended that Michigan public variety field seed and seed potato producers select the quality/features advantage as their competitive advantage strategy. Quality/features advantage strategies in the Michigan public variety field seed and seed potato industries are quality-driven strategies based on specialized products and services offered to a broad market.

Michigan public variety field seed and seed potato producers needed to offer seed and/or services that were different from competitors. These differences must be communicated in believable ways. Individual seed producers should concentrate on a few key differentiating features to create a brand image and quality reputation.

The source of profitability in this strategy is contingent on obtaining a premium price for the product or service offered. Michigan public variety field seed and seed potato producers will not improve their profitability through existing seed pricing practices. Most Michigan seed producers received an average price for their seed. This strategy was profitable only if the firm was able to produce seed at costs lower than competitors. Unfortunately, Michigan public variety field seed and seed potato producers were not the low cost or the high volume producers.

All strategic decisions have pros and cons. A quality/features strategy is vulnerable to imitation by competitors and changing customer tastes and needs that reduce the value of the uniqueness. Another risk of this strategy would be that Michigan public variety field seed and seed potato producers may not be able to create and market a truly differentiated product, leaving them in their current state.

4.3.3.2 Industry role for the Michigan public variety field seed and seed potato industries

Decisions regarding the role of Michigan public variety field seed and seed potato producers in the seed industry are more specific than choosing a competitive advantage strategy, but not as specific as choosing strategic initiatives. Once a firm selects an industry role, a firm knows if it should position itself as a leader, innovator, imitator, or a supplier that

fills in gaps in the marketplace. There are four competitive roles that could be recommended to the Michigan public variety field seed and seed potato industries; Leader, Adapter, Challenger, and Loner. Definitions of each competitive role are provided below:

Leader Largest market share; initiator of change which causes response.

Adapter Follower and adopter of successful strategies from others.

Challenger Innovator of strategies that challenge the industry.

Loner Provider of products and services that fill gaps in the market.

It was recommended that Michigan public variety field seed and seed potato producers choose either a challenger or an adapter industry role depending on the variety of seed being grown. Michigan public variety field seed and seed potato producers should adopt a challenger role for those Michigan grown public variety field seed and seed potato varieties that out performed the varieties from proprietary seed companies and competing areas. A challenger is an innovator of strategies that challenge the seed industry. A challenger will often make the first move in the marketplace because of innovation and lack of flexibility on the part of the leader. Rarely can a runner-up firm improve its competitive position by imitating the strategies of leading firms. Michigan public variety field seed and seed potato producers should avoid head-on attacks of the leaders in their respective industries.

No single Michigan producer had the resources or market share to be the industry leader. Michigan public variety field seed and seed potato producers could challenge the leaders on yield and other quality/performance factors with selected varieties. Michigan public variety field seed and seed potato producers must actively support research and advancement of new seed varieties. A strong partnership between potato plant breeders and

Michigan public variety field seed and seed potato producers would ensure continued access to seed varieties that could be used to challenge the leaders.

The risks associated with a challenger role include; the uncertainty of being a first mover without the resources of a leader, and as such, challengers are subject to retaliation from leaders. For example, Michigan public variety field seed producers may have access to a new wheat variety that out performs existing proprietary varieties. This advantage could be lost if the public variety seed producers stumble over each other during the introductory phase, allowing leading proprietary seed companies to react with new varieties of their own.

Michigan public variety field seed and seed potato producers should embrace an adapter role for those Michigan grown public variety field seed and seed potato varieties that do not out perform proprietary and non-Michigan grown varieties. A follower is not a bad thing to be in a strategic sense. Followers are adopters and adapters of successful strategies from others.

Adapters in the Michigan public variety field seed and seed potato industries are relatively certain that adopting and following successful strategies of others will be profitable. Adapters face low innovation costs because leaders and challengers need to commit more resources to be the first to make a strategic move in the seed industry. It will be important that Michigan public variety field seed and seed potato producers price their seed for the value offered under these conditions. The shortcomings of the varieties grown by the leaders need to be targeted by promoting Michigan grown seed potato varieties that fill these shortcomings. Michigan public variety field seed and seed potato producers must concentrate on offering quality/features advantages for their products and/or services to avoid the temptation to sell seed strictly on price.

Risks associated with an adapter role include; giving up the advantage of a successful first move, and an adapter may be shut out from a market opportunity altogether. In the Michigan public variety field seed and seed potato industries it was likely that an adapter would miss some of the advantages of being a first mover, but unlikely an adapter would be shut out altogether from opportunities.

4.3.3.3 Strategic initiatives for the Michigan public variety field seed and seed potato industries

The most specific of the three areas comprising a strategic posture are strategic initiatives. These initiatives state whether a firm has decided to keep, expand or shrink the business in size and scope, change key elements of market position, or to exit the business altogether. There are five basic priority strategic initiatives to choose from; Grow, Maintain/Defend, Reposition, Retrench, and Exit. Definitions of strategic initiatives are given below:

Grow	Expand size and/or scope of business.
Maintain/Defend	Keep what the firm has achieved in size and scope.
Reposition	Maintain scope and change key elements of market position.
Retrench	Reduce size and scope of business.
Exit	Leave the market.

It was recommended that Michigan public variety field seed and seed potato producers reposition part of their business and grow another part.

Repositioning strategies for the Michigan public variety field seed and seed potato industries

Michigan public variety field seed and seed potato producers should reposition themselves as involved marketers who are committed to answering the needs of the field crop and potato industries. The goal of a repositioning strategic initiative is to substitute better opportunities for weaker ones. The following are repositioning strategic initiatives for the Michigan public variety field seed and seed potato industries:

- **Change the image of Michigan public variety field seed and seed potato producers in their respective industries**. Michigan public variety field seed and seed potato producers must overcome the stereotype that they "operate in their own little world." Increased involvement and aggressive participation will lead to better access to potential customers, and a better understanding of industry trends and customer needs. It is human nature for commercial field crop and potato buyers to want to associate with the movers and shakers in the seed industry.

- **Continued innovation through variety advancement**: Michigan public variety field seed and seed potato producers must continue to fund research that generates new and improved varieties of seed to keep up with the research and development efforts of proprietary field seed companies and competing seed potato producing areas.

The risk associated with choosing a strategic initiative based on repositioning is the uncertainty in assessing or implementing the "better" opportunities. Michigan public variety field seed and seed potato producers must carefully and correctly identify the most important needs of customers in their respective industries. Incorrect identification of customer needs will cause this repositioning to take them even further away from obtaining long-term profitability.

Growth strategies for the Michigan public variety field seed and seed potato industries

Michigan public variety field seed and seed potato producers should choose actions that cause the Michigan public variety field seed and seed potato industries to grow. The goal of a growth-oriented strategic initiative is to expand sales and profits. The following are growth strategic initiatives for the Michigan public variety field seed and seed potato industries:

- **Expand marketing radius beyond existing boundaries**: For most Michigan public variety field seed and seed potato producers, this radius was less than 150 miles. In general, Michigan public variety field seed and seed potato producers were uncomfortable marketing their seed outside their established marketing area. This initiative targets potential customers and combats the phenomenon of all things being equal, your neighbors may perceive that seed from outside this radius was somehow better.

- **Expand current customer base by targeting two new customers each year within the existing marketing radius**: Michigan public variety field seed and seed potato producers were too comfortable with selling to the same customers year after year. In general, Michigan public variety field seed and seed potato producers expected their existing customers to remain their. customers forever. Perhaps something as simple as deciding to look for new customers would lead to an increased customer base and hopefully, less pressure on price. Buyer-seller relationships often take years to develop.

The risk in choosing a strategic initiative based on growth is that a firm can lose focus on what makes it different from its competition. Michigan public variety field seed and seed potato producers must guard against becoming so preoccupied with trying to grow the business that they forget about taking care of seed production basics: offering a top quality product that gives buyers real value for their money.

4.3.3.4 Conclusions regarding the strategic posture for the Michigan public variety field seed and seed potato industries

Several firms can succeed in the same industry by pursuing various strategies, each seeking a distinct competitive advantage. Some of the toughest strategic issues managers face involve transforming their own organizations rather than conquering external adversaries. Many strategic planning systems focus on operating and financial details, not competitive positioning, and many lose sight of the critical competitive issues that planning should address (Montgomery and Porter, 1991). Michigan public variety field seed and seed potato producers need to spend more of their time on competitive positioning, and less time on operational issues.

Adoption of this strategic posture would reduce the effect from the five competitive forces and increase profitability in the following ways. Establishing a quality/features advantage would allow Michigan public variety field seed and seed potato producers to establish brand identification and loyalty, thus lowering the threat of substitutes. A quality driven strategy forces the competition to sell their product in ways other than price and raises the barriers to entry. Selling specialized seed would reduce the bargaining power of buyers because a differentiated seed would no longer be viewed as a commodity item. The Michigan public variety field seed and seed potato producers would then have something selected buyers want and would pay for. Positioning Michigan grown public variety field seed and seed potato producers as a challenger or an adapter, depending on the specific variety, would enable Michigan grown public variety field seed and seed potato varieties to target the weaknesses of the leading proprietary and non-Michigan grown seed varieties without spending as much on promotion as the leaders did. Expanding a producer's marketing radius

and customer base would increase the number of potential buyers and reduce buyer bargaining power because the seed producer would have more sales outlets and chances to match up with specific buyer needs.

4.4 Broad Recommendations For Implementing the Strategic Plan

The specific strategies that Michigan public variety field seed and seed potato producers should choose as their priorities are:

1. **Initiate an educational program at the individual producer and industry level that: (1) differentiates Michigan grown public variety field seed and seed potatoes from proprietary field seed and non-Michigan seed potatoes and, (2) establishes prices for seed based on the value offered.**

2. **Reposition Michigan public variety field seed and seed potato producers as involved marketers who are committed to answering the needs of the public variety field seed and seed potato industries.**

3. **Establish a common marketing association to:** (1) control seed supplies, thereby managing seed prices, (2) provide an effective means of competing against aggressive proprietary field seed firms and neighboring seed potato producing states, (3) encourage managed growth of the Michigan public variety field seed and seed potato industries, (4) encourage the sharing of technology and information, (5) provide a forum where diverse competitors can learn from one another, and (6) increase involvement and visibility in their respective seed industries.

4. **Support the development and promotion of Michigan grown public variety field seed and seed potato varieties** to keep up with the research and development efforts of proprietary seed firms and competing seed potato producing areas. Those differences that favor Michigan grown seed varieties must be promoted to increase the demand, sales and profits for Michigan grown public variety field seed and seed potatoes.

   Individual growers should use this knowledge of better performance at every opportunity to promote Michigan seed. A check-off system could be established (e.g., $.05 per bushel on wheat or $.05 per cwt on seed potatoes) for those seed producers that favor Michigan grown seed varieties efforts in addition to the current promotion that is done by MCIA.

If genuine progress is to be made raising the profitability of seed producers within the Michigan public variety field seed and seed potato industries, the practice of pricing seed based on the commercial market, on a competitor's price, or pricing based on the cost of production must be replaced by a quality-driven strategy based on specialized products and services offered to a broad market. Michigan public variety field seed and seed potato producers need to offer products and services that are different from competitors, and these differences must be communicated in believable ways. Individual seed producers should concentrate on a few key differentiating features to create a brand image and quality reputation.

Michigan public variety field seed and seed potato producers must change the image that they "operate in their own little world." Increased involvement, aggressive participation, and a better understanding of industry trends and customer needs would lead to opportunities that increase profitability.

4.4.1 Purposes, distinguishing features, and feasibility of common marketing associations in the Michigan public variety field seed and seed potato industries

Given the emphasis the strategic plans placed on the formation of a common marketing association, this subsection explores the purpose, distinguishing features, and feasibility of using common marketing associations in the context of the Michigan public variety field seed and seed potato industries.

4.4.1.1 Goals of a common marketing association

According to Cotterill (1994) the purpose of a common marketing association is to achieve one of the following:

1. **Market power for negotiating price enhancements**. Michigan public variety field seed and seed potatoes are likely to face an inelastic demand. A small decrease in supply could result in a substantial increase in the price of seed, while affecting the quantity demanded for seed relatively little.

2. **Economies of size in operations.** By pooling their resources and marketing efforts, seed producers may be able to capture economies of scale. For example, advertising and promotion, normally prohibitive for individual producers, is possible under cooperative effort. As another example, companies offering biotechnological advancements are more willing to sell these advancements to organized groups of seed producers verses small individual seed producers who are battling each other.

3. **Information sharing, which includes price coordination.** Producers could be educated regarding pricing practices, varietal differences and strengths relative to proprietary varieties. A forum could be established to increase seed producer interaction. The goal would not be to eliminate all rivalry, rather to change the existing cut-throat priced based rivalry into a rivalry based on quality.

4. **Market development, or value-added.** A well organized cooperative effort could respond to changing market conditions. For example, providing the quantity and quality of wheat seed needed by commercial wheat growers who in turn supply cereal manufacturers who are constantly employing new variety-sensitive cooking technology.

By forming a common marketing association there should be increased communication between seed producers regarding seed availability and market conditions. It was one thing to suggest a strategic plan to seed producers, and entirely another to get seed producers to implement the plan and to stick with it. A common marketing strategy, if properly implemented, would enforce more uniformity and marketing discipline in the Michigan public

variety field seed and seed potato industries. The benefits of participating in such a strategy would have to out-weigh any restrictions on individualism.

A strong Michigan public variety field seed and seed potato breeding and promotion program would be necessary just to compete with the proprietary seed firms and non-Michigan grown seed potato varieties. These small individual efforts could add up to a formidable industry force.

4.4.1.2 The feasibility of a common marketing association as a recommendation

Most seed producers want to be in a producer association that does more than hold meetings, they want an association that can increase their income, product usefulness, customer satisfaction, and competitiveness. To achieve these goals, growers will have to recognize obstacles and take steps to overcome them. The first obstacle is the antitrust law. Federal and state antitrust laws prohibit agreements among competitors that unreasonably restrain free enterprise (Fredrick, 1993). The most blatant violations of antitrust laws involve competitors fixing prices and agreeing among themselves on other terms of sale.

The Capper-Volstead Act of 1922 gives qualified exemption status to farmer cooperatives. The Capper-Volstead Act protects legitimate cooperative marketing activities by growers and other farmers. Eligibility for exemption from antitrust laws must meet several requirements including:

1. Membership must be limited to persons actually engaged in the production of agricultural products.

2. The association must be operated for the mutual benefit of the members as agricultural producers.

3. The association must make decisions on the basis of each member gets one vote or limit the dividends on stock and membership capital to not more than eight percent each year. The association may also do both.

4. The association may market products for non-members. However, the value of the products handled for members must exceed the value of products handled for non-members.

The examples of common marketing associations presented in this paper are based on the guidelines listed above.

Common marketing associations that qualify for protection under Capper-Volstead have several options to increase their market power including:

1. Agreeing amongst themselves on prices, fees for services performed and other terms of trade.

2. Cooperative members can agree on the extent of joint marketing activity they will undertake. For example, Land O' Lakes does more than sell their producers' products. They have a distribution network that includes placing Land O' Lakes products on grocery shelves.

3. Members of cooperatives are free to work with members from other cooperatives.

4. A Capper-Volstead cooperative can achieve substantial market power, even monopoly power, without being in violation of antitrust law

There are limits on the conduct that Capper-Volstead protects. Cooperatives are not forbidden to take part in these activities, but the legality of these activities would be judged as if they were undertaken by a non-cooperative business (Fredrick, 1993). These limits include:

1. Agreements concerning business practices unrelated to agricultural marketing are not protected.

2. Agreements between farmer cooperatives and any person or firm that is not a farmer or farmer cooperative are not protected.

