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Relationships between Business Planning and Reaching Forecasted Sales Objectives for New England Farmers

Kenny Roberts
Walden University

Walden University

College of Management and Technology

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Kenny Roberts

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Dr. David Bouvin, Committee Chairperson, Management Faculty
Dr. Godwin Igein, Committee Member, Management Faculty
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Chief Academic Officer
Eric Riedel, Ph.D.

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Dissertation Submitted in Partial Fulfillment

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Abstract

Over the last 100 years, more than 3 million small farming operations have been replaced by large factory farms in America. This shift toward food production by conglomerations has led to severe environmental issues, food security hazards, and economic hardship in farming communities nationwide. This study investigated the extent to which a written business plan could help small farming operations meet their sales objectives and ultimately continue to operate; this study also examined the perceptions of farm owners regarding the ability of a business plan to affect sales objectives. The sample consisted of 71 Maine Farms for Future (FFF) recipients and 71 randomly selected New England farmers as identified by the Maine Department of Agriculture. The study used a mixed methods approach. Quantitative data were analyzed using a Mann-Whitney U test to determine the extent to which creating a business plan corresponds with the ability to meet sales objectives. Qualitative data were analyzed using inductive and open coding techniques to determine the extent to which farmers perceive business planning as having value. Quantitative data analysis showed the differences between the groups to be statistically significant and that a written business plan corresponded with farmers meeting sales objectives. The qualitative analysis showed that the majority of both groups identified business plans as having value due to its ability to affect sales objectives. These findings confirm resource-based theory as a valid predictor of why farmers write a business plan. This study may positively impact social change by providing small farming operations a way to increase sustainability and reduce the food security risks that are commonly caused by large factory farming practices.

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Chapter 1: Introduction to the Study

During the past 100 years, conditions in the economy for smaller farming operations in America have deteriorated. This has caused many to close and cease operations (Fitzgerald, 2012). Despite the fact that these trends have declined in recent years, there is no evidence that points to a boom in farming operations. This can be seen in the fact that the majority of small farming operations fail (United States Department of Agriculture [USDA], 2010), and many farming families that have success have a secondary source of income (Hoppe, 2010). Many challenges have arisen as a result of progressive changes in the makeup of America's agricultural industry. As smaller and diversified farms gave way to bigger, more specialized large scale farming models, many local economies have gone through and continue to undergo significant and prolonged economic adversity (Fitzgerald, 2012). Damage to the environment has also become a significant problem, as large scale farming operations create significant pollutants and are likely the largest sole producer of greenhouse gases (Cassudo, 2012). Because of this and additional negative factors caused by large scale farms, prolonged food security is also a cause for unease (Ringler, 2011).

Since it is unlikely for policy changes to occur that will assist small farming operations, it is crucial that they discover a way to adapt to the present conditions of the economy. In this study, I examined how research planning plays a role, with particular emphasis placed on business planning, by using quantitative methods to determine if these planning techniques are effectively helping small farming operations to meet forecasted sales, and ultimately, continue to operate. There are small farming operations that are currently using business plans; however, there is not any empirical evidence that

points to the effectiveness of this tool. A qualitative portion was also used in this study in the form of a survey whose goal was to gain a broader perspective into the independent variables of this study. Farms in the New England region were examined due to the fact that these farming operations have an extensive history in the agricultural industry. Additional factors include the magnitude of the problem in this geographical area and the data's availability.

Background of the Study

Family owned and local farming operations have been declining at a rapid pace over the last 100 years in the United States (USDA, 2007). The causes of this decline, although difficult to pinpoint, are related to recent technological advances as well as changes in local, state, and federal policy (Fitzgerald, 2012). There have been numerous articles pertaining to the challenges faced by local farming operations. Cassudo focused specifically on the potential problems that could spread due to these farming closures (2012). Fitzgerald provided information on the leading factors that have created many of the challenges faced by local farming operations (2012). Harrison offered detailed information pertaining to the recent advances in the agricultural industry that are beyond the scope of smaller locally owned farming operations (2012). Similarly, Martin gave a view from the Department of Agriculture that supported the view of getting big or getting out (2010). Also, Stringer addressed the shifts that have resulted in the manner in which agricultural resources are consumed, valued, and funded (2011). Lastly, Schlosser provided information on the adverse impact associated with locally operated farming closures to include frequent (2012).

In 1920, farming operations in America peaked, topping over 6.4 million in number (Cassudo, 2012). Since this time, these numbers have been in a steady decline (USDA, 2007). In 1960, the amount had fallen to 3.6 million and in 2007, 2.1 million (Stringer, 2011). Additionally, the percentage of the labor force that was involved in farming has decreased over time, from about 30% during the 1920s to approximately 1 or 2% in today's labor force (USDA, 2007). The majority of the farms that have continued to endure are no longer smaller operations or owned by families (Fitzgerald, 2012). In 1990, the average acreage for a farm was 462. This number more than doubled the average farming size from the 1950s and was three times the size of farms from the 1930s (USDA, 2007). A review of the data suggests the prevalence of large farming operations has begun to level off for the first time in decades, and the amount of smaller farming operations is beginning to increase (USDA, 2007); however, these increases are insignificant and are most likely due to the recent attempts of the U.S. Census Bureau to track small farming operations more accurately (Hoppe, 2010).

The primary cause behind the disappearance of smaller farming operations in the United States is linked to strides in agricultural technology, such as pesticides, chemical fertilizers, and improved machinery (Fitzgerald, 2012). Also, the change in farming practices since the early 1920s has inadvertently caused the development of practices beyond the scope of small farming operations, such as advanced genetic engineering, increased pesticide, factory farming, and the cloning of livestock (Haines, 2010). Furthermore, the liberalization of the economy, government spending reductions, and globalization of manufacturing have created anxiety regarding the ability of the agricultural community to contend for resources (Fitzgerald, 2012). The status of existing

policies and programs designed to achieve structural adjustment and changes to market economies have created changes in social institutions that are vital to family farms and have led to increases in commodity prices that are restructuring economic factors on a global scale (Cassudo, 2012). These adjustments have caused shifts in the way that agricultural assets are used, financed, and priced (Stringer, 2011).

Farming models that were capable of being sustained gave way to industrialization shortly before World War I, sped up after World War II, and then underwent a rapid transformation during the 1980s (Fitzgerald, 2012). What began as an idea that farming operations should mimic mass production doctrine being introduced to factories morphed into a relentless push by special interests whose goal was to benefit from the sale of agricultural technologies (Fitzgerald, 2012). The federal government supported these ventures by farmers who wanted to increase their yields and the physical size of their farms as a means of improving overall productivity, and the U.S. Department of Agriculture provided their support with the message of get big or get out (Mascarenhas, 2001). Although this type of environment was beneficial for some of the farming operations, it was devastating for the majority, and most farmers found themselves with great debt and could not sell their products, domestically or internationally. As a result, many were forced out of business; sadly, there were some farmers that even committed suicide due to these hardships (Fitzgerald, 2012). The federal government answered the disaster by creating a series of subsidy initiatives to aid in the price of food (Cassudo, 2012). The result of these programs only drove food prices down, and as a result, caused more small farming operations to go out of business (Fitzgerald, 2012).

There was a small percentage of farming operations that were able to achieve significant growth. The yields for these operations increased considerably, and the amount of acres that were managed per worker went up significantly as well (Fitzgerald, 2012) However, negative reactions related to the industrialization of the farming industry has had extensive and lasting effects. Additionally, the harm caused to the environment has been particularly significant. The consolidation of farming land has caused there to be a greater need for distribution (Cassudo, 2012). In 2002, only four industry producers controlled 53% of chicken and 81% of cattle production (Cassudo, 2012). This is in stark contrast to a decentralized, traditional approach to food production, which needed much less transportation from the farm to the market. It is estimated that 28% of carbon emissions can be tied to distribution and food production (Czarnezki, 2011), and a third of all greenhouse gas emissions (Cassuto 2012). According to Cassuto (2012), one pound of beef, as related of greenhouse gas emissions, is the comparable of leaving a 100-watt light bulb on for 15 days constantly or driving about 35 miles. Industrial farming practices are also the leading contributor to air and water pollution, as well as deforestation (Cassuto, 2012).

Practices related to factory farming, predominantly feedlot operations, can also contribute to decreased food security. The Natural Resources Defense Council (NRDC) has asserted that approximately 70% of antibiotics used in United States are documented as being used for livestock (Cassuto, 2012). This percentage is representative of 28 million pounds of antibiotics. Large quantities of these antibiotics are introduced to the water supply. As a result, humans are quickly developing a tolerance to these medications, causing them to be useless for treatment (Natural Resources Defense

Council, 2013). Other contaminations, such as bovine spongiform encephalopathy (which is the cause of mad cow disease), arose in the factory farm model of providing animal tissue to livestock to eat are unable to be treated, fatal, and are problematic to contain (Cassuto, 2012; Greger, 2011). Long distance transportation of livestock and crowded conditions, which is a result of merged feedlot operations, introduce livestock to diseases that can be transferred to humans, which also includes those can be purposefully introduced as a terrorist act (Greger, 2007). Corporate farming operations that specialize in horticulture have also increased food security risk protection measures. A necessary consequence of mass production is regulation, which requires a lessened degree of biodiversity. More so than ever before, this leaves large crops more vulnerable to a variety of diseases (Mundt, 2011).

The reduction of the smaller farming operations and the associated rise of factory farming operations have had lasting effects on individuals directly impacted by these changes. Factory farm employees are often injured as a result of unsafe working conditions (Schlosser, 2002). A large majority of these individuals also become sick from the gases emitted on concentrated animal feeding operations (CAFOs), and individuals that live in close proximity to feedlot operations are subject to heightened health risks which can be fatal due to the degree of pollution in the water supply (Cassuto, 2012). In addition to these health risks, the impact on the economy as it relates to communities and small farming operations has been significant; a fact of which many government officials are aware of. The federal government has periodically attempted to reverse the fortune of smaller family operated farming operations. The Food and Agriculture Act of 1977 states that:

> Congress firmly believes that the maintenance of the family farm system is essential to the social well-being of the Nation and the competitive production of adequate supplies of food and fiber. Congress further believes that any significant expansion of nonfamily owned, large scale corporate enterprises will be detrimental to the national welfare. (United States Congress Staff et al, 2000, p. 24)

In 1999, President Bill Clinton said that we as Americans must work diligently to help bring success back to the local farming operations (Clinton, 1999). As Congress knows very well, falling prices and the loss of international markets have ruined too many small farming operations. In previous years, Congress provided significant assistance to help avoid a disaster in the agricultural industry. President Clinton also stated that he would work with lawmakers of both sides of the aisle to create a farm safety net that would include various types of insurance reform and provide for enhanced farming assistance programs. He went on to assert that this should not be an issue that is politicized. President Clinton concluded by asserting that Americans are aware of the economic problems that exist in rural America, and that an appropriate response to address these issues is needed (Clinton, 1999).