3. Acquisitions of non-cooperative firms, particularly competitors, are not protected.

Seed producers should not be surprised that seed buyers might resist having to deal with a sizeable, aggressive producer association, especially when seed producers have previously been unorganized or the association has more of a concept on paper versus a viable reality. Seed producers should be ready for a "divide and conquer" mentality on the part of some buyers. These buyers will probably attempt to circumvent the common marketing association by looking for association members who are willing to deviate from the marketing rules that have been established by the association.

There is a need for producer associations to acquire a sufficient number of members and a strong commitment of support from its members before it can successfully represent those producer-members. Other considerations include financial stability and policy consensus if the association is to survive and help its members achieve their objectives.

Michigan public variety field seed and seed potato producers should not have to worry about being in violation of anti-trust laws if they desire to form a common marketing association following the stated guidelines.

4.4.2 Risks associated with adoption of the broad recommendations

Implementation of the broad recommendations are not without risk. The downside or risks associated with these recommendations are:

1. **Michigan public variety field seed and seed potato producers may refuse education efforts directed toward selling value**. It would not be easy for individual producers to switch from a production orientation to a market orientation.

2. **Michigan public variety field seed and seed potato producers may just not want to invest the time and effort it takes to be aggressively involved in their respective seed industries**. The amount of income derived from seed operations may be too small in comparison to other farm enterprises to warrant much attention.

3. **Michigan public variety field seed and seed potato producers may have interests and goals that are too diverse to form a common marketing association**. Unfortunately, common marketing associations usually form only after a critical event has occurred, such as, years of fierce rivalry and low profits. The question is, have the Michigan public variety field seed and seed potato industries reached this point?

Common marketing associations are not without weaknesses. Weaknesses of common marketing associations include:

1. The possibility of free rider behavior when attempting to achieve market power or price coordination.

2. A common marketing association may take on a life of its own resulting in loss of local control.

3. Common marketing associations are often valued as a transitional form, valuable experience which will lead to a merger. This can be risky if mergers are delayed too long when they are needed, and competitive advantage is lost.

There is the potential problem of maintaining commitment from the members of a common marketing association. Often the commitment fails after a couple of years and the common marketing association ceases to be effective.

In balance, a common marketing association is recommended because Michigan public variety field seed and seed potato producers have: (1) few competitive advantages, (2) a fair number of opportunities, (3) many competitive disadvantages, and (4) are faced with a multitude of threats. A common marketing association could assist seed producers in

reaching the stated objectives including increasing the amount of innovation coming out of, and the involvement in the respective seed industries.

This strategic plan would be incomplete if specific suggestions on how to address the findings and implement the recommendations were not included. As a member of the MCIA Executive Board said to the author after the strategic analysis and plan was presented, "this is a good plan, but we need more specifics so that our members will be able to put this plan into practice." The next section titled " Specific Recommendations For Michigan public variety field seed and seed potato producers" is designed to provide those details necessary to move the strategic plan from paper to results.

4.5 Specific Recommendations For Carrying Out the Broad Recommendations

Specific recommendations are precise plans of action designed to carry out the mission statement, objectives, and strategic posture. The proposed specific recommendations for the Michigan public variety field seed and seed potato industries range from specific recommendations applied on an individual seed producer level to suggestions for a common marketing association.

Some specific recommendations apply to more than one area of the written strategic analysis and proposed strategic plan. For example, training Michigan public variety field seed and seed potato producers to differentiate their seed will affect the five competitive forces, address a particular weakness and opportunity facing field seed and seed potato producers, and validates a specific course of action to carry out one of the broad recommendations.

4.5.1 Specific recommendations directed at individual producers

The specific recommendations in the following subsection are targeted at solving specific problems identified in the strategic analysis and plan sections earlier in this chapter. Specific recommendations directed at individual producers common to, as well as unique to, the Michigan public variety field seed and seed potato industries are discussed in detail below.

4.5.1.1 Lack of differentiation regarding Michigan public variety field seed and seed potatoes, and service

Lack of differentiation can be overcome through education, training, and practical application of sales techniques. The following specific recommendations are offered as a way to reduce the lack of differentiation.

MCIA should continue funding educational programs (newsletters or workshops put on by MSU plant breeders) that provide Michigan public variety field seed and seed potato producers with information to explain how specific Michigan grown public variety field seed and seed potato varieties compare to related proprietary field seed and non-Michigan grown seed potato varieties (e.g., public variety soybeans compared to Asgrow soybeans or Snowdens grown in Wisconsin compared to Snowdens grown in Michigan) in terms of yield, vigor, disease resistance, and quality.

Training of Michigan public variety field seed and seed potato producers could include analyzing the credit worthiness of their customers (selling to people who will pay their bills). Although the level of bad debt was relatively low in the Michigan public variety field seed and seed potato industries, a credit specialist could be hired to conduct seminars to educate producers on bad debt management techniques.

MCIA, in conjunction with other crop improvement associations, could pool their resources to sponsor a nation-wide effort to better educate seed producers on how to market their seed. Many of the problems facing Michigan seed producers are common to seed producers across the nation. The limitation of this approach is that there may be proprietary aspects that would not lend itself to a national training approach. For example, Michigan seed producers may want educational programs geared towards marketing seed, given competition from neighboring seed producing states. These specific needs could be addressed on a state by state basis.

Michigan seed producers could incorporate these training programs into a certification program that awards a degree to seed producers who fulfill the requirements. Once earned, this degree would allow these graduates to distinguish themselves from other seed producers in the public variety field seed and seed potato industries. This approach could position Michigan public variety field seed and seed potato producers as innovators.

MCIA should sponsor marketing seminars that train members how to effectively use sales techniques. These seminars should accommodate busy producer schedules in order to maximize member participation. Possible topics include:

1. Formulating and using a basic sales presentation.
2. Implementing a quality/features advantage strategy.
3. What it means to be a challenger and how to make it work.
4. How to make profits as a follower in the public variety field seed and seed potato industries.
5. How to deal with fierce competition from neighboring seed producers.
6. How to sell service and information, in addition to seed, to your customers.
7. The establishment of and timing of a seed price each marketing season.
8. How to sell to large volume buyers and make a profit.
9. Setting up a contract sale or a multi-year sales agreement.
10. Pricing based on the value being offered.
11. How to identify potential customers and other methods of market assessment.
12. Taking advantage of tie-in sales.

13. Determining the true cost of seed production.
14. How to sell to buyers who insist on pricing seed based off the commercial market.

Application of the techniques discussed in the proposed marketing seminars must be directed to real world. The seminars could include example sales calls and time for the participants to practice what they have learned.

Michigan public variety field seed and seed potato producers could choose to establish a higher standard than the existing certified seed standards (e.g., gold tagged seed). The idea being, to market seed that exceeds the minimum certified seed standards and to reduce the variation in quality among public variety field seed and seed potato producers.

The benefits of differentiating Michigan seed potato varieties include: decreasing the threat of entry, reducing the number of potential substitutes, lowering of buyer power (differentiated varieties no longer viewed as commodities), and lowering of the intensity of rivalry.

4.5.1.2 Lower the threat of substitutes

MCIA should sponsor Marketing seminars dedicated to selling specific Michigan public variety field seed and seed potato varieties against competing varieties and competing growing areas. These seminars must provide Michigan public variety field seed and seed potato producers with specific and measurable reasons why farmers should plant Michigan certified seed.

Michigan public variety field seed and seed potato producers should promote Michigan grown seed varieties at test plot sites, and through mailings and aggressive word

of mouth advertising. There were many opportunities to represent Michigan in these test plots. If Michigan seed producers did not make the effort, other seed producers would.

MCIA could sponsor Marketing seminars dedicated to selling Michigan public variety seed against bin-run. These seminars must provide Michigan public variety field seed producers with specific and measurable reasons why farmers should plant certified verses bin-run seed.

For example, public variety soybeans could be entered in the Michigan Soybean Variety Trials that are conducted each year. A contest could be conducted on a yearly basis comparing bin-run to certified seed. This contest could be moved around the state and the results could then be widely publicized.

In some cases, it may be possible to legislate the use of certified seed. For example, farmers seeking federal crop insurance could be required to use certified seed. The selling point would be that a cultural practice, such as, using certified seed will increase the farmer's chances of a successful crop. If there are areas of the state that are more prone to using bin-run seed, these areas should receive more attention and effort to educate growers on the benefits of using certified seed.

The appropriate MCIA committee should review the number of and types of crop industry meetings that are attended by MCIA members to determine what changes, if any, need to take place to better educate potential buyers on the benefits of planting Michigan certified seed.

4.5.1.3 Keeping customers when problems occur

The best way to deal with these problems is not to have them in the first place. There were seed growers who would deviate from their normal seed program and purchase seed stock from a new source or purchase a lower generation seed for decertification in order to meet customer demand. In doing so, the seed producer was trying to obtain short term profits, while risking long term disease problems and the marketing headaches that go with them.

Keep customers informed regarding the status of the seed crop. No one likes surprises of this nature. Honesty is the best policy. If you are not able to fill the order for your customer, try and get the product from another seed grower or refer your customer to someone who will take care of them.

4.5.1.4 Take advantage of tie-in sales

Most Michigan public variety field seed and seed potato producers grew more than one seed variety and they could capitalize on the opportunity to sell another variety or at least offer a promising new variety to the buyer. Most buyers want to be on the cutting edge of new developments and those Michigan seed producers who could establish a reputation for being progressive will be more likely to build long-term sales relationships and loyalty.

This opportunity is available to all public variety field seed and seed potato producers who grew more than one variety of seed. For example, producers could offer wheat white seed and soybean seed to the same customer. Training of tie-in sales techniques could be incorporated into producer seminars.

4.5.1.5 Offset the threat of volume buyers

Never rely strictly on one customer to buy the majority of your seed. Spread the business out. Know your costs and ask yourself if you are selling value or price. Accepting a reduced price on a large volume order is a sound business practice if accepting this order means you are able to lower costs in other areas, such as, reducing the amount of time you have to be available to make other sales calls or to be available to fill other, smaller orders.

4.5.2 Specific recommendations directed at both the individual and achieving cooperative effort

The specific recommendations in the following subsection are targeted at solving specific problems in the strategic analysis and plan sections earlier in this chapter. Specific recommendations directed at both individuals and seed producing groups common to, as well as unique to, the Michigan public variety field seed and seed potato industries is discussed in detail below.

4.5.2.1 Reduce supplier power

Small groups of neighboring public variety field seed and seed potato producers could order selected inputs together to take advantage of the increased buying power that comes with larger volumes. For example, combining herbicide and insecticide orders to achieve volume buying discounts.

4.5.2.2 Target Michigan public variety field seed and seed potato varieties to specific customer needs

Most customers are willing to pay for products and services that more closely fit their needs. Individual producers should pay attention to their customers and the people they interact with each day. For example, if you know one of your customer's farms has heavy soil, suggest varieties that perform well on heavy soils.

It is also possible that targeting specific customer needs may require cooperative effort. For a public variety field seed example, public variety white wheat seed producers could approach Star Of The West Milling to identify what specific white wheat characteristics they want and are willing to pay for. For a seed potato example, Michigan seed potato producers could approach Mid-America in an effort to identify specific processing needs they might have.

Another example involving cooperative effort would be to hire a sales force to sell Michigan public variety field seed and seed potatoes. The use of a professional sales force devoted to selling Michigan public variety field seed may lead to reduced price competition and increased information between seed producers regarding the marketing and pricing of seed.

Pioneer is an example of a company that was targeting specific customer needs in the field seed industry. Pioneer was developing animal specific corn varieties that had the potential to increase feed efficiency by 25%. These varieties, which were not biotechnically engineered, were to be grown in test plots in the Summer of 1995.

4.5.2.3 Michigan public variety field seed and seed potato producers as a resource

This specific recommendation is more a matter of attitude and approach to doing business, rather than a specific action. Individual producers must decide how much information or service they are willing to provide and how they will charge for them.

Collectively, Michigan public variety field seed and seed potato producers should decide if they want to position themselves as organizations commercial growers can depend on for new ideas and varieties. For example, the Wisconsin Potato Vegetable Grower Association has a Grower/Processor Committee that serves as a liaison between the Wisconsin potato growers and Ore-Ida. Wisconsin seed potato growers are allowed to, and often had, representation on this committee.

4.5.2.4 Extend commercial grower awareness that seed is important beyond planting

Individual seed producers could organize their own tour to visit customers. Tours could be organized by small groups of public variety field seed and seed potato producers who share the same marketing philosophy, or by a seed marketing association to encourage Michigan seed producers to visit customers during the growing season. County Agricultural extension agents could help arrange these tours.

4.5.2.5 Combat the perception that competing seed varieties from non-Michigan sources out performed Michigan grown varieties

If the evidence supported the conclusion that the competing variety out performed the Michigan variety, acknowledge the facts and concentrate on the strengths of the Michigan

grown variety such as, vigor or disease resistance. For example, a particular public variety seed may have been cleaner or have better vigor than the competing private variety.

If the perception was incorrect (Michigan-grown navy bean seed and the mis-perception of disease problems), a united effort must be made that educates buyers with correct information that replaces misinformation. Every effort should be made to get to the bottom of the misinformation.

As another example, the heavy producing areas of the state could be targeted as the locations for making sure public variety seed is grown on test plots along side the privates. Public variety producers could volunteer or be asked to represent Michigan public variety producers at these test plots, and to report the results of these trials to the membership at large.

For a seed potato example, consider a Michigan seed producer who planted Snowdens on "new" potato ground and failed to kill these early enough. This grower also sold this seed with larger than average sized potatoes than he should have. This action would reflect badly on the whole Michigan seed potato industry.

Another way of combating the perception problem is to experiment with new seed varieties. In the seed industry's competitive climate, experimenting with one new seed variety each year is the minimum cost of being in the seed business. Experimenting with two or more new varieties could give Michigan seed producers a competitive advantage. This could be used to advance the Michigan State field seed and seed potato breeding programs and to provide growers with something new to offer customers.

4.5.2.6 Support the Plant Variety Protection Act

This law is beneficial to the whole seed industry because it would enable the smaller Michigan public variety field seed and seed potato producers to compete with the larger proprietary and non-Michigan seed companies by granting patents to anyone who met the requirements. As of 1993, the Plant Variety Protection Act did not cover seed potatoes. A number of seed potato breeders were trying to get legislation passed that would change this. Any new public variety field seed and seed potato varieties should be sold under the guidelines of the Plant Variety Protection Act, whether they be released through a seed marketing association or released through traditional methods. Plant breeders, seed producers and marketers must agree upon how royalties would be handled. This includes royalties on seed sold outside of Michigan. The Plant Variety Protection Act should be supported by all seed producers. If the public variety field seed and seed potato breeding programs are allowed to weaken, the number of proprietary seed varieties that out-perform the remaining public varieties would increase putting increasing financial strain on public breeding programs.

Support of the Plant Variety Protection Act unique to Michigan seed potato producers

Potato genetics from European sources are to become available when the Plant Variety Protection Act is amended to include seed potatoes. European companies with potato germplasm were hesitant to enter the U.S. market in 1993 because of the lack of patent laws compared to variety protection in Europe.

A by product of the Plant Variety Protection Act was the use royalties to fund research and development of both private and public sources. Any partnership between

Michigan seed potato producers and a public source of new varieties, such as, MSU, should include provisions for royalties. The plant variety protection act should be supported by individual and group effort alike.

4.5.3 Specific recommendations directed at achieving cooperative effort

The specific recommendations in the following subsection are targeted at solving specific problems identified in the strategic analysis and plan sections earlier in this chapter. Specific recommendations directed at achieving cooperative effort common to, as well as unique to, the Michigan public variety field seed and seed potato industries is discussed in detail below.