Some states have created policies to reverse the fortunes of small farming operations. In 1999, the State Legislature of Maine created the Farms for the Future Program to provide aid local farming operations. This program was created and overseen by the Maine Department of Agriculture. The program was based on a theory pertaining to land tenure and its influence on economic growth in local areas, its ability to sustain such growth, and the preservation of land (Kohn, 2012). The mission of this program was

to protect active farmland as well as potentially productive farmland as a measure to continually sustain economically sustainable agricultural communities (Kohn, 2012). According to the Maine state statute, the goals of this program are to provide chosen farms with aid in creating a detailed business plan that features modifications in farming operations to improve the strength of the farm and investment capital to help implement the plan (Kohn, 2012). The individuals involved in the program who write an accepted plan are then able to receive grant funding and are able to apply for low interest loans from the Agricultural Marketing Loan Fund (State of Maine, 2011, title 7, ch. 10:A, sec. 316).

Despite the benefits of these programs, there has been little else done in order to combat the existing problems. Many small farming operations in the New England region as well as across the country continue to encounter difficulties and struggle to continue farming operations. Given the harmful side effects of large scale farming operations and the continued, unrelenting history of small farming operations closing, two conclusions can be made. The first is that it is crucial to bring back small farming operations in order to avoid being reliant upon on large scale farming operations which are not able to be sustained, and the second is that in order for small farming operations to survive, they cannot wait for improved economic conditions to come about; they are going to have to discover ways to adapt their practices in order to address the challenging conditions that are now part of the industry (Lange, 2011).

This need for this study was prompted by the fact that there is a broadly held opinion in schools of business, as well as the government, that the creation of business plans has many benefits which assist in the sustainability of a business (Burke, Fraser, &

Greene, 2010; Smith, Bell, & Files, 2004). Those individuals that are proponents for established business plans assert that the use of these plans assist in articulating the goals of the business, benefit the organization from a strategic standpoint, provide aid with regard to operations and financial planning, and provide for the evaluation of crucial functions such as budgeting and spending (Lange & Bygrave, 2010). However, individuals against the use of established business plans assert that even though these are important when seeking investment opportunities, they lack practicality in other areas (Burke et al., 2010). Therefore, this study was administered due to these contradictory professional assertions that suggest that the practicality of an established business plans is uncertain and needs additional assessment in order to determine whether the practice is advantageous or not (Honig & Karlson, 2010).

In this study, I assessed whether the use of an established business plan provides assistance to farmers in meeting forecasted sales objectives and determined if there are other areas in which these plans provide assistance with continuing operations. The study's intent was to assist in the reduction of the uncertainty surrounding this issue, help future research by determining what relationships exist between the chosen variables, and provide assistance to farmers that may be considering the use of an established business plan, as well any other individuals that may wish to implement an established business plan. In addition to the possible impact on the development of economic conditions, this study also has food security implications, as well as environmental implications which have been addressed previously in this section.

Problem Statement

Small farming operations and their associated communities, which at one time covered large regions of the continental United States, have disappeared in large part, which has had an overall negative impact throughout the country (Fitzgerald, 2012). The amount of farms in the United States peaked in 1920 at approximately 6.4 million and has been gradually declining ever since (USDA, 2007). By 1960, the number of farms had fallen to 3.6 million; by 2007, 2.1 million (USDA, 2007). The hardest hit areas are the individual communities that border these closed farms (Fitzgerald, 2012). Total economic collapse has typically been the result for these smaller communities (Fitzgerald, 2012). The problem that was explored in this study was that that the efficacy of an established business plan was not known, and the relationship between the material characteristics of small farming operations and the abilities of the farmers to meet forecasted sales objectives was not known. Other challenges exist within these considerations, such as monoculture crops and potential climate changes (Nelson, 2010). These challenges directly impact the security of our food supply, as well as the overall quality. There are many factors that have contributed to the impact that large factory farming operations have had on the environment. These factors include the eradication of previously used farming models that were used to maintain the health and vitality of the soil and the difficulty for small farms to compete with large factory operations (Philpott, 2011). This situation has not gotten any better and has continued to worsen (Cassudo, 2012).

The majority of scholars and farming advocates are in agreement that the only viable solution to the problems brought about by factory farming operations is to allow

the locally owned farms to re-establish themselves (Czarnezki, 2011). In order to improve the success rate of these reinvigorated small farms there would need to be a considerable amount of upfront planning. This upfront planning would come in the form of a business plan. It is a commonly held belief among business schools as well as in the government that the use of a written business plan will lead to the business being more likely to meet and exceed their goals and continue to succeed (Smith, Bell, & Files, 2004). However, there are individuals and organizations whose belief is that a business plan has little practical use and that the plan is merely a tool that is necessary when seeking investors for the business (Burke, 2010).

Purpose of the Study

The purpose of this mixed methods study was to examine whether an established business plan was an effective resource for assisting small farming operations to meet forecasted sales and to assess whether prosperous farms have any common characteristics such as the age of the farmers and the availability to acquire financing, as well as other factors. The overall goal was to furnish information to small farming operations whose goal is to maximize their opportunities, and as a result, assist in increasing the overall number of small farming operations in the United States. This increase in numbers is greatly needed due to the damage that has been done by commercial and factory farming operations. A concurrent, mixed methods design was used to combine quantitative and qualitative data. The quantitative component of this study was conducted to assess whether the existence of an established business plan was related to a greater ability to meet forecasted sales objectives and if these farms share common characteristics with each other. The dependent variable was meeting sales objectives. The independent

variables are grouped into two categories, business plan writing and material characteristics. Material characteristics have several independent variables which are specific to age, education, length of time in operation, internet usage, communication between employees, and ability to take advantage of available opportunities. The focus of the analysis of the independent variables was to determine if writing business plans aided in meeting sales objectives and to assess what characteristics of the individuals who met their sales objectives and wrote business plans have in common.

The qualitative component was used to look into how business plans relate to the business in a more detailed fashion. For the qualitative component, local farmers were asked to provide their own perspective to the independent variables within the quantitative component, which included the age of the farmer, their education, experience, business intelligence, ability to acquire financing, internet access, communication skills, as well as other factors. The purpose of the qualitative component of the study was to take a deeper look into the material characteristics that potentially have an impact on the business and the perceptions of the farmer as it relates to engaging in business planning. These farmers also answered quantitative questions that related to overall farm performance. The samples that were studied were small farmers that are currently members of the Maine Department of Agriculture and Maine Farms for the Future (FFF). A sample of farms that are members with the FFF, all of which were required to establish a written business plan by the program, were compared against a sample of farms that are members of the Maine Department of Agriculture that have not created an established business plan. The latter category of farmers served as a standard,

and the findings were tested by using the Kruskal-Wallis Test to compare the samples that were gathered.

Research Question/s and Hypotheses

The objective of this project was to examine whether having an established business plan in writing enabled smaller farming operations to meet and exceed established goals pertaining to proposed sales. A secondary objective was to see if the observed farmers have similar characteristics pertaining to the way in which their businesses were structured. A review of the 2007 U.S. Census of Agriculture revealed that approximately 85% of farms in the country are owned and managed by individuals as opposed to large corporate entities (U.S. Census Bureau, 1999). These percentages create a conflict regarding the demands placed on these businesses regarding the ability of farmers to adequately manage the day-to-day operations and to assess if business objectives are being met. Statistics show that that less than 30% of family owned businesses survive past three generations (Ward, 2011). Of these, it is likely that only 15% of these will survive an additional generation (Ward, 2011). Many business professionals assert that electing to not have an established business plan in writing poses a significant threat to achieving the goals and objectives of the business (Mahdjoubi, 2010). This threat has never been studied to see if it is applicable to the farming industry. Two of the four research questions addressed this from a quantitative perspective. The remaining two research questions addressed this from a qualitative perspective. A cross-sectional research method was used for sampling and data collection. Two groups of New England farmers were identified. The first group was the population of members taken from the FFF Program. These individuals have written a

business plan. The second group was farmers who have registered with the Department of Agriculture. Members of this group were subcategorized into those who have written a business plan and those who have not. This allowed for further analysis to determine if there are statistical distinctions between the groups. Data were analyzed using a Kruskal-Wallis, a two sample *t*-test and a Mann Whitney test to test the hypothesis and acquire inference.

The research questions (RQ) for the study were as follows:

RQ1: To what degree does creating a business plan correspond with farmers operating in the New England region meeting their proposed sales objectives?

RQ2: To what degree do farmers operating in the New England region who have reached their proposed sales objectives have similar material attributes?

RQ3: What are the perceptions of the farm owners regarding to the ability of a business plan to affect proposed sales objectives?

RQ4: What material attributes are vital components for farm owners to meet their proposed sales objectives?

The hypotheses were as follows:

$H_0$1: Writing a business plan does not correspond with New England farmers meeting their proposed sales objectives.

H_A1: Writing a business plan corresponds with New England farmers meeting their proposed sales objectives.

$H_0$2: Small farming operations in the New England region that meet their proposed sales objectives do not have material characteristics in common.

H_A2: Small farming operations in the New England region that meet their proposed sales objectives have material characteristics in common.

The second component of this study was qualitative and requested that the participants of the study take part in a survey in order to evaluate each participants' perception regarding business planning. Participants were asked to provide their own thoughts on the independent variables in the quantitative component of the study in order to gain an additional perspective to the quantitative results. This also assisted in identifying elements for any future research. Some of the items that were considered were work experience, education, the degree to which the farming operation is leveraged, and the length of time in operation. Questions were posed that consider the list of materials as well as the answer that was gathered from the participant.

Theoretical Foundation

To evaluate the problem, the institutional theory was used. Shane (2010) asserted that as processes that are used by organizations become conventional that they eventually become a guide for social behavior. Institutional theory is the study of the means in which cognitive understandings and actions are created, and how societal relationships are not fully valued (Honig & Karlson, 2004). Honig and Karlson (2010) asserted that institutionalization is a societal process that works to lead organizations to engage in similar behavior and that this also works to create for a standardization of procedures. These types of activities are commonly known as *isomorphic* because these are typically outside factors that serve to put pressure on organizations to engage in practices that are usually neither effective nor efficient (Stringer, 2011). Shane has also examined how

rules, routines, designs, specific practices and models can become determinants of social norms.

One of the methods in which these economic failures occur is through the rejection of the rational-actor or rational-choice models of classical economics in which a person acts as if maintaining costs against benefits to arrive at a specific action will maximize the benefit to the firm (Friedman, 1970). For example, those entities who promote the writing of business plans or the people using these plans themselves rarely investigate the legitimacy of their actions and restrict their actions to outcomes that cannot be explained. As a result, the universal nature of business planning as a mainstream practice may be conflicting with consequences which occur as a result of process.

A new form of institutionalism, which first appeared during the 1970s, discussed and theorized regarding the ways in which institutions interact with society and how different cultural and cognitive rationalizations have become conventional as a result (Tempel & Walgenbach, 2007). Honig and Karlson (2010) stated that new institutionalism evaluates managerial and institutional processes by examining the components of individual units of analysis that are unable to be independently summarized. Furthermore, new institutionalism focuses the reasoning behind why these assumptions spread to make procedures more alike among managers and organizations (Honig & Karlson, 2010).

Business planning is an activity that is preferred by government supported agencies and universities, as well as venture capital firms (Honig & Karlson, 2010). The significance of a comprehensive, well-designed business plan cannot be overemphasized

(Henricks, 2008). However, its use is controversial among those who view its usefulness being limited to obtaining capital for business enterprises (Delmar, 2013). In 2006, Babson Professor William Bygrave specified that entrepreneurs who began with established business plans did not have any greater success as compared to those who started without them (Henricks, 2008). A review of applicable literature indicated that factors which cause businesses to either fail or succeed are a result of the direct involvement of the entrepreneur and their universal ability to make use of the resources that are around them (Cressy, 2012), their business intelligence, and their ability to acquire sufficient financing (Ebert, 2011). However, there is not any fundamental evidence that business planning leads to or aids in business success.

Even though there is a great deal of prevalence of literature regarding business plans in higher educational institutions, a research gap exists between the questions of why business leaders create business plans and what ultimately results from this activity (Honig & Karlson, 2010). The corresponding results that stem from the use of business plans has been taken for granted as opposed to being studied in-depth. There are currently business consultants that state that higher educational institutions have placed too much importance on outdated administrative methods, which as a result, have led to higher profits during the short term rather than producing products or services that would lead to the solution of problems in the future (Gupta, 2009). Meyer and Rowan (1977) have lobbied in support of these concepts in their findings that businesses have become institutionalized. This has then resulted in actions being taken that are neither effective nor efficient. Scott (2004) has stated that organizations adopt institutionally appropriate constructs or activities regardless of their efficiency. Forces that are external to the

business presume that business leaders should draft a business plan that would lead to pressure being put on neighboring businesses to support the practice.

Osterloh (2011) has depicted entities' internal resources as varied and stated that the effective and efficient use of resources will aid the ability of the firms to achieve competitive outcomes that can be sustained over time (Forcadell, 2012). In 1959, Penrose first observed the relationship between an organization's competitive positioning in the marketplace and its application of an organization's resources (Wernerfelt, 1984). Newbert (2007) asserted that the way in which a firm's human resources and physical resources are allocated and used is directly related to the success achieved. This implies that businesses equipped with better information resources, when applied to making business decisions, will lead to positive and sustainable financial yields and an increase in overall revenue.

Overall, the agricultural industry relies heavily on the availability and the use of a variety of resources. Agricultural entrepreneurs usually have only a limited degree of resources available to them. At the same time, these individuals need expensive asset acquisitions. In this study, I used resource-based theory to aid in the classification and analysis of the types of resources being used and the thoughts of New England farmers on how these resources are being used as well. This theory is extensively recognized throughout the strategic management community (Newbert, 2007). Resources are representative of the building blocks that provide a business firm with strategic value to the firm based on their utilization and allocation. The identified resources are a) knowledge resources, b) human resources, c) natural resources, d) financial resources,

and e) physical resources. These five resources are nonlinearly related (Mahdjoubi, 2010).

Nature of the Study

The purpose of this concurrent mixed methods study is to gain a better understanding of the efficacy of writing business plans to meet forecasted sales objectives by using both quantitative and qualitative data. In the study, surveys were used to measure the relationship between the independent variables and the dependent variable. The independent variables consisted of the written business plans and material characteristics. The dependent variable for the study was the ability of the farmers to meet forecasted sales objectives. At the same time, the efficacy of the written business plans was explored using qualitative surveys with New England farmers being interviewed by telephone. The study used concurrent triangulation as its strategy in order to investigate the efficacy of using a business plan to meet forecasted sales objectives. This strategy uses a triangulation of data that makes use of separate data analysis and the synthesis of databases at the discussion phase of the study and provides quantitative analysis with the highest priority. This strategy was ideal for this study due to the fact that it took significantly less time than a sequential model (Tashakkori & Tedddlie, 1998). In this study, I used the selected strategy to triangulate both the quantitative and qualitative data in order to discover any potential similar themes.

Data were collected from the established business plans that are delivered by the FFF Program and compared to the genuine results that have been relayed by the farmers. I evaluated the rate at which these businesses are continuing in their operation as it had been asserted in their business plan and whether or not the businesses met their forecasted

sales objectives. There were two separate classifications of farmers being tested. The first was represented by every recipient of the FFF grant. The second was represented by farmers who were found through the Maine Department of Agriculture. Participation in the study was voluntary and all participant information remained confidential.

The constructs that were assessed in this quantitative study as the independent variables were the written business plan and material characteristics. The dependent variable for this study was the ability of the farmers to meet forecasted sales objectives. A sample size of 71 FFF recipients along with 71 randomly selected New England farmers as identified by the Maine Department of Agriculture were evaluated using the quantitative methodology. 71 was the minimum sample size required to achieve a power of .90 and a significance level of 10%. To arrive at the appropriate sample size for this study, software designed for determine a power analysis was used. The results of the performed power analysis specified a minimum sample size of 71 was needed in order to achieve decisive evidence to either reject or accept the null hypothesis. A total of 86 farmers were observed to have been participants in the FFF program. This program is managed by the Maine Department of Agriculture.

Definitions

The following definitions and terms were used in this study:

Competitive advantage: A competitive advantage typically makes reference to the advantages of a firm which allow it to perform at a higher level than its competitors (Meyskens, 2012; Porter, 1985).

Cost-effective analysis: A cost-effective analysis is an economic evaluation tool that examines the outcomes and costs of programs. Its strengths include the fact that it is

a relatively easy analysis to perform, and the results are easily understood, which makes its findings more readily suited to decision making (United States Department of Health & Human Services USDHHS, 2010).

Entrepreneur: An entrepreneur in the most basic sense is a person who starts his or her own business based upon the concepts of risk (Vengrouskie, 2010). In this study, it was an individual who adds the capability to modify production for an industry through the use of an invention, a previously unused technological concept, or by making new processes out of old processes (Mendoza Vasquez, 2008).

Farms for the Future (FFF): The FFF makes reference to a Maine State Grant Program which is managed by Coastal Enterprises Inc. (CEI). Its purpose is to provide aid to current farming operations that have expansion or value-added ventures. It is a two stage grant process which assists with funding the creation of business plans during the first phase. During the second phase, farmers can compete for financial support and low interest financing in order to fund their business plans. There are cash grants offered in phase two, though these are limited to $25,000 and require a three to one ratio of matching funds (CEI, 2013).

Infrastructure: Infrastructure denotes those institutions and services which are required for social, economic, and political purposes of society. It has the capability to provide assistance in the effective utilization of assets. (Grubesic, 2012).

Institutional theory: Institutional theory is a social theory with the focus being on the more profound and resilient aspects of structure. It evaluates the processes by which institutions are created as authoritative guidelines for social behavior (Scott, 2004).

Natural resource: Natural resources refer to materials and energy resources that occur in nature which that are used in order to produce goods and services for a given entity. These are also components of the resource-based view theory. Examples include water, air, wind, and sun (Mahdjoubi, 2010).

Organic agriculture: Organic agriculture involves food production that does not contain any genetic engineering, antibiotics, synthetic pesticides or fertilizers, or radiation (United States Department of Agriculture, 2010).

Resource-based theory: Resource-based theory asserts that the effective and efficient use of a business's strategic resources and assets is pivotal in defining its success. Resource-based theory depicts five characteristics or resources as being used by businesses: technological, human, entrepreneurship, finance, and capital (Meyer & Rowan, 1977).

Small business: Small business refers to a company that is individually owned that is comprised of 20 employees or less, with the business earning no greater than $3 million in annual gross sales. (Vengrouskie, 2010).

Sustainable development: Sustainable development is representative of any classification of development which lasts over a lengthy period of time while providing for the balance of social, economic, and environmental goals while still providing for the continuation of natural resources for the coming generation (Kozuch & Kozuch, 2010).

Value-added agriculture: Value-added agriculture is the means of growing the worth of an agricultural commodity through a process of apparent value changes on the consumer's end or by acquiring value through the distribution chain. Examples of this

includes: packaging goods for direct consumption to the retail market or producing a brand for a particular product which easily recognizable to the consumer (Boland, 2012).

Assumptions

This research was designed to determine whether New England farmers who write business plans are more effective in attaining their proposed sales objectives and/or have a better survival rate. The population selected represented a cross-section of New England farmers. It is known that the 87 farmers in the FFF benchmark group have written business plans; it was assumed that at least 71 of 766 small farmers registered with the Maine Department of Agriculture would reply and would not have an established business plan, given that number required was less than 10% of the total population and many small businesses do not write business plans.

It was assumed that those surveyed freely and honestly participated in the study because they are in the business of farming and actively pursuing profits from agriculture. In addition, FFF asks that enrollees to participate in studies such as these, which likely helped to ensure cooperation from the first group. It can also be expected that small farmers will be interested in evaluating if the process of business planning is a good use of their time. Furthermore, most farmers who take the time to create a business plan are engaging in research for market development, risk reduction, revenue models, and, while attempting to position themselves better through more effective resource planning and establishing milestones for increased profits and sustainability. It was assumed that the results of the studies will have some bearing on their usage of time and resources. While inferences were being made about the group of farmers taking the survey, no claims can or were be made about particular individuals. For this reason, it was believed that farmers

found it beneficial to their interests to reply to the survey so that they and others can use the results in a logical way. Statistical assumptions were that the data points would be independent of each other, variances may not have been equal, and distributions may not have been normal. There should ideally be six or more data points in each sample, individuals are to be selected at random if the entire population is not being studied, each individual needs to have an equal chance at being selected, and different samples should be similar to each other in size.