Specific recommendations directed at achieving cooperative effort common to the Michigan public variety field seed and seed potato industries

4.5.3.1 What can be accomplished through cooperative effort?

In addition to the benefits stated under broad recommendations, a cooperative marketing association could provide a mechanism to assist in the funding of public plant breeding programs which in turn, helps to insure the survival of public breeding programs that produce competitive public varieties. MCIA could be the instrument that collects these funds. Many states collect money to support public breeding programs this way.

A cooperative marketing association could be set up to impose mandatory strategic planning as a prerequisite to obtaining the marketing rights of a new release. MCIA could be involved in the initial process of establishing a marketing association; for example,

providing mailing lists and meeting facilities. Remember, MCIA's mission is to certify and inspect, not to market specific seed varieties.

Finally, a cooperative marketing association could be used to promote seed with higher standards than existing public varieties and/or to market new releases. A cooperative effort may be the best way to embrace the challenges and opportunities in the seed industry as a result of biotechnology. MCIA should coordinate educational programs in this area.

Specific recommendations directed at achieving cooperative effort unique to the Michigan public variety field seed industry

4.5.3.2 The current membership fee

Annual membership fees could be raised to generate more money for support of public variety breeding programs or to provide additional dollars for promotion of Michigan public variety field seed. Michigan had one of the lower annual membership fees of the 42 states with crop improvement associations.

4.5.3.3 What other states were doing to promote the public variety field seed industry

A number of field seed producing states were contacted to determine what they are doing in terms of marketing, promotion, and strategic planning. What follows is a summary of what was found. Each example has both strong points and weak points. The author tried to capture the logic and purpose behind each approach. The reader is urged to read through Appendix E, which is a detailed listing of what other states are doing in terms of strategic planning and marketing.

Key for abbreviations found in Table 4.2

SEGA:	Southern Elite Genetics Association
ISA:	Illinois Soybean Association
PVI:	Public Varieties of Indiana
KSVRB:	Kansas Soybean Variety Release Board
AWWPA:	American White Wheat Producers Association
MSPPA:	Minnesota Seed Producer's and Promotion Association
MPS:	Minnesota Public Seeds (a brand name)
MPV:	Missouri Public Varieties, Inc.
AGRI:	Agricultural Genetic Research Incorporated

Table 4.2 *Comparative analysis between public variety field seed programs of selected U.S. states.*

Table 4.2 Comparative analysis between public variety field seed programs of selected U.S. states.

State	No. Growers/ Acres' Cert.	Prom/Mktg Association Name	Currently Involved in Strategic Planning?	Features of the seed program
Michigan	180 growers 51,500 acres			• Michigan public variety seed producers are in the process of developing a strategic plan • A significant portion of certified acreage is private
Georgia	140 growers 140,000 acres	SEGA	Yes	• Ensuring plant breeders have access to genetic improvements and biotechnology, public or private • Place a high priority on funding R&D, with a goal to keep enough certified acres to support breeding
Illinois	200 growers 153,000 acres	ISA(R&D) KSVRB		• Identity preserved grain lab for soybeans and corn • Sponsor annual contest b/t bin-run and public varieties • Large export state for seed, primarily Pioneer
Indiana	250 growers 133,000 acres	PVI		• Purdue will release sister lines • PVI's primary purpose is to fund R&D (3 million to date) • ICIA's attitude is to let producers market for themselves with a heavy emphasis on producer education
Kansas	245 growers 100,000 acres	KSVRB AWWPA	Yes	• Royalties do not go directly to KSU (fund research farm) • This is discussed in greater detail in Appendix E
Minnesota	1000 growers 250,000 acres	MSPPA MPS	Yes Just now beginning the strategic planning process	• MSPPA promotes all public varieties and is funded by all public varieties in the certification program • MSPPA reimburses up to 50% for co-op radio spots • MSPPA promotion budget is $250,000 / year, contracts promotional services with outside firm • MPS soybeans were the second most planted soybeans in MN in 1992
Missouri	150 growers 115,000 acres	MPV	Yes	• MPV is as an modification of the Kansas program • This is discussed in greater detail in Appendix E
Nebraska	400 growers 57,000 acres			• Nebraska is Involved in the KSVRB and doesn't have the normal pressure from the private seed • Brown bagging is a serious problem
Ohio	85 growers 136,000 acres	AGRI		• New membership fee is $7,500 • AGRI utilizes sister lines and a green tag system • Foundation seed now sourcing both public & private genetics

Source: Phone calls made to field seed certifying agencies in states outside of MI as a source of data collected for the 1993 Michigan public variety field seed industry strategic plan.

† The acres number represents certified seed acreage by both public and private producers.

4.5.3.4 Conclusions regarding what other public variety field seed states were doing

Michigan public variety field seed producers had plenty of catching up to do relative to seed programs in other states. Many states funded cooperative promotional and educational programs. A common theme among states with successful programs was that seed producers cooperate in some way (e.g., a seed association).

Specific recommendations directed at achieving cooperative effort unique to the Michigan seed potato industry

4.5.3.5 Formation of a strategic alliance between the Michigan Potato Industry Commission and Michigan seed potato producers

Before a strategic alliance can be formed, Michigan seed potato producers must be unified. Seed potato producers need to decide if they want to be more involved as a seed organization with the Michigan Potato Industry Commission (MPIC). Seed potato producers must agree upon what kind of relationship they want with MPIC prior to any formal contact with MPIC. For example, do Michigan seed potato producers want the MPIC to fund research or promote Michigan seed potatoes?

How were Michigan seed potato producers viewed by the growers affiliated with the MPIC? Did commercial growers feel seed producers should contribute more in terms of ideas or money? If the answer was yes, then the seed producers needed to address this issue. One goal should be to coordinate activities between the two groups to a greater extent. For example, the annual meeting for Michigan seed potato growers could coincide with the annual MPIC meeting.

4.5.3.6 Lack of progressiveness, visibility, and involvement in the seed and potato industries

Young potato growers should be encouraged to enter the seed industry. For example, Michigan seed potato producers, as an industry, could sponsor a young seed potato grower to attend the annual seed meeting.

Michigan seed potato growers needed to take a more aggressive position when regarding new variety trials. Many commercial growers were involved with testing new varieties for the processors or chippers, in conjunction with MSU. Seed producers needed to attend the Summer trials and to interact with the commercial growers to better understand how they perceived these new varieties. The Michigan seed potato industry must take advantage of opportunities to participate in activities that affect the vegetable industry. For example, Michigan seed potato producers could have been one of the commodity groups that were funding the state-wide Integrated Pest Management program.

If there was one commercial potato meeting all seed producers should have attended, it was the MPIC annual meeting. This was an opportunity for seed growers to get seed issues on the agenda, and perhaps more importantly, it was a chance to interact with many seed buying customers.

Perhaps, some of the seed potato meetings could be consolidated. If there were duplicate meetings being held in different parts of the state, it may be hard to get good representation at all of these meetings. This approach may cause additional traveling by some members and complaints by others.

Seed producers could establish a system that ensures seed industry representation at Michigan potato industry functions. As a group, Michigan seed potato producers should

review the number of and types of potato industry meetings that should be attended to determine what changes, if any, need to take place to ensure better representation.

Adoption of a common marketing association would increase visibility. Examples of common marketing associations operating in other states have been included in this paper (subsection 4.5.3.9).

4.5.3.7 Repair damaged reputation from a recent lawsuit

The basis for the lawsuit, as described in section 4.2.2.3 was to establish who the responsible party was for the transmission of the Late Blight potato virus and who would pay for damages resulting from the virus. The reason for including the lawsuit in the paper was because of the lawsuit's effect on the Michigan seed potato industry. The lawsuit loomed over the Michigan seed potato industry like a dark cloud and further added to the perception of an industry in trouble.

The lawsuit should have been settled as quickly and gentlemanly as possible. Seed producers needed to be honest and up front with the rest of the potato industry regarding the lessons learned and the structure that had been put into place to reduce the likelihood of this happening in the future. Perhaps the parties involved would have been willing to share what they learned from this process with the rest of the Michigan seed potato producers?

4.5.3.8 A state of Michigan seed farm?

Should Michigan seed potato producers seek to have a state-run seed farm like Wisconsin? Michigan seed potato producers should only pursue this after further research,

and only if Michigan seed potato producers are able to work closer with one another and become more aggressive and visible in the potato industry.

4.5.3.9 What other states were doing to promote the seed potato industry

Nine seed potato producing states were contacted to determine what they are doing in terms of marketing, promotion, and strategic planning. Table 4.3 is a summary of what was found. The strengths of each seed program is listed. The reader is urged to read through Appendix F, which is a detailed listing of what other states are doing in terms of strategic planning and marketing in the U.S. seed potato industry.

4.5.3.10 Conclusions regarding what other seed potato producing states were doing

The Michigan seed potato industry is relatively far behind the seed programs in other states. Many states fund educational as well as promotional programs in a cooperative manner. States with successful programs find multiple ways to cooperate (e.g., a state seed farm) and they are active in the state's commercial potato growers' organization as well. With the exception of Wisconsin, no other state indicated any measurable effort to assist seed producers in marketing their crop. Michigan seed potato producers could achieve competitive advantage if they would address the issue of marketing.

Table 4.3 Comparative analysis between seed potato programs of selected U.S. states as of January 1993.

State	No. Growers/ Acres Certified	Commercial potato production is an option	Has a State Seed Farm	Has a Promotion or Marketing Association	Involved in strategic planning	State has a Certified Seed Law	Strengths of the seed program
Michigan	27 growers 3,000 acres	★					• Freight advantage: Mi and selected Eastern States
Idaho	190 growers 45,000 acres	No for 120 growers Yes for 70 growers					• Improved relationship with the IPC • Access to Potato Growers of Idaho • Seed directory lists rejected lots • 120 growers only able to grow seed
Maine	330 growers 28,000 acres	★	★	★	★	★	• 20% of state's production from seed • Integral part of Maine Potato Board • Long history of producing seed
Minnesota	116 growers 30,000 acres			★		★	• All potato acreage must be in seed • 65% of seed growers belong Red River Valley Potato Growers Association
Montana	100 growers 8,500 acres						• Isolated growing area, little disease • Known for higher generation seed
Nebraska	12 growers 8,100 acres						• Small number of cooperating growers • Freight advantage to the West & SW
North Dakota	85 growers 30,000 acres	★	State Lab	★			• Outstanding potato breeding program • Size & diversity give buyers options
PEI	680 growers acres n/a	★ All acres entered as seed	Ag Canada	★			• Emphasis on exports • Plans to address marketing once PVY problems under control
Wisconsin	37 growers 10,000 acres	★	★	★	★		• Aggressive and highly visible • Currently creating a marketing plan

Source: Phone calls made to seed potato certifying agencies in states outside of MI as a source of data collected for the 1993 Michigan seed potato industry strategic plan.

4.5.3.11 Examples of common marketing associations in the field seed industry that the seed potato industry may learn from

Examples of common marketing associations in the seed potato industry were hard to find; it was useful to look at examples from the public variety field seed industry. The first is the Kansas Soybean Variety Release Board (Table 4.4). This is an illustration of an association created to promote and market new varieties of soybeans coming out of Kansas State University. The second example is the American White Wheat Producers Association (Table 4.5). This is an excellent example of how to target specific customer needs.

Conclusions regarding the achievement of cooperative effort in the Michigan public variety field seed and seed potato industries

4.5.3.12 What could public variety field seed and seed potato marketing associations accomplish?

Public variety field seed and seed potato marketing associations could accomplish the following if set up properly: (1) restricted access to a variety, if an association member fails to cooperate, (2) mandatory strategic planning as a prerequisite to obtaining the right to a new seed variety, (3) should be structured as a separate entity from MCIA, since MCIA can not legally promote one variety over another or become directly involved in the marketing of seed, (4) a system that allows university breeding programs to provide all public variety field seed and seed potato growers with "reasonable" access to new seed varieties, (5) a mechanism that generates money for promotion, and (6) a mechanism that contributes money for research and development.

Table 4.4 The Kansas Soybean variety release board: an example of a marketing agency in common.

Description of the program: **Kansas Soybean Variety Release Board (KSVRB):**

- Is a permanent 7 member board (2 KSU reps appointed by the dean, 3 appointed by KCIA, and 2 appointed by KSIA)
- KSVRB is a non-profit corporation
- Purpose is to implement the release of soybean varieties developed by KSU
- KSVRB assists growers in the establishment of marketing associations

How this program works:

Step 1: KSVRB notifies all eligible soybean seed growers[33] of pending variety releases approximately two years prior to release of the first foundation seed. Eligible growers are also provided with the pertinent variety release procedures and timetable

Step 2: Approximately one year prior to distribution of the first foundation seed from this new variety, all eligible growers who are interested in receiving foundation seed are called to a meeting where the KSVRB provides specific information to all growers regarding release conditions and final timetables

Step 3: Growers who choose to participate in the release of this new variety will comprise a "marketing association". These growers choose to join forces in the production and merchandising of the new variety

Step 4: The "marketing association then makes decisions regarding the promotion and merchandising of the variety for a number of years. An up front promotional fee is paid by each member. The KSVRB returns most of this money back to the marketing association as soon as it is fully functional

Additional comments:

- Only category I growers (those who grew certified soybeans in 90,91,92) were eligible for the variety from KSU called KS 4694
- A total of five states, including Kansas are participating in the release of KS 4694
- All association members were required to pay $10.00 per bushel (25 bushel minimum) for promotion in addition to whatever the foundation seed and royalties cost. This was to be paid at the allocation meeting. The KSVRB returned $9.50 of the $10.00 directed to the association to use as promotional and marketing money
- All varieties will be protected by title V (certification option)
- Foundation seed may be sold only to members of that variety marketing association, if registered seed is used, it may be sold only among members of the same marketing association

[33]Growers are assigned to categories I,II,III,or IV depending on their past seed growing history. For example, a category I soybean seed grower would be a seed grower that has raised certified soybeans for the last three consecutive years.

Table 4.4 (cont'd).

Kansas program continued...

Summary of the decisions that must be made by each marketing association:

1. Election of officers (president, vice president, secretary, and treasurer)
2. Develop a marketing and promotion plan for the variety, including budget and timetable (5 years). Include: mass media, brochures, plots, persons responsible, etc
3. Determine policy and procedures for member exit and new members
4. Develop plan and policy for determining succeeding year's foundation seed needs to allow for timely production and delivery by foundation seed unit
5. Establish policy for registered seed
6. Decide on market focus (targeted sales, market areas, market share goals for each member, maximum/minimum participation levels, etc.)
7. Develop plan for enforcement of intellectual property rights, including group action, State Board of Agriculture and Universities
8. Develop policy governing short or excess foundation/registered/certified seed supplies, unplanted seed, etc. and transfers among association members
9. Decide whether or not to utilize any other royalties, assessments, etc. for use by the association
10. Make appropriate arrangements if the association has members from other states
11. Plan for the demise of the association

Upside of the program:

- Only those seed producers who are interested in the specific variety join the association
- Association members are required to provide an annual marketing plan
- The marketing association decides how they want to spend the initial money for marketing and promotion
- Allows KSU to release new soybean varieties as "public"
- Allows Kansas Crop Improvement to remain neutral regarding the marketing of public variety seed
- There is a provision for funding research if the association so decides

The downside of the program:

- There are no guarantees that entrepreneurial spirit can't run wild and the new variety be subject to the same "foolish" pricing practices that are prevalent in the seed industry
- It is possible that the new variety does not perform as anticipated
- This program is open to all seed producers, public and private

Source: Phone calls made to common marketing associations in states outside of MI as a source of data collected for the 1993 Michigan public variety field seed industry strategic plan.

Table 4.5 The White Wheat Producers Association: an example of a marketing agency in common.