Scope and Delimitations

The 2010 United States Census (2012) reported that there were approximately 8,200 farms in the New England region. An intentional choice was made to limit the scope of the study to approximately 10% of this population by using two groups. The benchmark group surveyed 71 farmers who participated in the FFF program and the experimental group sampled 71 respondents out of 766 farmers registered with the Maine Department of Agriculture. While it is believed that common outcomes and expectations were developed with farmers throughout the United States, the current study was delimited to the region of New England states. Farmers were limited to having been in business for at least 3 years. This was done for the purpose of determining the overall sustainability of the selected participants' businesses.

The quality and validity of the information collected in the survey was reliant upon on the participants of the survey. The farmers being surveyed did not all come from the same category; they produced different crops using various methods on farms of different sizes and were not essentially subject to the same market forces and issues. Farmers who are involved in the production of commodities (beef and dairy, for example)

are subject to price changes which can be influenced significantly by the commoditization of their product (Fitzgerald, 2012). In contrast, farmers who sell directly to their customers are less likely to be affected by price changes (CITE). All farmers, regardless of specialization, are subject to unpredictable variables such as unseasonal or extreme weather events, crop or livestock disease, and other unexpected events and expenses. As a result, their attitudes and perceptions toward established business plans and survival, as well as their personal definitions of success may lead to inadvertent biases in their responses that impact external validity.

There was also the potential for respondent error and/or bias as a result of the nature of the survey itself. A self-administered and reported questionnaire creates the possibility of respondent falsehood, exaggeration, or inaccurate recollection of facts. Respondents may also change their opinions in response to the questions that they are asked. Any of these factors could potentially affect the internal validity of the survey results.

Limitations

There may be some limitations with the number of FFF candidates. While the pool of candidates consisted of 71 participants, it may not have been large enough to produce co-relational results. To help achieve utmost results from the group, those who did not return the survey that was mailed to them were contacted and surveyed via telephone. This helped achieve the minimum response rate.

An unlikely limitation could have potentially occurred when surveying the experimental group of 766 New England farmers. It was possible that this group may

have had too many participants who either had or had not completed a business plan. However, with the sample size as large as it is the problem was remote.

As in all surveys, there was the risk that the quality of information collected might be affected by either systematic or random error which could have an effect on the validity of the research. Individuals may not have been accommodating with information for various reasons. This would have affected the findings and possibly made some of the variables being investigated obsolete.

Finally, this research was exploratory and the questionnaire may have limited the flow of information that respondents had to share. Even though a comprehensive review of relevant literature was conducted, it was impossible to conclude that all possible variables have been included in the study. In addition, biases may be imposed in the selection process due to my previous knowledge and experience in the field. To best minimize these potential limitations, the cover letter and survey instrument were pretested to standardize uniformity of item analysis.

Significance to Theory and Practice

The significance of the study lies in the fact that it could potentially provide small farming operations with a road map of how to increase their likelihood of survival by highlighting whether the creation and implementation of a business plan is an effective tool. This would also likely help to identify those resources that are most crucial in order to sustain the operation of the business as well. As mentioned in the problem statement, the ability to sustain operations over a long term period and have security in the farm's food supply is needed in order to create an environment in which it is likely for the business to survive. Advances in technology as well as lobbyists and politicians have all

played a role in the creation of an environment in which millions of small farming operations have shut down over the past 100 years. To date there is no evidence to suggest that this environment is improving. Since improvements are not being made, it is essential for small farming operations to receive the education needed in order to be successful business owners. The results of this study can assist farmers with the implementation of resource planning strategies that could be put to use in any small farming operation. The results can also be applicable to a wide variety of farming operations from a fresh startup to organizations looking to expand their operations.

In addition to being useful to a broad variety of small farming operations, this study could be effective to those nonfarming operations as well. Local and state politicians, as well as those individuals engaged in economic development in agricultural communities, could use the results of this study to effectively promote the agricultural industry. Agencies such as those involved in environmental protection and animal rights could also likely make use of the study's findings to expand their base of knowledge. Lastly, academic programs whose focus is on the agriculture industry and environmental factors as well as business sustainability can also likely benefit from the results of this study.

Summary and Transition

High rates of failure of farmers have an impact on entrepreneurial incentive, and as a result, limit economic development such as Gross Domestic Product (GDP) (Bovee, Thill, & Mescon, 2007). The purpose of this study was to determine if the practice of creating established business plans is effective for New England farmers and helps them meet their forecasted sales objectives and/or allows these operations to remain

sustainable for the long-term. This research used an institutional theory approach in order to determine if the practice is appropriate and should be emphasized as a practical tool in business development or if it is rather a widely accepted practice that has been legitimized over time by business schools and government agencies. This paper used a mixed methods design to assess both quantitatively and qualitatively whether farmers in the New England region are meeting or exceeding forecasted sales objectives and being able to sustain their operations and survive for more than 3 years. The results of this study can assist service providers, policy makers, consumers, and farmers alike.

Chapter 2: Literature Review

The purpose of this study was to determine whether small farmers who write business plans are more effective in achieving their forecasted sales objectives and if successful small farming operations share material characteristics with one another. This chapter begins with an introduction, a look into the methods used to search for current and past topics, a discussion of this paper's connection to institutional and resource-based theory, and how these theories may offer another explanation for why small farmers write business plans. This is followed by an examination of current topics in agriculture that are relevant to a farm's success and its overall sustainability. The chapter finishes with a summary prior to proceeding to Chapter 3.

While much has been written about entrepreneurship and its fundamental shifts over time, there has been little focus on the relationships and variables that aid in the success of agricultural businesses and/or the individuals who are at the forefront of the decision-making process. Current business models in agriculture focus on operations management, technology, and resource availability (Ruzica, 2010) with little consideration given to the planning process. Since natural resources are finite and operations and technology are limited by their availability, then reason suggests that proper business planning should have a greater role in ensuring the sustainability and profitability of the firm.

Literature Search Strategy

The research strategy employed in this literature review was to locate scholarly and professional literature on the importance of business planning and its effectiveness within the field of agriculture. To locate information related to this study, key words and

concepts such as *agricultural business development, institutional theory, business planning, financial sustainability, business sustainability,* and *business success* were entered into several search engines. The search tools used to obtain information on the breadth and depth of business planning efficacy in agriculture included, but were not limited to: EBSCOhost Regional Business News, EBSCOhost Business Source Premier, ProQuest ABI/INFORM Global, ProQuest Dissertation and Theses, Ebrary, and Google Scholar. To find literature on factors that impact the business side of farming operations, the following keywords were used: *farming, agricultural business planning, business plans, corporate farming, economy, business, perceptions, participation, technology, forecasting, USDA, small business, leadership, and management*, and *theories*.

Theoretical Foundation

Institutionalization in larger organizations has been studied on a broad scale, but there has been much less research done on newer and smaller firms or agricultural entities. Emerging firms and small independently operated business entities are less constrained than their older and larger counterparts (Perks, 2012); however, at the same time they are also subjected to many of the same institutional rules (Aldrich, 2014). Smaller firms within the agricultural community and elsewhere have restricted social networks and a greater need to prove themselves and acquire legitimacy (Percy, 2005). These dynamics result in isomorphism created by institutional agents that continually reinforce the process of institutionalization (Honig & Karlson, 2010).

Government agencies, educational systems and the entities specific within the industry (Honig & Karlson, 2010) all apply institutional pressure on farmers and other types of small businesses. Agencies such as the Department of Agriculture, the Small

Business Administration, and the Cooperative Extension Service and other service entities apply coercive pressure by applying exogenous force. Educational systems apply normative pressure, while industry uses mimetic forces (Klofsten, Davidsson, & Hunter, 2004). This normative pressure originates from both the service providers and the particular educational background of the farmer. Mimetic isomorphism occurs when a farmer tries to control risk and uncertainty by imitating the behavior of other perceived successful agricultural entrepreneurs.

Researchers are divided regarding the issue of whether or not business planning is effective. When analyzed using institutional theory, the practice is questionable. There are those that claim that dedicating the time and resources to business planning results in a reduced return on investment as opposed to dedicating the time and resources to acquiring resources and building the business (Bhide, 2000). These opponents assert that the process leads to cognitive rigidities, organizational inertia, and limited strategic flexibility (Brinckman, Grichnik, & Kopsa, 2010). As a result, this reduces the responsiveness of the entities to environmental change by controlling flexible learning, which as a result creates a false sense of control (Gruber, 2007) and may ultimately give way to a process that is ritualistic rather than one that serves its intended purpose.

However, there are others that believe the process helps businesses efficiently utilize resources, particularly, the use of human and nonhuman assets by the firm (Kaplan et al., 2009). Those who emphasize the benefits of business planning believe that it provides assistance in decision making due to the fact that it allows the entrepreneur to conduct research, identify missing information, and examine inherent beliefs without expending valuable resources (Boyd & Fulk, 1991). The business planning process also

helps develop contingency plans to respond to events that are unforeseen, control resources through supply and demand, determine the distribution of resources, and limit blockages throughout the value chain (Gruber, 2007). Lastly, business planning allows the entity to follow goals and objectives methodically in order to achieve specific tasks (Locke & Latham, 1980).

Food suppliers such as grocery stores, food companies, farmers markets, and federal organic certification boards are beginning to require farmers to be more institutionalized because customers are mandating there to be higher standards regarding food quality, as well as overall quantity and safety of the business operation (Izumi, Wynne Wright, & Hamm, 2010). Policy changes are being undertaken due to market liberalization, international investment and market development, shifts in consumer preferences and buying power and modernization in food processing (Lee, 2010). Policies are also being developed and implemented by various regulatory agencies to make successful market linkages between businesses and farmers, including small-scale farmers who in the past have been overlooked (Vorley, 2008). As a result of the rapid expansion of markets, large scale grocery stores, food processors, and food distributors are forced to grapple with balancing supply and demand models. Small farming operations do not possess the adequate scale that is required to be a sole producer (Connor, 2003). This creates a supply chain management issue for distributers who are seeking quantity, excellence, and consistency (Ahumada, 2009).