Description of the program: **The American White Wheat Producers Association (AWWPA)**

- Founded in 1988 as an agricultural cooperative and is composed primarily of white wheat seed producers in six different states (Kansas is the main player). Members of AWWPA have exclusive access to newly developed varieties of hard white wheat suited for commercial production in the Great Plains States

Specifics include:

- 200 producers from six states
- Producers are required to purchase 1 share of common stock ($100.00) for every 100 acres of white wheat they produce
- AWWPA offers members a yearly contract in acres. Once the contract is obtained, members can purchase seed from designated companies
- Use of certified white wheat is required
- AWWPA limits producers to devoting only 15% of their wheat acreage to white wheat
- AWWPA target specific customer needs to market this white wheat through a process referred to as "targeted delivery". The more common name for this in the seed industry is identity preserved
- The AWWPA is more than an identity preserved program that just focuses on maintaining varietal identity. The AWWPA claims that 50-80% of the variation in flour quality is induced by the growing environment or the environment/genetic interaction. A huge data base is maintained by AWWPA to keep track of extensive information on each lot of white wheat. This information is then used to satisfy specific customer needs, at a premium price
- AWWPA purchases and markets all of the white wheat from producer/members and offers a number of payment plans to suit different grower needs from a cash price at delivery to an initial payment of $2.60 per bushel at delivery plus an additional pool price over the next 15 months

The upside of the program:

- This is an excellent example of identifying specific customer needs
- Incorporated a mechanism that developed a market for specific public variety seed
- AWWPA manages the supply that is produced to some extent, which allows AWWPA members to get a premium for their product

The downside of the program:

- The customer's needs may change or a specific customer need may not generate a large enough market to justify this approach
- The customer has a lot of power in this scenario and may promote the expansion of the wheat supply to the point where it is not profitable for the producers

Source: Phone calls made to common marketing associations in states outside of MI as a source of data collected for the 1993 Michigan seed potato industry strategic plan.

A common marketing association should not be viewed as an answer to all the problems facing the Michigan public variety field seed and seed potato industries. Rather, it should be viewed as a process of getting to the next level in the ever changing seed industry.

4.6 Concluding Remarks Regarding the Strategic Analysis, Plan, and Recommendations for the Michigan Public Variety Field Seed and Seed Potato Industries

Strategic analyses, proposed strategic plans and specific recommendations for Michigan public variety field seed and seed potato industries were presented in this chapter. The Michigan public variety field seed case was compared and contrasted to the Michigan seed potato case. Research findings that were similar for both cases, were presented as one finding, along with supporting examples from each case. Findings that were unique to the respective seed industries were documented separately.

Overviews of the two seed industries indicated that both the Michigan public variety field seed and seed potato industries had experienced a significant decline in: (1) the number of acres being certified, (2) the number of seed producers in their respective seed industries, and (3) the number of new public varieties offered relative to competitors' offerings.

Examination of the competitive forces demonstrated that in the Michigan public variety field seed and seed potato industries: (1) the threat of entry was high, (2) the threat of substitute products was high, (3) the bargaining power of buyers was strong, (4) rivalry was fierce, and (5) the bargaining power of suppliers was weak. The collective nature of these five competitive forces helped to explain why profitability was low in the Michigan public variety field seed and seed potato industries.

Analysis of the strengths, weaknesses, opportunities, and threats (SWOT) facing the Michigan public variety field seed and seed potato industries indicated seed producers: (1) possessed few competitive advantages, and many competitive disadvantages, (2) were faced with numerous opportunities, and (3) were confronted with a multitude of threats.

Strategic plans were presented for the Michigan public variety field seed and seed potato industries. Each began with a proposed mission statement designed to capture broad, but important, directions that seed producers should pursue to reduce the effect of the competitive forces on industry profitability. Financial and strategic objectives were drawn up to provide a challenging set of accomplishments for seed producers to achieve.

It was recommended that the Michigan public variety field seed and seed potato industries adapt the following strategic posture: (1) a quality/features competitive advantage strategy, which consists of offering seed/services that were different from competitors, (2) a challenger industry role for those seed varieties that out-perform varieties from proprietary seed companies and competing area producers, (3) an adapter industry role those seed varieties that do not out-perform varieties from proprietary seed companies and competing area producers, (4) reposition the Michigan public variety field seed and seed potato industries as involved marketers committed to the field crop and potato industries, and (5) grow the public seed industries by choosing, such activities as, increasing the number of acres of public variety seed being certified.

Four broad recommendations, based on the competitive forces and SWOT analysis, proposed mission statement, objectives, and strategic posture were offered to aid the Michigan public variety field seed and seed potato industries in moving from strategic analysis and planning to implementation. The broad recommendations include: (1) initiate an

educational program at the individual producer and industry level that differentiates Michigan grown public variety field seed and seed potatoes from proprietary field seed and non-Michigan seed potatoes, (2) reposition Michigan public variety field seed and seed potato producers as involved marketers who are committed to answering the needs of the public variety field seed and seed potato industries, (3) establish a common marketing association, and (4) support the development and promotion of Michigan grown public variety field seed and seed potato varieties.

The long-tem survival of individual seed producers will depend in large part on the health of the Michigan public variety field seed and seed potato industries. A common marketing association was posited as being critical to long-term industry health. The strengths of a common marketing association was seen to outweigh its limitations.

A detailed discussion of specific recommendations that the Michigan public variety field seed and seed potato industries could choose to adopt to further implement the broad recommendations was presented. For example, a training program could be designed to teach producers how to set up contracts or multi-year buy-sell agreements with seed buyers.

This chapter concludes with a summary of what other producers and seed associations are doing in other seed producing states in terms of marketing, promotion, and strategic planning. Seed producers were encouraged to review these findings as an example of what could be done to improve long-term success in the U.S. seed industry.

CHAPTER 5
CONCLUSIONS AND IMPLICATIONS FOR FURTHER RESEARCH

The final chapter begins by highlighting the usefulness of the strategic planning process as a research tool. The Michigan public variety field seed and seed potato case studies are then compared and contrasted and set against the backdrop of the research propositions presented in Chapter 3. The potential for industry-wide adoption and possible barriers to this adoption are presented to illustrate some of the practical problems associated with strategic planning. This chapter concludes with a discussion of areas requiring further research as well as a few general remarks regarding this research and the state of the Michigan public variety field seed and seed potato industries.

5.1 The Strengths and Limitations of Strategic Planning as a Research Tool

Effective strategic planning must always proceed from the assumption that one is able to manage events rather than the other way around. If Michigan public variety field seed and seed potato producers are to survive and be profitable in the future, they must take the time to plan. They must begin by making a commitment to plan, and this should be an ongoing commitment. There will always be events beyond one's control. Eighty percent of all strategic plans fail to get off the ground. Firms that succeed at strategic planning have the following attributes in common: (1) continuous scanning of the world around them, (2) environmental sensitivity, (3) the ability to recognize and cope with uncertainty, (4)

strategize by choice, instead of by default, (5) are capable of visionary management, (6) employ contingency planning, and (7) are flexible (Tandon, 1985). Time will tell if enough seed producers in the Michigan public variety field seed and seed potato industries possess successful strategic planning strategies.

Strategic planning was a useful tool in this research because it provided the framework needed to conduct an in-depth study of the Michigan public variety field seed and seed potato industries. The lack of profitability in the Michigan public variety field seed and seed potato industries was apparent. What was not clear were the reasons for the lack of profitability. The competitive analysis attributed the lack of profitability in the seed industry to the strength of the competitive forces.

The SWOT analysis explored the relationships between internal and external forces facing the seed industry. It was during the process of conducting a SWOT analysis that the competitive advantages/disadvantages and priority opportunities/threats of the respective seed industries were identified. The competitive and SWOT analyses provided the building blocks for the strategic plan, which consisted of statements of mission and objectives, strategic posture and recommendations.

The iterative nature of this research allowed the results from earlier parts of the research process to develop subsequent research procedures. For example, the mission statement and statement of objectives were crafted out of the information garnered from the competitive and SWOT analyses. The strategic posture and recommendations (broad and specific) were designed around the data previously gathered and synthesized.

Strategic analysis, planning, and the case study approach allows the researcher to study a complex system, such as, the Michigan public variety field seed and seed potato

industries, and to derive meaningful results to be used for the seed industry and to advance strategic planning research.

The concept of strategic planning was foreign to many of the Michigan public variety field seed and seed potato producers, and the researcher was also in the process of learning strategic planning. Difficulties arose when it came to relating strategic planning to the producers and in getting them to understand what the analysis was saying. One of the biggest obstacles to overcome when undertaking strategic planning research is to convince the client of the value of the process. Case study and strategic management research involves a meticulous, almost lock-step approach to problem-solving (at least initially). Most of the seed producers believed that profitability was a problem caused by a few "obvious" events, and they wanted the solutions to these events right away. Sound strategic planning requires the practitioner to follow this step by step process to understand the complexity and nature of the problems and opportunities present.

The strategic analysis and strategic planning documents were too lengthy and detailed for the amount of time an average seed producer would be willing to spend reading them. Therefore, the use of an executive summary was extremely helpful in condensing the detailed[34] strategic analysis, strategic plan, and recommendations down to a readable seven page summary. The challenge for the strategic planner is to find ways to communicate to clients without all the jargon that so easily becomes second-nature to the planner.

Perhaps some steps in the strategic planning process could have been reduced or eliminated. The objectives section could have been rearranged. Given the industry focus of

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[34]Each of the separate case studies was approximately 70 pages in length. Few seed producers will take the time to read a document this detailed and lengthy.

the research, many specific and meaningful objectives were hard to commit to paper, especially financial objectives.

5.2 Comparing the Research Results to Research propositions

Research propositions are compared to actual research outcomes, in this section, to provide insight into the research process used.

Proposition 1: *Day to day competition between producers is only a partial explanation for the lack of profitability in the Michigan public variety field seed and seed potato seed industries.*

As proposition one states, day to day competition between Michigan public variety field seed and seed potato producers explained only part of the lack of profitability facing these Michigan seed industries. While day to day competition was a contributing factor to low profits, the research process pointed out other contributing factors for the lack of profitability in the Michigan public variety field seed and seed potato industries. Specifically, other competitive forces contributing to low profitability included: substantial buyer power, the threat of new entrants, the availability of substitute products, as well as, intense rivalry among seed producers in the Michigan public variety field seed and seed potato industries.

Proposition 2: *Michigan public variety field seed and seed potato producers have few competitive advantages, many competitive disadvantages, and face limited opportunities and a myriad of threats.*

The research process revealed that Michigan public variety field seed and seed potato producers had few competitive advantages, many competitive disadvantages, and faced some

opportunities and many threats. This was confirmed in the SWOT analysis. The SWOT analysis documented the extent of the competitive advantages, disadvantages, and priority opportunities/threats. The SWOT analysis was then used to craft a strategy to perhaps increase profitability in the respective seed industries.

Proposition 3: *The perception of Michigan public variety field seed and seed potato producers regarding their products and services is different than the perception of the buyers of Michigan public variety field seed and seed potatoes, leading to reduced competitiveness and product usefulness.*

Michigan public variety field seed and seed potato producers believed their products and services were equal to competing varieties from proprietary seed firms and non-Michigan public variety seed potato producers. Unfortunately, many seed buyers believed Michigan public variety field seed and seed potatoes were only average. Strategic analysis suggested that Michigan seed producers are good at the technical aspects of seed production and in many cases seed varieties produced by Michigan seed producers did well in head to head field trial with competing varieties. Michigan public variety field seed and seed potato producers must do a better job of understanding and meeting the needs of their customers, as one method for improving the status of Michigan seed in the minds of seed buyers.

Proposition 4: *Michigan public variety field seed and seed potato producers' best chance for long-term viability in the seed industry is to work together in a cooperative manner.*

Michigan public variety field seed and seed potato producers' best chance for long-term plausibility in their respective seed industries is to work together in a cooperative manner. The external and internal forces existing in the Michigan public variety field seed and

seed potato industries suggest some form of cooperative effort to re-establish long term profitability. Some of the specific recommendations were designed to benefit individual seed producers, but it is unlikely that individual seed producers would survive in the long run without a healthy seed industry.

Proposition 5: *The best plan of action for Michigan public variety field seed and seed potato producers may be to exit their respective industries.*

Contrary to research proposition five, Michigan public variety field seed and seed potato producers were not encouraged to exit their respective industries. However, this option was considered in the analysis, and offered to seed producers as an option worth considering. The broad and specific recommendations did not support this option because it was still possible to restore profitability to the respective seed industries if additional competitive advantages that seized opportunities in their respective industries could be developed.

Proposition 6: *Implementation of an industry-wide strategic plan will not take place until a critical mass of producers in each industry believes their individual livelihoods are in jeopardy.*

Nothing in the research process lead the researcher to believe that proposition six was not true. Therefore, the implementation of an industry-wide strategic plan is not likely to take place until a critical mass of producers in each industry believes the future of their respective seed industry is in jeopardy. Many of the Michigan public variety field seed and seed potato producers interviewed indicated their concern regarding the future of their respective seed industries. However, many of these same seed producers expressed the attitude of "what

could they do? Surely the actions of an individual producer can't make a difference?" Free rider concerns are unlikely to be overcome until the respective seed industries become even weaker and more fragmented.

5.3 The Potential for Industry-Wide Adoption of the Strategic Plan in the Michigan Public Variety Field Seed and Seed Potato Industries

The potential for the initiation of an educational programs at the individual producer level that differentiates Michigan public variety seed from non-Michigan grown and proprietary seed is very good. MCIA has sponsored similar workshops in the past and they appeared willing to do so in the future. Seed producers will have to relate their top educational priorities to the MCIA staff. This is perhaps the easiest part of the strategic plan to adopt.

The repositioning of Michigan public variety field seed and seed potato producers as involved marketers who are committed to answering the needs of the seed industry will not be an easy task. Seed producers from both seed industries have had a long history of doing things the same old way; at times public variety and seed potato producers have been innovative, but many times they were not. Perhaps they were too busy with seed production, had adequate seed business without the need for innovation, or were concerned about other areas of their farming operations that made more money to be involved seed marketers. What ever the reasons were, it is time to change or else the changing seed industry will pass by many of Michigan's public variety field seed and seed potato producers.

The proposal to establish a common marketing association was a key part of the broad recommendations that were presented to members of MCIA. The chances for industry-wide

adoption of common marketing associations is remote at best. This is a potential area for further research and will be addressed in section 5.4. It is more likely that a few public variety field seed and seed potato producers (5-10 growers) will attempt some form of cooperative effort of marketing their seed. Hopefully, these attempts will have enough seed volume and seed producer participation to be successful. If these fledgling attempts are successful, other seed producers will express an interest in joining.

The proposal to support the development and promotion of Michigan grown public variety field seed and seed potato varieties to keep up with the research and development efforts of competing public and proprietary seed firms is related to the need for seed producers to become more visible in their respective seed industries. It is also related to the formation of common marketing associations from the standpoint of providing the necessary research dollars to support the development of new varieties to keep up with the proprietary companies. Whether or not seed producers will be willing or able to support a stronger promotional program remains to be seen.

5.3.1 Possible barriers to the adoption of the strategic plan for the Michigan public variety field seed and seed potato industries

Michigan public variety field seed and seed potato producers may refuse education efforts directed toward selling value. It will not be easy for individual producers to switch from a production orientation to a market orientation. This situation is complicated by the declining number of skilled workers available for work in seed operations. Many rural areas are experiencing a decline in the number young workers, especially those with an agricultural background or the desire to work in agriculture.

Michigan public variety field seed producers may just not want to invest the time and effort it takes to be aggressively involved in the field seed industry. This was eluded to in the previous section. The fact is that for many of the Michigan public variety field seed producers, seed production is only a small part of the overall farming operation, and seed production tends to provide less profit to the farm then other enterprises, such as, sugar beet production.

Seed potato growers face an additional challenge in the lack of young seed producers coming up through the ranks. A transfusion of younger, more innovative seed producers would help Michigan seed potato growers become more aggressive.

Michigan public variety field seed and seed potato producers may have interests and goals that are too diverse to form a common marketing association. Unfortunately, common marketing associations usually form only after a critical event has occurred, such as, years of fierce rivalry and low profits. The question is, have the Michigan public variety field seed and seed potato industries reached this point?

5.4 Areas Requiring Further Research

Follow up research could be undertaken on the number of specific recommendations that have been acted on by the seed producers and their affect on the performance of Michigan seed producers. Specifically, did seed producers form any common marketing associations, and how successful were they? How many of the educational programs were given, and how did the seed producers respond? Are Michigan public variety field seed and seed potato producers considered to be more involved in their respective seed industries?

Further research could be done to explore alternative forms of cooperative arrangements that seed producers could decide to pursue. The research done in this paper on common marketing associations is only a beginning. If Michigan seed producers were serious about common marketing associations, more existing associations should be contacted to learn the strengths and weaknesses of each arrangement. Seed producers and a researcher should spend time with the people involved in these associations. The scope of such research should not be limited to agricultural applications of common marketing associations. There may be useful examples to draw upon outside of agriculture.

One of the biggest regrets this researcher had about the work done for the Michigan public variety field seed and seed potato industries, was not spending more effort researching why the general Michigan seed producer interest in some form of cooperative effort was mediocre at best. Upon reflection on this issue, six possible explanations for Michigan seed producers' attitude towards cooperative marketing came to mind: (1) seed producers are proud and independent entrepreneurs who would rather work alone, (2) seed producers' past experience with cooperative effort has failed to live up to expectations (the case of Lakeside States[35], Inc.), (3) seed producers lack the specific knowledge of how to set up a cooperative effort that benefits all participants, (4) the seed industry has to be in even worse condition before cooperative marketing will be given serious consideration, (5) the required efforts are too costly for the perceived benefits, and (6) a free rider problem exists. Further research should explicitly focus on the barriers to such cooperative efforts.

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[35]Lakeside States, Inc. (LSI) is a Michigan-based corporation of approximately 25 seed producer and processor shareholders. LSI negotiates for exclusive royalty bearing rights to varieties in their area of operation for the purpose of maintaining an orderly marketing system and some price stability.

5.5 Conclusions Regarding Strategic Planning in the Michigan Public Variety Field Seed and Seed Potato Industries

It is hoped this thesis provides the reader with a better understanding of the industry-wide strategic planning process. Strategic planning and the case study approach are powerful tools for analyzing a complex problem, such as, improving profitability in the Michigan public variety field seed and seed potato industries.

The destinies of the Michigan public variety field seed and seed potato industries are in the hands of its members. Although the competitive forces were strong and the industries had few competitive advantages to seize opportunities, and producers faced a myriad of threats, Michigan seed producers could increase profitability by analyzing the numerous opportunities in the marketplace and generating competitive advantages that seize these opportunities.

It is also the hope of this researcher that Michigan public variety field seed and seed potato producers found their respective strategic plan a valuable decision making tool. The future of the Michigan public variety field seed and seed potato industries is up to the seed producers. MCIA and the Executive Committee have done their part through funding and providing direction on this project. Individual seed producer's profitability can be improved through education and training, but sustained long-term improvement in industry profitability will only occur if there is industry-wide cooperative effort; the kind of cooperative effort needed to form a common marketing association. The challenge now before the Michigan public variety field seed and seed potato industries is to determine if the "collective will" exists to select, embrace, and implement the recommendations based on this research.

GLOSSARY OF TERMS

GLOSSARY OF TERMS

Barriers to entry: Industry characteristics that reduce the rate of entry below expected levels and which result in higher than normal profits.

Barriers to exit: Factors which impede exit from an industry, and have a tendency to increase rivalry within an industry and lower profits.

Biotechnology: Any technique that uses living organisms or processes to make or modify products, to improve plants or animals, or to develop microorganisms for specific uses.

Brand equity: A set of brand assets and liabilities linked to a brand, its name and symbol that add or subtract from the value provided by the product to a firm or the firm's customers.

Bin-run seed: Seed that is planted by a farmer one year and a portion of the crop is set aside to plant the next year as seed, thereby skipping the certification process.

Bounded rationality: The postulate that individuals attempt to be rational in their dealings, but do so subject to their own limited information processing abilities. One of the central assumptions of transaction cost economics.

Case study: A research strategy which focuses on understanding the dynamics present within single settings.

Comparative advantage: The primary theory used to explain patterns of international trade. Refers to how firms come to specialize in areas in which they have an advantage relative to their rivals.

Competitive advantage: Those strengths or ways of doing business that a firm or industry does exceptionally well in comparison to its competitors.

Competitive disadvantage: Something a company or an industry lacks or does poorly in comparison to its competition.

Economies of scale: Decline in the unit costs of a product or operation or function that goes into producing a product as the absolute volume per period increases.

First mover advantage: In the context of the Wisconsin seed potato growers. A competitive advantage held by a firm by virtue of being first in a particular market or first to use a particular strategy.

Long-range objectives: The results to be achieved either within the next three to five years or else on an ongoing basis year after year.

Mission: Management's customized answer to the question "What is our business and what are we trying to become?"

Multi-strata quota sampling: A sample selected on the basis of respondents meeting pre-selected criteria.

Priority opportunities: Opportunities are situations **outside the immediate control** of the firm which, if taken advantage of, result in the reduction of the collective strength of the competitive forces and increased profitability. Priority opportunities are listed in order of priority.

Priority threats: Threats are external factors that increase the strength of the competitive forces and reduce profitability. Priority threats are listed in order of priority.

Private varieties: Varieties which are developed and released by private seed companies. These varieties are often grown out, wholesaled and retailed through the firm's own production and distribution system.

Public varieties: Varieties which are bred by public institutions such as, land grant universities and the state agricultural experiment stations associated with them.

S-C-P Paradigm The foundational theory of industrial organization, based on the work of Bain. S-C-P stands for situation-conduct-performance. The S-C-P paradigm evolved from oligopoly theory, as an empirical application of price theory to imperfect competition.

Short-range objectives: The organization's near-term performance targets, usually three years or less.

Specific assets: Assets which have value only in a very narrow use.

Strategic alliance: An arrangement by which two or more firms combine resources outside of the market to accomplish a task. A strategic alliance involves a new relationship between buyers and sellers, requiring the sharing of intimate information that has traditionally been regarded as proprietary for the benefit of both parties. In part, strategic alliances are a response to the just-in-time inventory system championed by Wal-Mart.

Strategic management: An on-going dynamic process that is composed of strategic analysis and strategic planning leading to a set of decisions and actions resulting in the formulation and implementation of plans designed to achieve a company's performance objectives.

Strategic objectives: The targets management has established for the organization's financial performance.

Strategic vision A view of an organization's future direction and business course; a guiding concept for what the organization is trying to do and to become.

Tit for tat strategies: A game strategy of "If you hit me. I'll hit you back." Usually associated with the work of Axelrod on cooperation in a variety of settings.

Transaction cost economics: A theory developed by Ronald Coase and enlarged by Oliver Williamson and others, in which it is argued that contractual relations among and within firms are the result of efficiency-seeking behavior in a world of limited information and incomplete enforcement possibilities.

APPENDIX A

FACE-TO-FACE AND PHONE QUESTIONNAIRES

APPENDIX A

FACE-TO-FACE AND PHONE QUESTIONNAIRES

1993 MCIA STRATEGIC MARKETING RESEARCH FACE-TO-FACE INTERVIEW QUESTIONNAIRE

GENERAL INFO

1. Name of interviewee:_____ 2. Name of firm:_____
3. Date:_____ 4. Type of firm: (circle one)
   Field Seeds Seed Potatoes Non MCIA
5. % of total firm income derived from your seed production:_____
6. % of total firm income derived from the sale of other producer's seed:_____
7. Other Demographics: (acreage, number of employees. type of seed produced and sold)
   Age of Principal Owner_____ Age of Partners_____
8. How easy is it for someone to get into the seed business?
   (Economies of scale Technical know-how Learning experience curve Brand preference Customer loyalty Capital requirements Access to distribution channels Willingness to cut price)
   _____
9. Would you recommend the seed business to anyone?
   _____
10. What would make it harder for someone to get into the seed business?
    (barriers and strategic moves).
    _____

SUPPLIERS/CUSTOMERS

11. Describe your relationship with your suppliers.
    (No. of suppliers Supplier dependent No. of substitutes Integrate forward Strategic alliance potential)
    _____
12. How many and what alternative sources of supply do you have?
    _____

face-to-face member questionnaire cont...

13. Who are your customers?

_____

14. Describe your relationship with your customers and what do they want from you?
(Number of buyers Buyer dependent Commodity product Many substitutes Ability to integrate backwards Importance as a supplier Potential for strategic alliance)

_____

_____

15. How price sensitive are your customers? How do you deal with price competition?
(do you cut corners, sell bulk vs. bagged?)

_____

_____

16. Who do you want for a customer? Why?

_____

_____

COMPETITORS

17. Who are your competitors?
(Number of substitutes How attractive are the substitutes, Many equal rivals Slow growth commodity product High fixed costs Perishable product Over production High exit costs Are the rivals diverse? Potential for outside acquisition))

_____

_____

18. What makes you different from your competitors?

_____

_____

19. Describe how you compete with other firms just like yourself.

_____

_____

20. What would help you to compete more effectively?

_____

_____

21. Where do you get your information on how to sell public variety seed?

_____

_____

SWOT

22. How would you rate the services of MCIA?

_____

23. What should MCIA's top priority be?

_____

face-to-face member questionnaire cont...

24. What are your strengths as a business?
(Marketing factors: Pricing Sales performance Knowledge & understanding of customers Products & services match customer needs Location & distribution match customer needs Advertising, promotion and customer communication) (Finance and additional critical factors: Cash flow generation Long term profitability Access to external financing - debt and equity Credit to customers Credit from suppliers Physical facilities Planning process Decision making)

_____

_____

25. What are your weaknesses as a business?

_____

_____

26. What are the strengths of other firms you know?

_____

_____

27. What are the weaknesses of other firms you know?

_____

_____

CHANGES/FUTURE PLANS

28. What changes do you see coming in the seed industry?
(Long term industry growth Changing customers Product Innovation Diffusion of Know-how Major entry/exit of firms Cost & efficiency changes Buyer preferences for differentiation vs. commodity Regulation Economic changes)

_____

_____

What do you think about royalties?_____
How will you cover this cost?_____

29. In your opinion, what changes need to take place within this industry to improve profitability?

_____

_____

30. Are your profits adequate to keep you in this business?
(profits as a % of sales absolute level of profitability what financial tools they use)

_____

_____

31. What would drive you out of this business?

_____

_____

32. What are your future plans?

_____

_____

file: FACE_QUE.MCI

1993 MCIA STRATEGIC MARKETING RESEARCH NON-MEMBER FACE-TO-FACE INTERVIEW QUESTIONNAIRE

GENERAL INFO

1. Name of interviewee:_____
2. Name of firm:_____
3. Date:_____
4. Type of non-member firm: (circle one) Field Seeds Seed Potatoes
5. % of total income derived from your public variety seed production:_____
6. % of total income derived from the sale of proprietary seed:_____
7. Other Demographics: (seed varieties sold, public and proprietary)

_____

8. How easy is it for someone to get into the seed business?

_____

9. Would you recommend the seed business, public or proprietary to anyone?

_____

10. What would make it harder for someone to get into the seed business? (barriers and strategic moves)._____

SUPPLIERS

11. Describe your relationship with your suppliers of public, proprietary and contract seed. (No. of suppliers Supplier dependent No. of substitutes Strategic alliance potential

_____

12. How many and what alternative sources of seed supply do you have?

_____

13. Are there differences between suppliers of PVS and proprietary seeds?

_____

14. What kind of seed supplier do you want and why?

_____

15. Why is there a price difference between PVS and proprietary seed?

_____

16. Where do you get your information on PVS?_____

SWOT

17. Where do you get your information on proprietary seed? _____

face-to-face non-member questionnaire cont...

18. What are the strengths of public variety seed and its producers?
(Marketing factors: Pricing Sales performance Knowledge & understanding of customers Products & services match customer needs Location & distribution match customer needs Advertising, promotion and customer communication) (Finance and additional critical factors: Cash flow generation Long term profitability Access to external financing - debt and equity Credit to customers Credit from suppliers Physical facilities Planning process Decision making process)

19. What are the weaknesses of public variety seed and its producers?

20. What are the strengths of proprietary seed and its producers?

21. What are the weaknesses of proprietary seed and its producers?

22. What changes do you see coming in the seed industry?

What do you think about royalties?_____
How will you cover this cost?_____

CHANGES/FUTURE PLANS

23. What changes need to take place within this industry to improve profitability?

24. Will the public variety seed industry be a viable industry in the future?

25. What would cause you to discontinue selling public variety seeds?

26. What are your future plans regarding public variety seed?

27. How would you rate the services of MCIA?

28. What should MCIA's top priority be?

1993 MCIA STRATEGIC MARKETING RESEARCH
MEMBER PHONE INTERVIEW QUESTIONNAIRE

1. Interviewee:_____
2. Name of firm:_____
3. Date:_____
4. Type of firm: Field Seeds Seed Potatoes Non MCIA
5. % income from your seed prod.:_____
6. % income from other's seed:_____
7. Tell me a little bit about your operation: (acreage, number of employees. type of seed produced and sold)
   How long in seed business?_____
   Partners involved?_____

11. Describe your relationship with your suppliers (if applicable).
    _____

12. How many and what alternative sources of supply do you have?
    _____
    _____

13. Who are your customers?
    _____
    _____

14. Describe your relationship with your customers and what do they want from you?
    _____
    _____

15. How price sensitive are your customers? How do you deal with price competition?
    _____
    _____

16. Who do you want for a customer? Why?
    _____
    _____

17. Who are your competitors?
    _____
    _____

21. Where do you get your information on how to sell public variety seed?
    _____
    _____

telephone member questionnaire cont...

22. How would you rate the services of MCIA?

23. What should MCIA's top priority be?

24. Why should I buy seed from you? What are your strengths as a business?

25. In what areas would you like to improve your business?

26. What things do other firms do that you would like to do?

27. What mistakes do you see other firms in your industry making?

28. What changes do you see coming in the seed industry?

What do you think about royalties?_____
How will you cover this cost?_____

29. In your opinion, what changes need to take place within this industry to improve profitability?

30. Are your profits adequate to keep you in this business?_____

31. What would drive you out of this business?

32. What are your future plans?

file: PHON_QUE.MCI

1993 MCIA STRATEGIC MARKETING RESEARCH
NON-MEMBER PHONE INTERVIEW QUESTIONNAIRE

1. Interviewee:_____
2. Name of firm:_____
3. Date:_____

4. Type (circle one) Field Seeds Seed Potatoes

5. % of income from PVS sales:_____

6. % of income from proprietary sales_____

7. Other demographics (seed varieties sold, public and proprietary)
_____
_____

8. How many and what alternative sources of seed supply do you have?
_____
_____

9. Describe your relationship with your suppliers if public, proprietary, and contract seed.
_____
_____

10. Are there differences between suppliers of PVS and proprietary seed?
_____
_____
_____

11. What kind of seed supplier do you want and why?
_____
_____

12. Why is there a price difference between PVS and proprietary seed?
_____
_____
_____

13. Where do you get your information on PVS?
_____
_____

telephone non-member questionnaire cont...