As a result of such activities within the supply chain, farmers are pressured to become more institutionalized by developing farm and business plans that communicate their strategy to stakeholders (Hochmuth, R., Halsey, & Hochmuth, G., Hutchinson, &

Landrun, 2012). In some instances, cooperative extension service and state agricultural departments are requiring or strongly recommend that small farming operations develop a thorough business plan for developing and marketing a value-added product, expanding a current operation, or entering into a new venture (Minnesota Institute for Sustainable Agriculture, 2011). Components of these plans require farmers to evaluate the current condition as it relates to their finances and profitability management, resource and asset acquisition, experience, and the communication and marketing aspects of the business (Boehlje, 2000). As time passes, there are an increasing amount of elaborate managerial models being created in order to increase the effectiveness and efficiency of these businesses so that they can better compete in their respective markets (Bojnec, 2008).

Resource-based theory states that an entity's ability to bundle and use resources in an efficient manner improves its chances of survival. Traditionally, farmers have focused on operations and competed with each other when selling their products as commodities on the open market (Trevelyan, 2010). Agriculture is evolving and efficiencies of scale and lower pricing are making it difficult for anyone but large producers to compete in commodities-based agriculture (Buttel, 2013). Due to the geographic landscape of the New England region and its small farm nature, the size of fields is limited, and as a result, inefficient farming is often the case. These factors have played a major role in the state's inability to compete in the production of commodities and have caused many small farming operations to fail (Mack, 2012).

Changes occurring in agriculture from both the consumer and operation side have led to a paradigm shift in the way many businesses are financed. Alternative socially responsible financing is becoming a norm outside of developing nations (Tasch, 2012).

Alternative financing and microfinancing are becoming more common and acceptable in the United States. Two examples of this type of financing are a developing nations fund known as "Kiva," which recently added microfinancing availability to the U.S. (Shah, 2011) and an organic farming revolving loan fund administered by the National Organic Farmers Association-Vermont (NOFA-VT).

The transition toward alternative financing and microloans has come about for a number of reasons. Impacts on the environment have been a contributing factor; many of these new financiers wish to improve the environment and believe that small scale operations have reduced environmental repercussions (Bentley, 2005). Others wish to support specific causes such as assisting the poor or single mothers (Smith, 2011). The shift to other types of financing has also been accelerated by the excellent repayment record that has taken place with microloans (Hohman, 2012), the control issues implemented by current structures of financing (Kritayakirana, 2011), and increased returns due to socially responsible funding (Muise, 2012). It is crucial to realize that issues such as alternative financing and changing technologies will cause certain problems, including the need for entrepreneurs, financiers, and service providers to develop a new set of skills. These can be avoided over time by engaging in proper education, modifications to the way supportive services are provided, and unconventional capitalization.

Literature Review

Researchers have been evaluating business organizations and how they achieve their desired outcomes for decades and have developed a variety of theories to explain how businesses function (Scott, 2004). There has been little study of entrepreneurs

though (Brush, et al., 2003), and even less discussion of farmers and the processes they use to achieve success (Bjornberg & Nicholson, 2007). Considering the dramatic changes that are taking place in farming and considering that farmers are entrepreneurs, it is important to understand how farmers view themselves and their relationships with their own operations and supply chains (Nell & Napier, 2005). When agriculture was more localized and sustainable, there was no need for farmers to create a business plan. Farming was localized and crops were grown for the family or the immediate surrounding areas. Surpluses were either sold or traded at market, but these markets were local or at most regional.

The most significant changes began during the mid-19th century. The discovery of chemical fertilizers and new technologies, the exploitation of natural resources and new markets, and the political shifts that led to new property laws all significantly changed the nature of farming. No longer was farming a local business, it had essentially transitioned into big business. As the world became fascinated with technology and industrialization, farms were forced to modify their practices. This brought farms into a new business and economic world that they had not needed in the past (Schneider, 2010). Over the past decades, specialization, mono-cropping, mechanization, competition for markets and resources, and a dependence on outsourced petro-chemicals (Sassenrath, 2008) have all impacted the agricultural sphere. If farming is now a business and farmers need to compete in the business world in order to survive and/or succeed, a business plan seems like a needed component. This transition in agriculture causes one wonder whether these entrepreneurs view themselves as farmers or as food producers who are also business entrepreneurs.

Academics, the business community, and lenders consider business planning to be an indispensable tool for entrepreneurs and those developing new products or services, regardless of whether they are microenterprises or multimillion dollar ventures (Mariotti & Glacken, 2013). According to Mariotti and Glacken (2013), no serious professional investor will agree to meet with you unless you have assembled a thorough, convincing business plan. A business plan can help to evaluate whether a venture is viable on paper before it is attempted in real life. Advocates for business planning believe that the process can prevent a business from incurring the expense of delving into marginal ventures by determining whether or not it is feasible (Mancuso, 2010). Business planning can assist in evaluating opportunities before financing is secured and can help executives guide managers in meeting their objectives in operations, marketing, research, and development (Pinson, 2008). However, there is a lack of significant academic research on business planning and current practices (Lerner, 2012).

Lerner (2012) contends that economists have not focused on this issue due to a lack of theoretical foundation, as there are few empirical studies and or primary focus on fast growth industries. Furthermore, the problems in evaluating business development are multifaceted, and in many cases, academics and policy makers find the task of multivariate analysis too complex. While there is ample research on assessing strategic planning, analytical techniques, frameworks, and tools for developing strategic plans for large entities, there is little on small organizations and even less on the field of small farming operations and agriculture as a whole (Segars, Grover, & Teng, 2007). The information that is currently available does not provide solutions to the necessary

variables needed to be studied in order to better the business planning process (Lerner, 2012).

In recent decades, the agricultural industry has become much less profitable for producers; this is a significant problem which has caused fewer young entrepreneurs entering the industry (U. S. Department of Labor, 2009). At the same time, undercapitalization and lack of managerial acumen are two additional problems which cause many entrepreneurs to fail (Ebert, 2011). New England farmers either produce crops for markets that have limited supporting infrastructures or sell them as commodities on the open market, taking less profits as a result (Mack, 2012).

When evaluating farmers as entrepreneurs, it is crucial to look at their developed, undeveloped, and underdeveloped resources. Farmers as owners and managers of productive natural resources represent a relatively untapped source of entrepreneurial opportunity in rural areas. According to Mendoza Vasquez (2008), farmers have certain entrepreneurial characteristics that influence their decisions regarding participation in non-agricultural value-added ventures. Mendoza Vasquez's study suggests that farmers have the entrepreneurial potential to strategically aid rural economic development through value-added business diversification provided certain supportive services are made available and relevant policies are implemented (Ristovska, 2010). These include institutional coordination, revision of regulations, and participatory incentives (Mendoza Vasquez, 2008). Kutzhanova (2010) confirms this by revealing that entrepreneurship is a participatory process which requires an active role for skill development to take place.

Agricultural entrepreneurs are key decision makers who directly influence their businesses. However, they frequently lack the specific skill sets that they need in order to

be successful and that other entrepreneurs may take for granted. Entrepreneurs who utilize certain tools and techniques such as total quality management (TQM) models (Noor, 2006) can improve their chances of successfully developing a business (Agrawal, 2014). Business planning is one of the most essential skills that is needed when developing new ventures (Delmar, 2013), because it allows managers to be proactive and leads entrepreneurs to develop more new start-ups (Baltrusaityte, 2011) while increasing entrepreneurial self-efficacy (Forbes, 2013) and promoting entrepreneurial alertness (Li, 2012). These skill sets are fundamental to farmers who are and should be considered entrepreneurs.

It is important that service providers understand the skill set of the entrepreneur (Kutzhanova, 2010) and implement a process to that is designed to strengthen weaknesses either through facilitating mentor networks (Ko, 2011) or increasing the capacity of human capital (Kutzhanova, 2010). Service providers must address the specific deficiencies of the entrepreneur rather than the institution itself, while focusing on effective information delivery (Knopik, 2010). Research has shown that communities which offer more and/or better quality supportive services possess entrepreneurs that are more likely to be successful (Bridenstine-Brooks, 2012). This principle should hold true for rural communities and farmers.

The resurgence of farmers markets, modernization of domestic food markets, and organic agriculture have enabled many small farmers to create specialized markets which were not present in years past (Silva, Baker, Shepherd, Jenana, & Cruz, 2009). This, coupled with an increasing urban population, a change in consumer preferences and increases in purchasing power, has led to new operation and marketing models that an

increasing amount of farmers are using (Vorley, Lundy, & MacGregor, 2009). This market modernization has increased economic opportunities for farmers, purchasers, entrepreneurs, and other members within the supply chain. Because of the changes in local laws and regulations, some farmers have undergone a reduction in barriers to entry which has allowed them to process food stuffs by adding value and to retail directly to the consumer (Brown & Miller, 2008). This shift has increased customer service through the creation of direct relationships with consumers while at the same time providing for better feedback. As a result, information can be better utilized to improve product development and/or more rapidly change to meet the ever changing demands of the consumer (Rimal, Onyango, & Bailey, 2010).

Historically, business planning has been promoted as an essential principle of sound management and has been used as a means to execute clear and concise control over management through a set of formally established and recognized goals (Ansoff, 1965). It is a logical and unbiased mechanism that can persuade managers to conform to the firm's expectations (Oakes, Townley, & Cooper, 2011). However, agriculture as an industry and farmers as entrepreneurs have been identified as distinct in their nature when their agrarian systems are evaluated from a holistic and social science perspective (Hogeland, 2006). These differences, which set farmers apart from their colleagues in other industries who choose to implement business plans when moving forward with their current practices or when considering new ventures, should be explored in greater detail.

There are numerous plans for constructing a business plan and within these varieties of plans four elements are constant. These elements are a marketing plan, a management plan, a financial management plan, and a clear description of the business.

The fundamental objective of the business plan is to make the most of uncertainty (Courtney, 2001). While this approach to business planning is foundational, there are nonetheless many external factors that must be considered. One important and often intangible external factor is the fact that entrepreneurs have their own passions, life experiences, and personalities. These factors greatly influence the decisions that individual entrepreneurs make (Frese, van Gelderen, & Ombach, 2000).

This study used institutional and resource-based theory in its exploration of how and why farmers are using business plans. Institutional theory was appropriate for this study because it deals with processes and actions that have been taken by and attained status within society and which show resiliency to exogenous transformation (Karlsson, 2005). Institutional theory highlights the actions developed and taken as opposed to the end product. This theory claims that, over time, various institutions have granted legitimacy to specific actions and behaviors, resulting in isomorphic change making the processes common place (Scott & Davis, 2007). While large businesses tend to perform better using certain processes that provide widespread institutional support (Karlsson, 2005), there is little evidence to suggest that this is true in smaller firms (Martin, 2010) and even less evidence regarding farmers.

Resource-based theory was used because it examines the resources accessible to and used by entrepreneurs and farmers to recognize and take advantage of opportunities that may be available. Farmers as entrepreneurs acquire numerous assets to make their operation successful (Alsos, Ljunggren, & Pettersen, 2003). Resource-based theory not only examines the hard assets such as land, machinery and inventory, it also considers education, experience and other human capital components. In the case of farmers, the

fact that many farms are family owned and operated must also be taken into consideration. Research on family run businesses is in its adolescent stage; preliminary findings suggest that there are advantages to such structures (Gedajlovic, Carney, Chrisman, & Kellermanns, 2012).

Evaluating business plans requires examining the information as well as the processes that are crucial to the final product. The information derived from this process is pivotal in helping managers recognize and achieve the established objectives. Assessment of the current state of the business, where it intends to go, as well as how it plans on getting there requires a thorough understanding of the mission, objectives, goals, tactics, strategy, and business rules (Pascoa, 2012). In order for this to take place, data collection in the form of market analysis where quantitative measurements are evaluated in order to determine the demand for the products being offered is required. Identification of the desired audience or buyers allows for market segmentation (Bruwer & Li, 2007) and aids in targeting the consumer based upon their demographic characteristics, ultimately this leads to the creation of a market mix and its positioning (Dong & Kaiser, 2010).

In Maine, the Department of Agriculture and other governmental entities manage a multitude of grant programs to help adopt new technology, conduct market research, promote products, and encourage environmental best management practices. Some scholars consider grant giving to be a crucial component to an economy's sustainability. Others, however, are not convinced. Research on the effectiveness and usefulness of government grants is lacking and that which does exist is divided. The subject has

recently been studied by the Government Accounting Office (GAO), academics, and the private nonprofit sector (Kilkenny, 2010).

Some policy makers are of the belief that granting businesses monies for development will lead to economic sustainability and growth, transform downtrodden regions, and as well as lead to job growth. They believe that this can be accomplished by providing businesses with low interest loans, transfer payments, regulatory exemptions, subsidies, and tax benefits to start or expand their firms (Lazear, 2005). Supporters claim that labor taxes paid by firms are sufficient to address the costs of the associated grants, thus netting a net positive of the fiscal position of the state (Lukason & Masso, 2012) Others are of the belief that this view is flawed, asserting that many businesses do not possess the necessary innovation to create jobs and generate wealth, which as a result leaves many firms unable to meet their forecasted goals and more than half with taxes in arrears (Shane, 2010). For the giving of grants to be successful it is crucial that the firm receiving the grant remain vital in terms of paying taxes, hiring employees, and contributing to the community as a payback for the financial aid received (Lukason & Masso, 2012). However, measuring vitality can be challenging due to timing within the given business cycle, management's abilities and overall market demand.

The economic productivity of the firm is said to increase with the amount of time they are in business (Acs, 2011). For example, firms that are less than 2 years old that have one or more employees account for only one percent of all employment in the United States. However, those firms which are more than ten years old and have one or more employees account for 60% of all employment in the United States (Acs, 2011). Economists have theorized that as businesses grow they continue to make use of

technology and hire more employees. These employees are the individuals who utilize this technology and are usually the same individuals interested in eventually creating their own firms (Noorderhaven, 2001). Commonly, in businesses outside of farming, skilled workers command higher salaries, which leads to higher wages as well as increased costs for those seeking to start-up a new firm (Carree, 2011). The opposite holds true in the agricultural sector. Due to advances in technology, larger equipment and improved genetics, farming has become less labor intensive and overall employment on farms has decreased progressively over time. This has led to both a reduction in the number of farms and an increase in their size (Hipple, 2010).

Monitoring and measuring efficiency in the grant-funded sector has improved in recent years (Harris, 2012). Much of this development has come from the private nonprofit sector; less has come from government. The nonprofit sector is seeking concrete evidence of worth to justify the continuation of funding for programs (Harris, Mainelli, & O'Callaghan, 2002). Evaluating performance is both demanding and difficult, and as a result is often directed towards those output sectors that can be measured easily (Palmer, 2012).

In the government sector these measurements are considered in terms of capacity of the organization. However, there are those cases where capacity is viewed as the ability to anticipate and influence change, to develop and implement programs, to make intelligent policy decisions, evaluate current activities and plan for the future, or to attract resources (Hall, 2008). Rural areas such as Maine typically to suffer from a lack of economic development capacity due to their inadequate infrastructure and resources, limited critical mass, and lack of skill in negotiating systems (Gargan, 1981). Particular

areas which are lacking are resource availability, highly skilled human capital, and the knowledge needed in order to maneuver within the government bureaucracy (Hall, 2013).

While many studies indicate that capacity is limited in rural areas, evidence suggests that some rural areas do possess adequate business intelligence to navigate through bureaucracy and that the primary limitation in these areas is financial (Hall, 2013). This underscores the fact that those implementing economic development programs in rural areas must understand the difference between financial and administrative capacity. This knowledge is crucial in the present political and fiscal environment where granting agencies are under intense scrutiny to meet specific performance standards.

A number of states consistently debate whether or not to use grant funding. Many regard the practice as a type of corporate welfare (Nolan, 2012) and believe that government assistance frequently leads to an inefficient use of resources (Shane, 2010). Political trends are heavily influenced by the public domain; in many cases this leads to decisions concerning appropriations being made by those with little knowledge or understanding of a specific program or its results (Nolan, 2012). Due to budget cuts, some factions at both the state and federal level have called for reducing the funding of government grants, establishing program user fees and cost recovery programs, and balanced budgets at all levels (Nolan, 2012).

There are those individuals that believe that government grants, low interest loans, subsidies and other programs affect not only the actual recipient, but also positively impact other externalities. These externalities are the individuals and businesses that are directly and indirectly impacted by the grantee's windfall. Their

conventional role in agriculture is to: produce food for growing populations with higher incomes, provide labor in rural areas, enlarge markets for industrial output, supply savings for investment in industry, produce principal materials for agro-processing activities, and provide export wages to pay for imported capital goods (Timmer, 2012). These variables are transformational because they are caused in part by changes in technology that allow communities to shift from the simple, tangible, and easy to quantify to the numerous indirect benefits that tend to be overlooked when assessing the rate of return (Valdes, 2011). Since government grants are used to enhance economic development in rural areas, they have the ability to produce a spillover effect which can promote local growth and job creation in rural economies (Griffith, Devereaux, & Simpson, 2006). Furthermore, indirect contributions within a vibrant agricultural sector can lead to food security and poverty alleviation, serve as a safety net and buffer, and, in many cases, protect the environment (Pingali, 2012). In Maine, this belief has the ability encourage alternative agriculture while preserving traditional and regional cuisine and encouraging a sustainable local ecosystem.

A business plan is a strategic tool which provides communication to all interested parties, guidelines for management and a road map for a specified period of time (Small Business Administration [SBA], 2010). It is a clear proposal, course or method designed to accomplish one or more objectives or goals (Evans, 2008). Its purpose is to act as a document that summarizes how a business owner, manager or entrepreneur will organize a specific set of resources while implementing activities that will enable the venture to succeed. Business planning is considered essential by many because it succinctly it allows for an analysis of whether the product or service is meeting the needs of the target

market, it forces management to refine objectives and communicate them, it reduces uncertainty for personnel who are responsible for meeting specified, objectives it acts as a blueprint for the operation of the business, it provides a foundation for soliciting advice and comments, it effectively communicates established goals and objectives to external stakeholders, and it shows that the necessary preliminary effort has been completed to seek external funding. Essentially, business planning acts as a tool which communicates that the business can produce and sell a service or product and manage various risks (Sustainable Agriculture Research and Education Program, 2010).

Larger corporations consider business planning essential; it is less commonly used by smaller businesses. Large agricultural enterprises face many of the same challenges as larger businesses. Technological changes, changes in markets, and economies, and the need for better tools in order to be productive, affect businesses of all sizes (Shrader, 1989). A business plan is considered one of the most important tools that a small business can use for growth purposes (Aloulou & Fayolle, 2011).

An agricultural entrepreneur must understand the reasons why the business exists, what its objectives are, and the decisions that must be taken in order to achieve them (Bossidy, 2002). The purpose of a business plan is to act as a development aid for the founders, a formulation, implantation and evaluation tool for management (David, 2012), a mission statement for customers, and a sales document for raising capital (Hartley & Pickton, 1999). Business plans often summarize the operational, marketing and financial objectives of the business while showing a detailed preparation of the processes and procedures used to carry out the specified objectives. Usually there is a sequential incorporation of a “1) marketing plan, 2) technology forecasting, industrial structures,

and production systems, 3) personnel, human resources and management team, and 4) financial analysis" (Mahdjoubi, 2010, p.29).

Conversely, some argue that a business plan is just a formal process used for raising capital and to provide a means for growth (Timmons, 1990). Sahlman (1997) rated business plans and they affected growth on a scale of 1 to 10. His evaluation determined that they rate no higher than a 2. Others view business planning as a waste of time, effort and money. They believe that entrepreneurs should engage in developing the business and not the plan (Kaplan, Sensoy, & Stromberg, 2009).

The species homo-sapiens, of which all humans are members, first evolved approximately 400,000 years ago (Marlowe, 2005). This period, from the beginning of human history until around 11,000 BCE, is known as the Old Stone Age. From the very beginning, these humans had to find a way to live with and from their environment. The primary and most time consuming struggle that humans faced was the struggle for food and shelter. In these earliest societies, bands of humans roamed the land as hunter-gatherers. That meant that they did not farm the land, nor were they settled permanently in one particular place, but rather wandered the land in search of the most plentiful food supplies. Recent archaeological and anthropological research indicates that early humans relied much more on gathered foods than they did on hunted animals (Randerson, 2003). Indeed, the term, *hunter-gatherers,* has been replaced in scholarly literature by the term, "*foragers,* reflecting the new scholarly understanding of these peoples' flexibility and adaptability in their search for food (Marlowe, 2005). The primary source of food came from plants; protein came mainly from insects, fish, and small trapped animals. Groups of men working in teams hunted bigger game. At this stage in history, environmental factors

probably played a large role in determining what and how much was foraged as opposed to hunted.

A dramatic revolution took place around 10,000 BCE (Marlowe, 2005). In many ways, this revolution is one of the most important moments in human history. It was at this time that some humans made the transition from hunting animals and gathering food to deliberately growing food for themselves. The transition to a more agriculturally-based society made it possible to feed, fairly consistently and in one place, a much larger population. It also allowed for a more differentiated society: those not directly involved in agriculture were free to pursue other occupations such as weaving, metalwork, pottery, and even trade with other groups (Schrire, 2009). This, in turn, was a first step on the road toward the development of cities and civilizations.