14. Where do you get your information on proprietary seed?

15. What are the strengths of public variety seed and it's producers?

16. What are the weaknesses of public variety seed and it's producers?

17. What are the strengths of proprietary seed and it's producers?

18. What are the weaknesses of proprietary seed and it's producers?

19. What changes do you see coming in the seed industry?

What do you think about royalties?_____
How will you cover this cost?_____

20. What changes need to take place within this industry to improve profitability?

21. Will the public variety seed industry be a viable industry in the future?

22. What would cause you to discontinue selling public variety seed?

23. What are your future plans regarding public variety seed?

file:PHON_NON.MCI

APPENDIX B

LETTER TO POTENTIAL RESPONDENTS SEEKING PERMISSION FOR A FACE-TO-FACE OR TELEPHONE INTERVIEW

APPENDIX B

LETTER TO POTENTIAL RESPONDENTS SEEKING PERMISSION FOR A FACE-TO-FACE OR TELEPHONE INTERVIEW

September 27,1993

Address

Dear Seed Producer:

Over the past several years MCIA members have experienced difficulties maintaining profits. MCIA as an organization has also seen a significant decline in its membership. The reduced membership suggests that the traditional business of public variety seed producers is being threatened.

The MCIA Board is funding research to find some solutions to these problems. This research will be conducted by Michigan State University - Department of Agricultural Economics. The goal of this research is to define the nature and extent of the uncertainties and difficulties faced by MCIA members and to provide recommendations for alternative solutions.

My name is Al Wysocki. I'm a PH.D. student in Agricultural Economics at Michigan State University. I will be conducting this market research under the direction of Dr. Christopher Peterson, Assistant Professor Department of Agricultural Economics.

As a result of consultation with an MCIA steering committee, it was determined the best way to collect data for this research would be through face-to-face and phone interviews. You may be assured of complete confidentiality. Your name or your firm's name will not be used in any reports. The information obtained from you will be presented as a combination of information gathered from you and other people in the seed industry.

I know you may be in the middle of your Fall harvest so I will call you within the next two weeks to arrange a face-to-face or phone interview with you. You indicate your voluntary agreement to participate in this research project if at the time I call, you agree to and arrange for a face-to-face or phone interview. Your privacy will be guaranteed.
If you have questions, please call me at (517) 882-3333 or you may contact Dennis Greenman at the MCIA office.

Sincerely,

Al Wysocki

APPENDIX C

DETAILED SWOT LISTING FOR THE MICHIGAN PUBLIC VARIETY FIELD SEED INDUSTRY

APPENDIX C

DETAILED SWOT LISTING FOR THE MICHIGAN PUBLIC VARIETY FIELD SEED INDUSTRY

This appendix is a complete list of strengths, weaknesses, opportunities, and threats facing the Michigan public variety field seed industry. Only those priority strengths, weaknesses, opportunities, and threats that were critical to the strategic analysis are discussed in the body of this paper, while the rest and are listed below.

Table C.1 Detailed SWOT analysis for Michigan public variety field seed producers.

Strengths (competitive advantages are starred)
★ ***Quality of the seed sold exceeds the minimum standards for seed certification*** by many public variety producers. Individual growers distinguish themselves from competing seed, public or private by marketing superior quality seed.
★ ***Ready access to the public variety seeds***. There are many fine public variety seeds that can be selected and produced. Astute public seed variety producers target varieties to meet specific end-user needs.
★ Several seed growers ***produce seed that has fewer defects and mechanical damage than seed sold by competitors***. These growers have invested heavily in state-of-art conditioning equipment to differentiate their seed in ways other than price.
• ***Ability to switch easily from one seed variety to another*** depending the opportunities present in the industry. Many seed producers have the ability and willingness to grow different varieties as industry needs change.
• Most public variety seed producers have ***diversified operations***. They spread their risk over more than one seed variety, as well as other non-seed crops to generate income.

(continued next page)

Table C.1 (cont'd).

Weaknesses
(competitive disadvantages are starred)

★ ***Lack a well thought-out marketing plan*** by Michigan public variety field seed producers in general. Michigan's field seed producers primary focus is on production. This translates into selling the same way to the same customers year after year despite opportunities and changes in the environment. All too often, this results in a shrinking customer base.

★ ***Failure to differentiate Michigan public variety field seed competing producers and varieties***. This makes it easier for competitors to enter the market, increases the buyer's power, and allows buyers to treat Michigan seed as a commodity, with emphasis on price, at the expense of seed producer profits.

★ ***Lack of communication or misinformation between producers of public variety field seed regarding the marketing and pricing of seed*** results in unwarranted lowering of profits. For example, a number of the producers interviewed told stories of how their neighbor was selling $1.00 a bag below the market for a particular seed because they had not talked to fellow seed producers regarding the availability and market price.

★ ***Pricing strategies based on the commercial market, on a competitor's price, or even pricing based on the cost of production***. These pricing strategies, while easy to employ, are all too common in agriculture and usually lead to reduced profits for the producer.

★ In general, Michigan public variety field seed producers are ***not as informed as they could be*** regarding:

- New varieties and their potential to displace existing varieties
- Yield and other performance variables of public variety verses proprietary seed
- Availability and value of seed supplies and pricing practices of competition

Informed seed producers differentiate their seed in ways other than price.

● ***Marketing radius of a public variety seed producer is generally 100 miles***. This limits the number of potential customers. All things being equal, your neighbors may perceive that seed from outside this radius is somehow better.

● ***Inconsistency of seed quality across public variety seed producers***. Sometimes, quality of the product just meets the minimum standards for certification. This reinforces the perception that public variety seed is not as good as proprietary seed.

● ***For many public variety producers, production and sales of public variety seed is a relatively small portion of total farm income***. This might lead to less emphasis on marketing and careless pricing practices.

(continued next page)

Table C.1 (cont'd).

Opportunities
(priority opportunities are numbered)

1. ***Value-based pricing***. This opportunity requires Michigan field seed producers to identify what buyers perceive as value and charge accordingly. This is an improvement over pricing practices that sell at 20% above the cost of production, since buyers are interested in the price-value relationship, not the margins a producer requires.
2. ***Promotion of those public varieties out perform the proprietary varieties*** (i.e., Chelsea white wheat out yields and has better milling characteristics compared to varieties produced by Pioneer, etc.). This well known yield and quality advantage leads to increased demand and reduced price pressure for this public variety seed.
3. Increased ***seed producer participation in programs that compare public varieties to proprietary varieties*** through test plots and aggressive marketing could reduce perceived difference between proprietary and public seed and lead to increased demand and profits.
4. ***Producers can take advantage of tie-in sales*** just as the larger proprietary seed companies do. For example, many Michigan public variety seed growers produce more than one seed variety and have the opportunity to sell a bag of soybeans with their regular wheat sales.
5. ***Target public variety seeds to specific customer needs*** (i.e., milling quality of wheat). There is a tendency for seed companies (public and proprietary) to focus primarily on yield. Identifying specific customer needs could reduce the number of competitors and this seed is sold to customers who are willing to pay for these differences.
6. ***Contract selling of Michigan public variety field seed***. An increasing number of commercial growers are willing to purchase seed on a contract basis over a multi-year period. This is especially true of those growers who raise crops on a contract basis now (i.e., sugar beets). Both sides benefit by being able to lock in costs and plan their businesses for more than one year at a time.
7. ***To position Michigan public variety field seed producers as a resource for the commercial field seed industry***. Sell service, expertise and partnering, not just cheap seed.
8. ***Extend commercial grower awareness that good seed is important beyond planting***. Commercial field crop growers tend to forget about seed after it is planted. However, if a problem with the crop occurs, seed is often blamed. If the crop is good, seed quality is forgotten. Seed producers should keep themselves more in the commercial grower's mind throughout the growing season. For example, simple gestures, such as, a phone call or farm visit to a commercial grower during the growing season. This leads to loyalty, less emphasis on price and increased profitability.

(continued next page)

Table C.1 (cont'd).

Opportunities cont.
(priority opportunities are numbered)

9. ***Extend commercial grower awareness that good seed is important beyond planting.*** Commercial field crop growers tend to forget about seed after it is planted. However, if a problem with the crop occurs, seed is often blamed. If the crop is good, seed quality is forgotten. Seed producers should keep themselves more in the commercial grower's mind throughout the growing season. For example, simple gestures, such as, a phone call or farm visit to a commercial grower during the growing season. This leads to loyalty, less emphasis on price and increased profitability.

- ***Restricted release of public field seed varieties*** may help segments of the public seed variety sector to compete effectively with proprietary seed varieties. This allows the public variety producers to create their brand just like the proprietary companies. More research needs to be conducted on the consequences of a restricted release program.
- The public variety field seed industry can benefit from an ***aggressive and highly visible proprietary seed industry***. For example, public variety field seed producers of canola would benefit from the development of new canola varieties, public or proprietary that enable Michigan to raise canola effectively. Public varieties offer an excellent alternative to private seed.

(continued next page)

Table C.1 (cont'd).

Threats
(priority threats are numbered)

1. ***The organizational and marketing structure of the proprietary seed producers*** (limited access to their brand) enables them to build in more profit than the public variety program. They set the price, which includes higher margins for the producers, elevators, and the seed company. These higher margins enable the proprietary producers to devote more resources toward research, development, and marketing.
2. There is growing concern among public variety producers that ***public variety breeding programs are not keeping up with proprietary variety programs in terms of the number and depth of new varieties developed.*** If this is true, it is a matter of time before proprietary varieties out perform all public variety seed and seriously jeopardize the future of public variety seed.
3. ***The ease of entry into the public variety seed industry*** is a threat to Michigan public variety field seed producers. For example, suppose a new wheat variety developed at Michigan State University exhibits potential. It is possible that many new seed growers will enter the market, which could lead to excess supply and increased rivalry, resulting in reduced profitability.
4. ***Tie-in sales (buy a bag of wheat in addition to the seed corn order) and the timing of these sales from competitors***, most notably large seed corn companies. These large seed companies usually book orders in the Fall, before most of the public variety seed producers begin selling their seed. As a result, these potential customers are no longer in the market or they need less seed if they are.
5. ***Profitable alternatives to producing public variety seed.*** For example, growing seed for a private seed company, growing commercial crops, such as, sugar beets or soybeans. If you can make more money growing commercial dark red kidneys, why grow public variety field seed?
6. ***Perception (sometimes there is evidence) that proprietary varieties out yield and out perform Michigan public variety field seed varieties***. For example, Michigan used to be the leading state for the production of Navy bean seed, raising approximately ??? (I will get this number) acres . In the mid 1980s, Michigan producers of Navy beans experienced severe blight and wilt problems associated with Michigan grown seed. Today, certified Navy bean acreage is down to 2,000 acres even though Michigan grown Navy bean seed has comparable vigor and disease resistance to its western counterpart.

(continued next page)

Table C.1 (cont'd).

Threats cont.
(priority threats are numbered)

7. ***Threat of substitute products is high***. Public and proprietary field seed varieties in and outside of Michigan compete directly with any one Michigan grown variety. The seed producer that establishes the best price-value relationship gets the order.
8. ***The use of biotechnology in the seed industry is a threat that is not well defined at this time***. There was a wait and see attitude towards biotechnology among the people interviewed. In general, producers and non-producers alike believe biotechnology will change agriculture, but will not change the need for seed producers. However, Gregory I. Wickham, who is the director for business redesign for Agway's Agricultural Group believes biotechnology will have a startling impact on seed marketing strategies by the year 2000. Biotechnology will require seed marketers to demonstrate far more technical knowledge than they currently possess. It is uncertain what role the giant agricultural supply firms will have regarding biotechnology and seed production. These companies will probably market biotechnological advancements to commercial field crop growers through seed grown by a focused and competent seed industry. It is the author's opinion that these companies will go as far as ownership in seed production, if it meant a competitive advantage for them.

- ***Planting of bin-run (saving part of your crop to plant next year)*** is always a threat. This decreases the demand for all seed. The challenge for the seed producer here is to convince the farmer that planting certified seed is superior to planting bin-run.

Source: 1993 Michigan public variety field seed industry strategic plan. Based on information obtained from competitive and SWOT analysis.

APPENDIX D

DETAILED SWOT LISTING FOR THE MICHIGAN SEED POTATO INDUSTRY

APPENDIX D

DETAILED SWOT LISTING FOR THE MICHIGAN SEED POTATO INDUSTRY

This appendix is a complete list of strengths, weaknesses, opportunities, and threats facing the Michigan seed potato industry. Only those priority strengths, weaknesses, opportunities, and threats discussed in the body of this paper.

Table D.1 Detailed SWOT analysis for the Michigan seed potato industry

	Strengths (competitive advantages are starred)
★	***Some seed producers have the skill and facilities to advance seed from tissue culture to a market-ready generation***. Individual seed producer are better able to select genetic characteristics compared to seed producers who use a state seed farm or purchase their genetics from tissue culture labs.
★	***Michigan's proximity to selected markets***. Michigan seed producers have a definite freight advantage compared to more Western seed producing states when shipping to Michigan, Ohio, and selected East Coast markets.
★	There are Michigan ***seed potato producers who do an exceptional job multiplying and marketing their seed***. One of the goals of this research is to convert these individual success stories into Michigan seed potato industry success stories.
•	***Florida tests results are made public to all Michigan seed producers***. This increases the flow of information between seed producers, and should reduce foolish pricing practices.
•	***Some Michigan seed potato producers have invested in newer storage and handling facilities***. Image and progressiveness are vital to success in the seed business.
•	***Ability to switch easily from one seed variety to another***. Most seed producers have the ability and willingness to grow different varieties as industry needs change.

(continued next page)

Table D.1 (cont'd).

Weaknesses
(competitive disadvantages are starred)

★ ***Lack of progressiveness, visibility and involvement in the seed potato industry.*** Some of the non-seed producers interviewed said that Michigan seed potato producers lack focus, direction, and leadership. Competing seed producers have been able to take market share and obtain a higher price for their product through aggressiveness and involvement in the seed industry.

★ ***Failure to differentiate their seed from competing producers and varieties*** by Michigan seed potato producers in general. This makes it easier for competitors to enter the market, increases the buyer's power, and allows buyers to treat Michigan seed as a commodity, with emphasis on price, at the expense of profits.

★ ***Lack of a well thought-out marketing plan*** by Michigan seed potato producers in general. Michigan seed producer's primary focus is on production. This translates into selling the same way, to the same customers year after year despite opportunities and changes in the environment. All too often, this results in a shrinking customer base and reduced profits.

★ ***Michigan seed potato producers have traditionally been slow to change.*** For example, many Michigan seed potato producers resisted the change from the hill selection method of seed advancement to the tissue culture system. Another example is the Snowden round white potato variety which has become a cornerstone in the Michigan chipping industry, was promoted primarily from seed potato producers in Wisconsin.

★ ***Pricing strategies based on the commercial market, on a competitor's price, or even pricing based on the cost of production.*** These pricing strategies, while easy to employ, are all too common in agriculture and usually lead to reduced profits for the producer.

★ In general, Michigan seed potato producers are ***not as informed as they could be*** regarding:

- o new varieties and their potential to replace existing varieties
- o yield and other performance variables of Michigan grown seed potatoes verses varieties from other seed growing areas
- o availability and value of seed supplies and pricing practices of competition

Informed seed producers differentiate their seed in ways other than price.

★ ***A damaged reputation and hesitation among Michigan seed potato producers to share technology as well as information with each other***, caused by lawsuit between two of Michigan's seed producers and MCIA . This lawsuit has the potential to get messy and is using resources that could be used to promote the Michigan seed potato industry. A strong Michigan seed potato industry depends on cooperation and sharing of technology and information.

(continued next page)

Table D.1 (cont'd).

Weaknesses cont.
(competitive disadvantages are starred)

★ ***Refusal to establish a seed price early in the seed marketing season*** by many Michigan seed potato producers . Buyers state that this practice as one more reason not to buy Michigan seed. This practice is caused by a combination of not knowing costs of production and a desire not to set the price lower than necessary and apprehensiveness about losing business because of pricing to high.