This creates the need to understand why this revolution took place, in addition to why people stopped wandering in search of food and rather began to settle and grown their own. In difficult environments, such as deserts, foraging remained the primary method of obtaining food. In more fertile areas, however, more moderate environments, many of which were created by the warming of the earth's climate, provided a steady source of food that allowed humans to stay in one place for longer periods of time. A more reliable food source led, in turn, to a growing population. Hunting and gathering no longer provided sufficient means of survival. Faced with the choice of moving on in search of more food or increasing the food supply where they already were, numerous groups chose the latter. People learned through observation the best time and place for planting. They began to grow grain in the summer that could be stored for the winter.

This began a cycle of growing populations and intensification of land use that has continued to the present day (Bodley, 2011).

It had been throughout this early time that particular plants grew to become domesticated. Humans learned to get rid of undesirable plants in addition to choose for cultivation the seed products of individuals plants which had the qualities they preferred. Thus, for example, they began to choose grains whose kernels ripened all at one time and did not fall on the ground, which made harvesting easier. People also learned to adapt their seeds to the local environments, producing, for example, drought-tolerant seeds for dry climates. This primitive type of selective breeding further increased the reliability of the food supply (Reynolds, 2012). It would have been evident to these early agriculturalists that a field of planted and tended crops could yield between ten to one hundred times as much food (as measured in calories) as a field of similar size to be foraged. As manufacture of grain elevated, the storage of the grain grew to become a communal problem necessitating social cooperation. The requirement for social cooperation then brought to the requirement for some type of social control and rule. Thus began a primitive type of political and governmental organization.

Animals were domesticated at roughly the same time as plants. While dogs were the first to be tamed, people quickly domesticated other animals that more dramatically changed their qualities of life (Guisepi, 2007). Sheep and goats, and then chickens and pigs, were tamed yielding milk, meat, eggs, skins, and fleece (Marlowe, 2005). Again, observation and experimentation enabled early humans to start selectively breeding for the traits that were desirable. Additionally, they found that animal manure was good fertilizer with this particular understanding they further elevated their crop yields.

In this way, early sustainable agriculture emerged in the form of agricultural techniques and practices whose purpose was to support a local community. While new inventions and technologies changed the way crops were farmed and livestock was tended over the centuries, agriculture remained local and sustainable well into the nineteenth century (Maetzold, 2013). In Europe, and particularly in England, sustainability was practiced as a system of production to achieve food self-reliance as a concept of stewardship and as a vehicle for sustaining rural communities (MacRae, Henning, & Hill,1993).

Attitudes towards agriculture and agricultural practice changed in the mid-nineteenth century. In the 1840s the idea that chemical fertilizers could replace the more labor intensive work of adding manure to soils first appeared. By 1843 the first super-phosphate manufacturing plant was built (Kutney, 2007). As farmers increasingly relied on chemical fertilizers they were able to specialize in a few high-value crops and move away from the older mixed-farming methods that involved both crops and manure-producing livestock. The growth of world trade and the opening of new markets and resources outside of Europe further stimulated the move toward specialization and mono-cropping. Farming became increasingly businesslike and competitive, forcing many farmers to discard proven ecologically-sound practices and to adopt a more industrialized approach to agriculture (Bornheimer, 2011).

A discussion of both industrial and sustainable agriculture is critical because their conflicting practices and ideologies each influence research and policymaking (Cross, 2013). Industrial agriculture relies strictly on a business model: it is concerned with operations based on inputs and outputs, production practices as they pertain to efficiency

and effectiveness and any profitability that results (Woodhouse, 2010). Conversely, sustainable agriculture consists of protection of and/or the judicial use of natural resources; the utilization of nonthreatening technologies to increase yields; the use of ecologically symbiotic relationships which occur naturally; the strengthening of ties to local communities; and the preservation of agriculture as a vital and lasting economic driver in rural communities (Marks-Bielska, 2011).

These two opposing philosophies of agricultural have led to conflicting research on what constitutes best practices in the field. Because of this conflicting research, policy makers have received mixed messages on which direction to proceed. Some researchers argue that industrial agriculture is vital in order to feed the growing population of a hungry world (Yach, 2010). This theory, which has been spurred by global competition, has led to the deliberate creation of government programs and as a result has forever changed a successful agricultural system that had been in existence for thousands of years (Sexton, 2000). Policy tools that have assisted in this transformation include research and extension funded by self-interest organizations, subsidies earmarked for large producers, and marketing assistance developed by the USDA to promote the sale of the foodstuffs (Union of Concerned Scientists, 2011).

Industrial agriculture originated in the United States shortly after World War II. It was based on exploiting economies of scale in order to increase yields and decrease costs of production. Some of the benefits of these practices cheap feed for animals raised in factory farms, include low food prices, potential energy sources as a substitute for oil (Elliott, 2012) and increased exports which aid GDP (Cross, 2013). Key features of industrial agriculture are mono-cropping, reduced diversification in varieties, heavy

reliance on chemical and petroleum inputs, inexpensive labor (Mapes, 2013), and the segregation of operations where animal husbandry and plant agronomy are segmented, and even regionalized, into specialized production entities (USDA, 1995).

Agricultural practices that can be sustained, on the other hand, promotes alternative approaches to agricultural production based on its view of the ecosystem and its desire to protect the environment from the dangers of practices commonly utilized in industrial agriculture (Union of Concerned Scientists, 2011). These alternative methods are more holistic, but do come with a degree inadvertent risk. To be successful, a systems approach utilizing sustainable practices requires the development of an economic infrastructure that includes administrative and institutional reforms based on education, cooperation and participation (Bran, 2012). As with industrial agriculture, the system must have the necessary inputs, the required production externalities, and the infrastructure to support it.

Sustainability is a popular topic in agriculture, particularly in discussions concerning the interactions of soil and plants (Liang, Zhu, Smith, & Lambers, 2010), animal husbandry and inputs (Glendining et al., 2009) or the biosphere (Lal, 2008). Until recently, agricultural operations and production were optimized based on maximizing volumes due to the commoditization of foodstuffs. Currently, farming is under pressure to meet other standards, such as limiting inputs for ecological purposes and/or growing for changing markets through value-added products or direct sales which are less commoditized and enable the producer to increase profitability (Zahm, Viaux, Vilain, Girardin, & Mouchet, 2008). Methodologies for optimizing the sustainability of agricultural production systems while protecting both financial profitability and the

environment is in need of additional exploration based upon current ecological theories (Connor et al., 2011).

Human resources also play a pivotal role. Human resources consist of the set of human capital which constitutes the workforce of an organization (Kinghorn, 2012). Human capital is comprised not only the individuals in a workforce, but also their experience, history, and education, all of these characteristics adding value to the firm (Wren & Bedeian, 2009). Kinghorn (2012) discusses human capital when attempting to explain why some individuals identify opportunities while others (Heck, 2011) do not. Kinghorn (2012) asserts that entrepreneurs utilize different cognitive abilities than do non-entrepreneurs. Other aspects of human capital that makes up value-added agricultural entrepreneurs includes both virtual and spatial networking (Holz-Clause, 2011). These networks require the establishment of a relationship that is based upon trust. This is a valuable component that service providers must recognize (Holz-Clause, 2011).

Some research indicates that budding entrepreneurship skills in specific regions results in higher rates of regional growth, which then gives way to expanding human capital through networking (Acs, 2011). This occurs when like-minded individuals working in similar fields are drawn to regions where the effective development of business is fostered by economic development policies, tax benefits, and other synergistic relationships, making their growth and the growth of their businesses exponential. Meanwhile, other research demonstrates that partnerships have a significant human capital advantage over sole proprietors, especially when the individuals complement each other's weaknesses (Balsaluzzo, 2012). Both of these lead to a spillover effect that

greatly enhances the chances of success based upon the concept of capital theory and the complementary relationship between partners (Balsaluzzo, 2012).

Higher education has been moving toward the development of innovative human capital and acknowledges that work experience incorporated with formal education is superior to either one alone (Mosca, 2010). As a result, educational models with empirical learning components built in have been and are currently are being created and utilized. This active training approach is a process of utilization based upon active learning (Udall, 2005) and provides for enhanced teaching and maximized learning outcomes through the effective employment of students' efforts (Penev, 2009). It can be said that entrepreneurs that choose to develop and implement a business plan are utilizing an andragogical learning style (Mancuso, 2010). This process encourages a multitude of views while limiting compartmentalization between disciplines (Mustar, 2011). Thus, agricultural entrepreneurs have the capability to assimilate the knowledge they have acquired from operating their businesses into an organizational document that gives validity and competency, and persuades others to provide support through financial means.

Another human capital component that has received little attention is the entrepreneurial desire which stimulates emotional experiences through specific cognitive behavior (Cardon, 2012). Recent research suggests that passion for one's work occurs in connection with entrepreneurial identity centrality. This desire is linked with the entrepreneur's conduct and self-efficacy. Desire for one's work has a significant impact on worker outcome, work motivation and the satisfaction of both the employee and the

customer (Burke & Fiksenbaum, 2009). Entrepreneurial desire is instrumental in motivating businesspeople to take actions that bring about positive economic change.

Lack of desire often results from feelings of being burned out or disconnected from work. Entrepreneurial burnout occurs as a result of emotional exhaustion, depersonalization and reduced personal accomplishment (Wei, Wang, Duan, & Lie, 2010). Emotional exhaustion is caused by excessive psychological demand which depletes an individual's energy, leaves one feeling worn out. Depersonalization, caused by a loss of conviction about one's own identity, leads to one becoming hardened, uncaring and cynical (Simeon, 2004). Reduced personal accomplishment caused by repeated failure results in an attitude of inefficacy and reduced motivation (Wei et al., 2010).

To make economic changes that have a lasting impact on the operation and/or attract customers, producers and financiers typically require an expression of the entrepreneur's desire for his or her product and society (Kumar & Luo, 2006). This desire is critical to convince the targeted individuals that their time, money and/or energy should be invested into the venture (Chen, Yao, & Kotha, 2009). Since farmers are entrepreneurs, they also rely on the intangible, hard-to-measure quality of desire to drive them while taking measures to avoid becoming burned out.