- If the ***lack of an effective Michigan seed potato industry-wide marketing plan and the present level of rivalry*** continues between Michigan seed potato producers, more seed producers will exit the market. Decreased profitability can be explained in part, by unnecessary rivalry (i.e., selling your seed for $.25 less a cwt than your neighbor because you always price this way).
- Seed potato industry in Michigan is comprised of a ***relatively small number of seed producers who are scattered over Northern Lower Michigan and Central Upper Michigan***. Contrast these 27 seed producers with 3,030 acres to competing seed growing areas like Wisconsin, which has 37 seed producers raising the majority of 10,000 acres in a 50 mile radius. It is much more difficult to coordinate the efforts of these scattered Michigan seed producers.
- ***Inconsistency of seed quality across Michigan seed potato producers***. Sometimes, quality of the product just meets the minimum standards for certification. This reinforces the perception that Michigan seed potatoes are not as good as seed from competing states.
- Tendency of some Michigan seed producers ***to rely on the certification program as the primary method of marketing***. Some seed producers believe their job is done once they have the "blue tag" on the bag. Certification is <u>not</u> designed to replace marketing, but to be a part of a marketing system.
- ***The number of, and timing of meetings is diluting the representation of Michigan seed potato producers***. Given the limited number of Michigan seed producers and the number of possible meetings to attend, it is no wonder that Michigan seed potato producers are accused of not being involved in the potato industry.
- ***The marketing radius of a Michigan seed potato producer is generally 150 miles***. This 150 mile radius limits the number of potential customers. All things being equal, your neighbors may perceive that seed from outside this radius is somehow better.

(continued next page)

Table D. (cont'd).

Opportunities
(priority opportunities are numbered)

1. ***Formation of a strategic alliance between Michigan seed potato producers and the Michigan Potato Industry Commission***. The Michigan Potato Commission is willing to provide opportunities for Michigan seed producers to become more involved. Money could be made available for seed promotion and other worthwhile activities. It is up to Michigan seed producers to seek out the help of the Michigan Potato Commission.
2. ***Promotion of Michigan grown varieties that out perform non-Michigan grown varieties***. Increased participation in test plots and aggressive marketing could minimize the stereotype that Michigan seed potato producers have little consideration for the needs of their customers. Managed properly, this could lead to increased demand, sales, and profits for Michigan producers.
3. ***Value-based pricing***. This opportunity requires the Michigan seed potato producer to identify what buyers perceive as value and charge accordingly. This is an improvement over pricing practices, such as, selling at 20% above the cost of production, since buyers are interested in the price-value relationship, not the margins a producer requires.
4. ***Contract selling of Michigan seed potatoes***. An increasing number of commercial potato growers are willing to purchase seed on a contract basis over a multi-year period. This is especially true of potato growers who raise potatoes on a contract basis for potato processors or potato chip companies. Both sides benefit by being able to lock in costs and plan their businesses for more than one year at a time.
5. ***Target Michigan seed potato varieties to specific customer needs*** (i.e., breed varieties for specific uses; processing and chipping, and for specific soil types). There is a tendency for both seed and commercial potato growers to focus primarily on yield. Identifying specific customer needs would enable Michigan seed potato producers to separate themselves from competition. This effectively reduces the number of competitors and this differentiated seed is sold to customers who are willing to pay for these differences.
6. ***To position Michigan seed potato producers as a resource for the commercial potato industry***. Sell service, expertise and partnering, not just cheap seed.
7. ***Extend commercial grower awareness that good seed is important beyond planting***. Commercial potato growers tend to forget about seed after it is planted. However, if a problem with the crop occurs, seed is often blamed. If the crop is good, seed quality is forgotten. Seed producers should keep themselves more in the commercial grower's mind throughout the growing season. For example, simple gestures, such as, a phone call or farm visit to a commercial grower during the growing season. This leads to loyalty, less emphasis on price and increased profitability.

(continued on the next page)

Table D.1 (cont'd).

Opportunities cont.

(priority opportunities are numbered)

- ***Increased communication between seed producers regarding cost of production, varietal differences, and pricing practices*** may reduce the "foolish" pricing practices, and increase profits.
- ***The Michigan system of variety advancement in Michigan can lead to more innovation than a state seed farm system.*** This is contingent on progressive individual seed producers who are constantly trying to develop and promote new varieties.
- At the 1993 seed seminar, ***seed producing states agreed upon a uniform set of certification and seed generation standards.*** The proposed standards resemble the system currently being employed by Wisconsin. It will take 2-5 years to implement because of legislative issues to be solved in each state. Now all seed potato producers will compete on the same playing field.

(continued on the next page)

Table D.1 (cont'd).

Threats
(priority threats are numbered)

1. ***The marketing savvy and aggressiveness of competing seed potato producing states*** like Wisconsin enables them to capture market share and profit from Michigan seed potato producers. Many of these competing producers attend potato industry functions that are held in Michigan. They conduct farm visits during the growing season with their customers and obtain feedback to improve their operations.
2. ***The ease of entry into the Michigan seed potato industry*** is a threat. For example, suppose a promising potato variety is developed at Michigan State University. It is possible that non-Michigan seed producers could be the first to capitalize on a this variety. This may lead to excess supply and increased rivalry, at the expense of profitability.
3. ***Rising costs, combined with pressure from buyers to tie the price of seed to the commercial price of potatoes is eroding profitability***. Seed potato production is more costly and labor intensive than commercial production. Buyers exert tremendous pressure to lower seed prices, especially in the years that commercial producers are experiencing low prices.
4. ***Well organized and focused competitors***. Utilization of a state seed farm encourages more cooperation for the benefit of all participating producers than states without such a system. State seed farms serve as the primary source of pre-nuclear and nuclear genetic material used in seed production in these states. Participating seed producers meet regularly to discuss seed varieties as well as marketing strategies.
5. ***States utilizing a state seed farm are able to get a promising variety to market quickly***. In a state farm system, the capacity to produce successive generations quickly and in large quantities can be focused on promising varieties. This ability to react quickly to changing customer needs forces Michigan seed potato producers to play catch up. For example, some Michigan producers have turned existing customers away because they did not have enough Snowden seed to supply the demand. These customers were forced to go to Wisconsin seed producers for product and many have not come back since Michigan seed producers increased their supplies of Snowden seed. However, the state seed farm system can be slower if a new variety is thought not to be promising, and therefore not increased at the state farm.
6. ***Threat of substitute products is high***. Seed potato varieties in and outside of Michigan compete directly with any one Michigan grown variety. The seed producer that establishes the best price-value relationship gets the order.
7. ***Perception (sometimes there is evidence) that competing varieties from neighboring states out yield and out perform Michigan grown seed potato varieties***. For example, the round white potato variety called Atlantic is grown by both Michigan and Wisconsin seed potato producers. There were 2,099 acres of Snowdens raised in Wisconsin compared to 254 acres in Michigan in 1993. Buyers are able to choose Atlantics from a wider selection of Wisconsin producers verses Michigan. This reduces the value of Michigan seed potatoes and places additional emphasis on price.

(continued on the next page)

Table D.1 (cont'd).

Threats cont.
(priority threats are numbered)

8. ***The use of biotechnology in the seed industry is a threat that is not well defined at this time.*** There was a wait and see attitude towards biotechnology among the people interviewed. In general, producers and non-producers alike believe biotechnology will change agriculture, but will not change the need for seed producers. However, Gregory I. Wickham, who is the director for business redesign for Agway's Agricultural Group believes biotechnology will have a startling impact on seed marketing strategies by the year 2000. Biotechnology will require seed marketers to demonstrate far more technical knowledge than they currently possess. It is uncertain what role the giant agricultural supply firms will have regarding biotechnology and seed production. These companies will likely market biotechnological advancements to commercial potato growers through seed grown by a focused and competent seed industry. It is this author's belief these companies will go as far as ownership in seed production, if it meant a competitive advantage for them.

- ***Profitable alternatives to producing seed potatoes.*** It has been more profitable to raise potatoes for processing or chipping than to grow certified seed potatoes the last 6-8 years. Why should Michigan's growers raise seed potatoes when they could make more money growing and marketing potatoes for processing, chipping, or tablestock?
- ***High bargaining power of buyers.*** Seed buyers are often more informed on seed availability and pricing than Michigan seed potatoes producers.
- ***Replanting a portion of this-year's crop as seed next year*** is always a threat. This decreases the demand for all seed. The challenge for the seed producer here is to convince the farmer that planting certified seed is superior to replanting.
- ***Shrinking number of Michigan seed producers and shrinking number of acres under certification*** is raising the cost of producing seed to levels that can affect the ability of Michigan seed producers to competitively market their seed. However, one seed producers interviewed posed an interesting question, "if certification costs were cut in half, how many more acres would Michigan seed potato producers certify? " He went on to say most Michigan seed producers would not certify anymore acres even if certification costs were lower.

Source: 1993 Michigan seed potato industry strategic plan. Based on information obtained from competitive and SWOT analyses.

APPENDIX E

DETAILED LISTING OF MARKETING AGENCIES IN COMMON IN OTHER FIELD SEED PRODUCING STATES

APPENDIX E

DETAILED LISTING OF MARKETING AGENCIES IN COMMON IN OTHER FIELD SEED PRODUCING STATES

Georgia

Description of the program: **Southern Elite Genetics Association** (SEGA)

- This new concept has been applied only to soybeans as of April 1994. Approximately 100 certified soybean producers were given the opportunity to buy into this marketing association.
- 1,000 shares of stock were made available at $100 per share. The number of shares a producer owns dictates the percentage of foundation seed that grower is entitled to of all new soybean releases.
- Approximately 25 growers have signed on for this program.
- One goal of this program is to avoid problems similar to what the wheat variety Pike experienced (fast growth then over production and a fast fall). Pike was a semi-restricted release wheat variety.

The upside of the program:

- The stockholders have the exclusive rights for the life of the variety.
- This marketing association has first right of refusal on any new public variety soybean releases.
- Royalties will be collected to help fund plant breeding and research.
- The marketing association, will in all likelihood, make an effort to manage the supply of seed.
- The creators of this program see this program as a way to encourage a private approach to public variety seed.
- The program developers are hoping to encourage biotech companies like Monsanto to consider restricted public varieties as a method to market their genes. To date, Monsanto has only collaborated with private seed companies in Georgia.

The downside of the program:

- No mechanism for allowing new members into the marketing association at the present time.

- No mechanism to allow non-Georgian seed producers to become part of the association. They are working on this.

Illinois

Description of the program: **Identity preserved corn and soybeans**

- Illinois Crop Improvement set up an identity preserved grain lab in 1985. This lab tests soybean and corn seed for traits that are specific to the variety whose identity is being preserved. For example, the lab tests for preserved identity in Burleson soybeans which have a higher protein content than most soybeans.

- These identity preserved soybeans and corn varieties are targeted to customers with specific needs, for a premium price. For example, certain soybean varieties make better tofu than others and tofu manufacturer's are willing to pay more if they are assured of receiving a constant supply of a particular variety.

The upside of the program:

- Initially, the program should lead to higher seed prices because a demand has been created for a specific variety in this identity preserved program that is not easily satisfied with substitute brands.

- There is no reason why a certified seed grower could not become a supplier of identity preserved product. In many respects, a certified seed grower is better suited to keeping lots separate.

- Many of the identity preserved varieties involve contractual arrangements between the processor and the producer which reduces uncertainty and allows for planning farther into the future.

The downside of the program:

- Someone has to take the lead and identify customers who have specific needs.

- There is no mechanism to control over production. The system relies on the end-user to communicate their product needs and for the production side to supply the correct amount.

- There is no mechanism to provide funds for promotion. Illinois does assign a research and assessment fee (alias royalties) to all new varieties which is used to fund public variety field seed promotion.

Indiana

Description of the program: **Purdue University's Variety Release Policy on Sister Lines**

- Purdue university has a variety release policy on sister lines of soybeans and wheat.
- Producers or groups of producers may put their own label on these varieties. These varieties are subject to the same certification and inspection requirements that other public varieties are. The Indiana Crop Improvement Association (ICIA) would certify based on the variety number issued by Purdue University.
- This system has seen modest use as of 1994.
- There are royalties charged, approximately $.60 per unit.

Upside of the program:

- Varieties are released under Title V of the Plant Variety Protection Act and require that only certified seed be used in the production of this restricted release variety.
- Although the potential exists for many producers to in effect be selling the same variety, under different labels, the producer or group of producers who do the best job of marketing will reap the majority of the benefits.
- The ICIA manager believes this program has resulted in increased profitability for those seed producers who have participated.
- This system helps to get more new varieties out to the commercial growers and faster.

Downside of the program:

- If many producers select the same variety and place different brand names on it, this could lead to confusion in the marketplace, over production, and reduced profits.
- There is a possibility that particular kind of "private" brand promotion will lead to a faster deterioration of the public variety seed industry.
- As always, there is the possibility that the variety does not out perform other varieties.

Kansas

Description of the program: **Kansas Soybean Variety Release Board (KSVRB):**

- Is a permanent 7 member board (2 KSU reps appointed by the dean, 3 appointed by KCIA, and 2 appointed by KSIA).
- KSVRB is a non-profit corporation.
- Purpose is to implement the release of new soybean varieties developed by KSU.
- KSVRB assists growers in the establishment of marketing associations.

How this program works:

Step 1: KSVRB notifies all eligible soybean seed growers[36] of pending variety releases approximately two years prior to release of the first foundation seed. Eligible growers are also provided with the pertinent variety release procedures and timetable.

Step 2: Approximately one year prior to distribution of the first foundation seed from this new variety, all eligible growers who are interested in receiving foundation seed are called to a meeting where the KSVRB provides specific information to all growers regarding release conditions and final timetables.

Step 3: Growers who choose to participate in the release of this new variety will comprise a "marketing association". These growers choose to join forces in the production and merchandising of the new variety.

Step 4: The "marketing association then makes decisions regarding the promotion and merchandising of the variety for a number of years. An up front promotional fee is paid by each member. The KSVRB returns most of this money back to the marketing association as soon as it is fully functional.

Additional comments:

- Only category I growers (those who grew certified soybeans in 90,91,92) were eligible for the variety from KSU called KS 4694.
- A total of five states, including Kansas are participating in the release of KS 4694.
- All association members were required to pay $10.00 per bushel (25 bushel minimum) for promotion in addition to whatever the foundation seed and royalties cost. This was to be paid at the allocation meeting. The KSVRB returned $9.50 of the $10.00 directed to the association to use as promotional and marketing money.
- All varieties will be protected by title V (certification option).

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[36]growers are assigned to categories I,II,III,or IV depending on their past seed growing history. For example, a category I soybean seed grower would be a seed grower that has raised certified soybeans for the last three consecutive years.

Kansas program (cont'd).

- Foundation seed may be sold only to members of that variety marketing association, if registered seed is used, it may be sold only among members of the same marketing association.

Summary of the decisions that must be made by each marketing association:

1) Election of officers (president, vice president, secretary, and treasurer).
2) Develop a marketing and promotion plan for the variety, including budget and timetable (5 years). Include: mass media, brochures, plots, persons responsible, etc.
3) Determine policy and procedures for member exit and new members.
4) Develop plan and policy for determining succeeding year's foundation seed needs to allow for timely production and delivery by foundation seed unit.
5) Establish policy for registered seed.
6) Decide on market focus (targeted sales, market areas, market share goals for each member, maximum/minimum participation levels, etc.).
7) Develop plan for enforcement of intellectual property rights, including group action, State Board of Agriculture and Universities.
8) Develop policy governing short or excess foundation/registered/certified seed supplies, unplanted seed, etc. and transfers among association members.
9) Decide whether or not to utilize any other royalties, assessments, etc. for use by the association.
10) Make appropriate arrangements if the association has members from other states.
11) Plan for the demise of the association.

Upside of the program:

- Only those seed producers who are interested in the specific variety join the association.
- Association members are required to provide an annual marketing plan.
- The marketing association decides how they want to spend the initial money for marketing and promotion.
- Allows KSU to release new soybean varieties as "public".
- Allows Kansas Crop Improvement to remain neutral regarding the marketing of public variety seed.
- There is a provision for funding research if the association so decides.

The downside of the program:

- There are no guarantees that entrepreneurial spirit can't run wild and the new variety be subject to the same "foolish" pricing practices that are prevalent in the seed industry.
- It is possible that the new variety does not perform as anticipated.
- This program is open to all seed producers, public and private.

Minnesota

How the program works: Minnesota Seed Producers and Promotion Association (MSPPA)

- MSPPA, formed in 1975, promotes all Minnesota public varieties.
- A promotional fee is levied on all public varieties in the state seed program.
- MSPPA promotion budget is $250,000 / year (largest promotional expenditure is for the "seed Book" which appears in the state's farm magazine).
- The promotional fee is $.10 on soybeans, $.04 on wheat, and $.03 per bus. on barley and oats.
- MSPPA contracts promotional services with outside firm.

Upside of this program:

- The Minnesota program for advertising and promotion keeps farmers aware of the public varieties and their performance and benefits all producers of these varieties.
- The promotional efforts of MSPPA are paying off because MPS soybeans were the second most planted soybeans in 1992 in Minnesota behind Pioneer.
- MSPPA provides an opportunity for individual seed producers to advertise on the radio (MSPPA reimburses up to 50% for co-op radio spots featuring the MPS jingle).
- The MSPPA is in the process of establishing a strategic plan.

The downside of the program:

- There are no guarantees that entrepreneurial spirit can't run wild and the new variety be subject to the same "foolish" pricing practices that are prevalent in the seed industry.
- Currently, the MSPPA does not address marketing issues. This may be difficult given the size of the MSPPA program.

Missouri

Description of the program: **Missouri Public Varieties, Inc.**(MPV)

- Missouri Public Varieties, Inc. (MPV) is a sub group of Missouri Crop Improvement Association which was formed three years ago to aggressively promote public variety seed.
- Similar to Kansas program, except there will be only one production and marketing group formed in each interested state instead of a marketing association for each variety.
- Producer groups are formed for each new variety and are granted exclusive rights to the new variety for 5 years.
- Interested seed producers are polled one year in advance to ensure adequate foundation seed supplies.
- Interested seed producers contribute $11.50 per seed unit the year of the release to establish a marketing and promotional fund. This is in addition to the cost of the foundation seed. There is a 25 bushel minimum.
- A registered seed class is generally not allowed.

The upside of the program:

- Group members are required to provide an annual marketing plan.
- The product groups function under the direction of Missouri Public Varieties, Inc. in much the same way as the marketing associations do under the Kansas Soybean Variety Release Board, except the product groups are not set up as legal entities like the marketing associations. Perhaps a little less paperwork here?
- The product group decides how they want to spend the initial money for marketing and promotion.
- Missouri Public Varieties, Inc. do not anticipate over production of new varieties because of the common marketing plan.
- There is a provision for funding research. A $.60 per unit royalty will be added to all public variety seed coming out of this program; $.20 for promotion of the variety and $.40 for breeding and research.

The downside of the program:

- There are no guarantees that entrepreneurial spirit can't run wild and the new variety be subject to the same "foolish" pricing practices that are prevalent in the seed industry.
- It is possible that the new variety does not perform as anticipated.
- This program is open to all seed producers, public and private.

Nebraska

How the program works: Nebraska Crop Improvement Association

- Some public variety seed producers from Nebraska belong to the soybean marketing association under the KSVRB.
- Public variety seed producers in Nebraska consider brown bag sales of seed more of a threat than seed that is sold by private companies.
- The Nebraska Crop Improvement Association allocates a portion of its budget for the promotion of public seed varieties (similar to Michigan).

Upside of this program:

- Seed producers in Nebraska have enjoyed the benefits of the Nebraskan Department of Agriculture's tough position on violators of the plant variety protection act.
- The Nebraska Crop Improvement Association has been able concentrate resources by targeting specific locations of Nebraska where brown bagging of seed is more common.

Downside of this program:

- Nebraska is just now beginning to look at common marketing agencies and strategic planning.
- There does not appear to be a mechanism in place that provides long term direction for promotional or marketing efforts.

Ohio

How the program works: **Agricultural Genetics Research, Inc. (AGRI)**

- Comprised of 15 certified seed producers who are also part of OCIA.
- In the beginning AGRI would take on sister varieties from the plant breeding program at OSU. AGRI was allowed to put their own name on these and market accordingly.
- Today, AGRI will no longer restrict its genetic supply to just public sources. AGRI has started to purchase some private genetic stock and will pay royalties on both private and public seed stocks.
- AGRI certifies its varieties under a green tag system. That is, AGRI tells OCIA what the standards are and OCIA inspects and certifies accordingly.

Upside of this program:

- Provides seed producers with a hedge against the uncertainty surrounding public variety breeding programs.
- Green tag certification standards can be as good as the standard certification system. These standards are set by AGRI, not the state.
- Allows AGRI members to compete more effectively with the public and private seed producers by offering a differentiated product in a commodity market.

Downside of this program:

- The standards for the green tag system can vary for each variety causing confusion in the marketplace.
- AGRI addresses genetic sourcing issues, but does not address marketing issues, such as, members who decide to produce large quantities of seed and flood the market.
- This mechanism does not address what happens when members deviate from a preset plan, say market green tag seed under their label instead of under the AGRI PRO label.
- There is a possibility that particular kind of "private" brand promotion will lead to a faster deterioration of the public variety seed industry.

Additional comments regarding Ohio programs and royalties:

- Ohio seed producers all pay a $1.00 per acre research fee to OSU.
- Ohio seed producers also pay $.05 per tag to OSU for plant breeding.
- OSU has decided not to charge Ohio seed growers any additional research and breeding fees in the form of royalties for those varieties that now have royalties (all new varieties will most likely have a royalty). However, seed producers outside of Ohio will be expected to pay these royalties.

American White Wheat Producer's Association

Description of the program: **The American White Wheat Producers Association (AWWPA)**

- Founded in 1988 as an agricultural cooperative and is composed primarily of white wheat seed producers in six different states (Kansas is the main player). Members of AWWPA have exclusive access to newly developed varieties of hard white wheat suited for commercial production in the Great Plains States.

Specifics include:

- 200 producers from six states.
- Producers are required to purchase 1 share of common stock ($100.00) for every 100 acres of white wheat they produce.
- AWWPA offers members a yearly contract in acres. Once the contract is obtained, members can purchase seed from designated companies.
- Use of certified white wheat is required.
- AWWPA limits producers to devoting only 15% of their wheat acreage to white wheat.
- AWWPA target specific customer needs to market this white wheat through a process referred to as "targeted delivery". The more common name for this in the seed industry is identity preserved.
- The AWWPA is more than an identity preserved program that just focuses on maintaining varietal identity. The AWWPA claims that 50-80% of the variation in flour quality is induced by the growing environment or the environment/genetic interaction. A huge data base is maintained by AWWPA to keep track of extensive information on each lot of white wheat. This information is then used to satisfy specific customer needs, at a premium price.
- AWWPA purchases and markets all of the white wheat from producer/members and offers a number of payment plans to suit different grower needs from a cash price at delivery to an initial payment of $2.60 per bushel at delivery plus an additional pool price over the next 15 months.

The upside of the program:

- This is an excellent example of identifying specific customer needs.
- Incorporated a mechanism that developed a market for specific public variety seed.
- AWWPA manages the supply that is produced to some extent, which allows AWWPA members to get a premium for their product.

The downside of the program:

- The customer's needs may change or a specific customer need may not generate a large enough market to justify this approach.
- The customer has a lot of power in this scenario and may promote the expansion of the wheat supply to the point where it is not profitable for the producers.

APPENDIX F

DETAILED LISTING OF WHAT OTHER SEED POTATO PRODUCING STATES ARE DOING

APPENDIX F

DETAILED LISTING OF WHAT OTHER SEED POTATO PRODUCING STATES ARE DOING

Idaho

Background information:

- 190 growers producing approximately 45,000 acres of seed. Idaho's program is similar to Michigan's in that ICIA certifies both potato and field seed crops.
- Approximately 120 of these growers live in areas that will only support seed production, while the other 70 seed producers live in areas where they could also grow potatoes for commercial use.
- Idaho seed growers are part of the Idaho Potato Commission and they pay an assessment of $2.00 per acre to belong to the Commission. Seed growers didn't always contribute to the Commission.
- Approximately 30 seed growers belong to the Potato Growers of Idaho. PGI is an association that gets involved with contract negotiations and other marketing issues.

Bottom line:

- There are no seed marketing groups to speak of. A portion of the seed is sold by brokers. There is some benefit to belonging to PGI and relationships with commercial growers have improved greatly since the seed producers began contributing more money in terms of assessments.
- The Idaho seed potato directory lists all lots of seed certified, even if it has been rejected, in addition to stating the reason for rejection.

Maine

Background information:

- 330 growers producing approximately 28,000 acres of seed potatoes.
- Maine has a state seed farm.
- There is a mix of growers who plant 100 % of their potatoes to seed, while others plant a portion of their potato crop to seed and the rest to fresh or process.
- Seed growers are part of the Maine Potato Board and have a seed executive council which represents the seed growers in all matters, including money for education and promotion.
- You must plant certified seed potatoes in Maine, by law.
- One large broker accounts for a substantial percentage of the seed that is sold. Seed producers who use this broker feel they receive an additional $.50 to $1.00 per cwt for their seed.

Bottom line:

- Seed potatoes account for 20% of all the potatoes grown in Maine. Maine has a long tradition of selling seed.
- Currently, the Maine Potato Board is funding programs to educate seed producers on calculating the true cost of production. There will be future programs centered around marketing and obtaining financing.
- Maine admits to having some difficulties because of the diversity of growers.

Minnesota

Background information:

- 116 growers producing approximately 23,000 acres of seed potatoes.
- Certified seed potato producers must plant all potato acreage to seed in Minnesota. Seed producers may sell seed for commercial uses.
- 60 - 70 percent of the seed growers belong to the Red River Valley Potato Growers Association.
- Minnesota seed producers have their own seed association which is called the Minnesota Certified Seed Association.

Bottom line:

- The Minnesota Seed Association has conducted educational programs for the seed producers and promotional activities to promote Minnesota seed.
- Recently, the Minnesota Seed Association brought in four area potato brokers to get the brokers' views on the potato industry and what Minnesota seed producers can do to meet some of these needs.

Montana

Background information:

- 100 growers producing approximately 8,500 acres of seed.
- There is no commercial potato production (you could also say there are no potato alternatives to raising seed potatoes).
- Growers operate in an isolated seed producing area with virtually no aphid problems.
- 10 growers operate labs on their seed farms.

Bottom line:

- Montana has established a niche for themselves as a supplier of higher generation seed to commercial and out-of-state producers.
- There have been occasional educational seminars put on for the benefit of the seed producers.
- No industry wide strategic planning has been done at this time.

Nebraska

Background information:

- 12 growers producing approximately 8,100 acres of seed potatoes.
- No commercial potato production to speak of in Nebraska.
- Primarily a round white seed producing state.

Bottom line:

- These 12 growers cooperate well with each other. All 12 are sharp operators and businessmen. These seed producers meet regularly to discuss issues affecting their industry.
- Nebraska seed producers rely heavily on their freight advantage to sell into the West and Southwest.

North Dakota

Background information:

- 85 growers producing 30,000 acres of seed potatoes.
- All commercial and seed producers belong to the Red River Valley Potato Growers Association. The seed producers are represented on a committee level.
- Seed producers also have their own association called the North Dakota Seed Growers Association.

Bottom line:

- North Dakota has enjoyed the benefit of an outstanding potato breeder who has developed numerous varieties over his career.
- North Dakota seed producers can choose to plant potatoes for commercial purposes just like Michigan seed producers. Of course, it is no secret that North Dakota has had a number of consecutive bad potato years.
- North Dakota seed producers have a good seed association which has invested in education of its members and promotion of its industry.
- The size and diversity of the seed industry in North Dakota has helped them because it provides a source of funding for promotion and gives buyers many seed growers to choose from when purchasing seed.

Prince Edward Island

Background information:

- 680 seed growers. I do not have acreage Figures, however PEI normally exports approximately 87,000 metric tons of seed potatoes. This year they are down to 44,000 metric tons due to PVY problems and stiff European competition, most notably, the Dutch.

- PEI's seed variety mix is changing from Kennebec towards Burbanks, Superiors, and Shepody's.

Bottom line:

- The seed industry in PEI will begin to focus more on marketing after it gets the PVY problems under control.

Wisconsin

Background information:

- 37 growers producing approximately 10,000 acres of seed potatoes in relatively close proximity to one another.

- Wisconsin has a state seed farm.

- Seed growers belong to the Wisconsin Potato Vegetable Growers Association as well as having their own association called the Wisconsin Seed Potato Improvement Association.

Bottom line:

- Wisconsin seed potato growers have been aggressively seeking market share in Michigan.

- The WPVGA and WSPIA have provided funds for education, research, and promotion.

- WSPIA recently hired a consultant to conduct a marketing study for Wisconsin seed producers. Unfortunately, I do not have any details about the content of this study.

APPENDIX G

CHRONOLOGY OF THE STRATEGIC PLANNING PROCESS

APPENDIX G

CHRONOLOGY OF THE STRATEGIC PLANNING PROCESS

Table G.1 A chronology of the strategic planning process.

DATE	DESCRIPTION OF THE EVENT
July 20, 1993	Met with Dennis Greenman manager for MCIA July 1993. Introductions and expectations for the project were discussed.
August 15, 1993	Meeting with the MCIA executive committee. Introductions and expectations were discussed regarding the project.
September 2, 1993	Meeting with the steering committee overseeing the project. Participants included Dr. Chris Peterson Agribusiness economist, MSU, and myself and the steering committee members from MCIA. The research procedure was approved by the steering committee. The names of potential respondents were selected by the steering committee. There were approximately 65 names to choose from.
September 1-25, 1993	Once the personal and phone surveys were pretested, approval was sought and granted from the Michigan State University Committee for Research Involving Human Subjects (UCRIHS). Participants were assured of anonymity and confidentiality and participation was strictly voluntary.
October 1 - November 25, 1993	Face-to-face interviews were conducted with Michigan public variety field seed and seed potato producers, selected buyers of Michigan public variety seed, seed potatoes, and other professionals with an interest in the Michigan seed industry. 31 face to-face interviews were completed.
November 1, 1993	Attended pre-planning session of the Seed Potato Division of MCIA. Seed producers invited a select number of Michigan commercial potato growers to discuss issues facing the Michigan seed potato industry.

(continued on the next page)

Table G.1 (cont'd).

DATE	DESCRIPTION OF THE EVENT
December 11,1993	Presented preliminary findings of the project to MCIA members at their annual banquet.
January 10-25, 1994	Conducted 17 phone interviews with producers and other professional associated with the Michigan seed industry.
January 15 - February 15, 1994	Contacted 16 state certifying agencies and common marketing associations to learn what other states are doing in strategic planning, promotion, and marketing. Used the results of these contacts to compare against what Michigan is currently doing.
March 24, 1994	Presented the strategic plan to the executive committee. Initial response was favorable. There was a request to take the project one step further and to develop a set of specific strategies or recommendations that could be used to implement the strategic plan.
May 31, 1994	Presented strategic plan and specific recommendations to both the field seed and seed potato divisions of the steering committee. They were pleased with the project and requested an additional meeting for the general membership to explain the findings of the project. This was completed in July and August 1994.
August 17, 1994	Presented the strategic plan and specific recommendations to the general seed potato membership.
August 25, 1994	Presented the strategic plan and specific recommendations to the general public variety field seed membership.

Source: Strategic planning log from the Michigan public variety field seed and seed potato industry strategic planning process, July 1993 - August 1994.

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