Desire in farming transcends the working scenario; farming, and a passion for farming, form an integral part of farmers' identities (Gherardi, 2006). Farmers tend to be hands-on facilitators, working with day-to-day operations and the long-term strategic planning that is necessary for their businesses to be sustainable. This mode of operation is developed by having an instinctive relationship with the land and working in close

proximity to the source of production. This, in turn, influences the connection that exists with the place where they work and live (Peirano-Vero & Stablein, 2009). This can be even more intense if the land was left to them by the previous generation and they are expected to pass it on to the next generation in years to come (Petrzelka, 2011).

This type of desire can be seen as a strong motivator for a farmer/entrepreneur when building their venture. It aids individuals in their pursuit to achieve goals and influence employees and other stakeholders (Chen et al., 2009). Recent research indicates that those who exhibit this type of desire are often the reason behind a firm's success (Ho, Wong, & Lee, 2011). Furthermore, this type of desire is a valuable characteristic to the firm and should be studied in greater detail in order to determine if it is the motivating factor for the success of the business (Marques, 2007). This research provides a starting point for investigating the factors that may impact the development of a farmer's desire as well as the specific mechanisms through which desire energizes entrepreneurial action (Cardon, 2012). This results in leadership patterns which correspond to higher levels of satisfaction within the business (Murray, 2006).

Knowledge resources are also pivotal to the economic sustainment of agricultural operations. Knowledge as a resource grew out of the resource-based view (Grant, 2014), and is comprised of knowledge utilization such as skills, data, information, and values that benefit an enterprise (Mahdjoubi, 2010). This is a sociological concept which was derived from the theory of knowledge-based view (Grant, 2014). It identifies knowledge as residing in groups of practitioners and epistemic communities (Hakanson, 2010). Knowledge is a cross-disciplinary perspective that incorporates multiple streams of information, such as epistemology, science, management, and information technology

(Nonaka, 1995). Current systems emphasize the significance of attaining knowledge externally and then conveying this knowledge internally (Reus, 2010). Thus, the investment in attaining knowledge is not only critical to a firm's success, but also expensive at the same time (Bjorkman, 2012). The questions that must be replied to by scholars are: what are the least expensive ways to acquire it, what information is essential; and who can best make use of this (King, 2013). To improve this process in small businesses, it is essential that managers play a key role in networking, staying attuned to present trends within the industry and looking for existing available solutions (Roy, 2011).

Agricultural specialists know that differences in managerial prowess will result in variances in profitability when farmers are drawing upon similar resources under the same production conditions (Ford & Shonkwiler, 1994). Use of computer technology and/or decision support services can lead to increased profitability and efficiency (Kaase, 2011). The relatively small size of the majority of New England farms has permitted them to exploit certain technological advances more readily. Decisions can be made and executed more quickly, which as a result can change production processes, create new products, utilize new marketing methods, and/or gain exposure into new markets (Heenetigala & Armstrong, 2010). Research has proven that agricultural entities that place an increasing emphasis on innovative technology have an advantage over their competitors (Aparakkakankanamage, 2005). Across the nation, many farmers have implemented software systems for accounting; however, the majority of these are not utilizing advances in technology for their agricultural operations (Kaase, 2011). Supportive service providers such as the Cooperative Extension Service have been

proponents for the use of computer technology for record keeping; though there are not many organizations that promote the development of managerial decision making skill sets via the utilization of information technology (Doye, et al., 2000) This is mainly because multifaceted farming enterprises are quite difficult to manage efficiently (Nuthall, 2009).

Studies have shown a relationship between the education level of farmers and the ability to effectively implement components of new technology (Feder, Just, & Zilberman,1985). Research further reveals that more technology is used on larger farms where the owner/manager's primary focus is the farming operation (Doye, 2000). Small business owners are driven to explore information technology because of their willingness to improve internal efficiencies, the burdens they feel from the external environment, and a desire to remain competitive (Myers, 2010). Typically, they select a new technology that is readily available, easy to use, and suitable for their current operation as well as in the future (Myers, 2010).

Financial resources also play a pivotal role in the long term sustainment of a farming operation. Financial resources include cash and other cash-like financial instruments that are used to allocate long-term tangible assets, manage short-term working capital or obtain interest as a result of investing in other securities (Muske et al., 2009). A wide range of sources can provide the capital needed to assist in developing new or expanding ventures (Mahdjoubi, 2010). In the agricultural sector most sources can be found via private banking institutions and government credit agencies such as the Farmers Home Administration and the Farm Credit System (Briggeman, Gunderson, & Gloy, 2009). Most new business start-ups begin with limited outside capital (Aldrich,

2014). These types of start-ups have been described as bootstrapping (Van Auken, 2012). According to Winborg (2011), almost nine out of 10 new business start-ups deliberately use financial bootstrapping at some time. Bootstrapping is the financing of a business enterprise through personal means as opposed to contracting with a conventional financial source. Winborg (2009) further reveals that economic motives are the most important reason why this path is taken. The primary reasons for bootstrapping are the cost of capital and lack of capital. Three types of bootstrappers have been identified. These are cost reducing, capital constrained, and risk reducing (Winborg, 2011).

The type of financing that is ultimately selected is reliant upon on the founder of the firm and the experience possessed in starting new ventures. Research indicates that the more experience start-ups have, the more they utilize bootstrapping as a strategy. This form of financing allows the entrepreneur to control risk by not having to collateralize specific assets. Furthermore, as a result of gaining more experience, a shift takes place from bootstrapping for savings to bootstrapping to limit business risks (Winborg, 2009).

Farmers must consider many factors when financing their operation. These factors are based upon how and for whom the commodity is being produced and can be narrowed down to three primary elements. These is long-term debt, intermediate debt and short-term financing. Farm loans generally begin with a need for land to produce the crop. A real estate mortgage is acquired for this long-term debt and is usually collateralized with the land and buildings on the farm. Interest and principal requirements are typically annual payments with terms extending generally up to 30 years. Specific trade-off strategies may vary depending on the legal structure of the firm, the percentage

of down payment that is being applied and if any cosigners are committing to the loan (Zhao, 2008).

Intermediate debt is usually for shorter periods than a mortgage and is used to purchase equipment and breeding stock. Typically, the items being purchased stand as collateral for the loan and must be insured. In addition, there is usually a down payment required to limit the risk to the lender. These loans can be secured through private institutions, the Farm Service Agency, or the Farm Credit System. Equipment dealers frequently offer in-house financing to aid with sales and distribution. Alternatively, if these loans are incorporated into operating loans with a primary lender then payments can be coordinated into an annual budget based upon a forecasted cash-flow which will determine the solvency of the creditor (Kunkel, Peterson, & Mitchell, 2009).

Operating loans, also known as bridge loans, enable the farmer to span or bridge the short-term financing needs of production cycles. This form of debt can be established via suppliers or can be acquired as needed using a primary lender. Money can be advanced throughout the production cycle based upon a pre-established line of credit with the expectation that full payment will be made at the end of the production season (Flood, 2011). Collateralization for operating loans varies, but is dependent on the history of the farmer, the crop being produced, the amount of the loan, the equity that is available and whether any additional security is collateralized by a cosigner. In addition, some form of insurance may be required on the value of the loan against any crop that is being produced. This type of insurance limits the liability of the lender and hedges the risk to the creditor (Kunkel, Peterson, & Mitchell, 2009).

Farmers utilize various forms of financing when developing new ventures, expanding present operations, meeting cash-flow needs or hedging against risk. The Farm Credit Administration, one of the most popular financing firms, was established to allow farmers access to finance various agricultural operations throughout the United States (Dang & Leatham, 2011). This organization has gained considerable market share due to the expansion of global food markets (Ghosh, 2010). It is a fiscal agent of the Farm Credit Systems Banks and provides regulatory oversight for the System. The Farm Credit System Insurance Corporation was established by the Agricultural Credit Act of 1987 (Ghosh, 2010). Its purpose is to ensure the timely payment of principal and interest on insured notes, bonds, and other obligations issued on behalf of Farm Credit Systems Banks (Farm Credit, 2012). The Federal Farm Credit Funding Corporation is an agent of the Farm Credit System and utilizes a selling group comprised of approximately 30 investment and dealer banks (Farm Credit, 2012). This group provides distribution, trading, and underwriting capabilities for the Farm Credit System wide debt securities (Farm Credit, 2012). It distributes notes and bonds to investors around the world which are offered daily in a various maturities and structures via a selling group.

The financial dynamics of agricultural entities in the New England region are complex because many are family owned and operated (Ross, 2006). To complicate this, matter many families require off farm employment which considerably impacts finances and relationships (Goodwin, 2012). Barnett (1988) identifies these arrangements as copreneurial, where couples share a personal relationship and their business. This type of relationship is viewed neither as a single system nor as two entirely separate systems, but as two systems with varying degrees of overlap (Muske et al., 2009).

National challenges found in agricultural operations as identified in the FFF program are the need for farmland preservation policies, training and financial support for new farmers, business assistance, and lack of infrastructure such as meat slaughtering, grain mills and processing facilities (Ross, 2006). To assist with these financial perplexities a number of theoretical solutions have been considered. One is a risk rationing model whereby relatively high collateral loans are endorsed to limit moral hazard (Boucher, 2013) while another includes hedging financial and business risks with commodity linked bonds (Jin, 2010).

In addition to financial resources, natural resources also play a crucial role in the ability to sustain the operation over time (Orwa, 2010). The terms natural resources and agriculture are frequently used in the same context, if not interchangeably. Natural resources refer to both naturally occurring resources and energy resources required to produce profits for the firm (Mahdjoubi, 2010). These include fossil fuels, electricity, farm land, fertilizers, air, sun, and water. While agriculture is not the highest resource consuming industry it does require considerable amounts of energy for animals and crop production. Due to population growth, agricultural intensification has impacted eco-systems globally (Matson, 2012). It is estimated that current water supplies will meet only 60% of the global demand by 2030 (Boccaletti, 2013). A large part of this water is consumed by mono-cropping. Mono-cropping is economically profitable over the short-term; however, it is unsustainable, and the results are profoundly disappointing (Evans, 2004).

When assessing the energy requirements of agriculture, one study estimated that ten percent of the energy used annually in the United States was consumed by the

production of food (Heller, 2010). Agriculture uses energy directly as fuel or electricity to operate machinery and equipment, to cool or heat buildings and to light spaces, and indirectly in fertilizers. This consumption contributes to global warming as a result of greenhouse gas emissions, primarily carbon dioxide and nitrous oxide. These compounds have increased 35% and 18% respectively over the past century (United States Environmental Protection Agency [EPA], 2006).

Environmental problems related to conventional farming also have human health implications for both the farmer and the consumer. Farmers have a higher exposure to lung irritants which are related to cardiac illnesses such as arrhythmias and heart attacks (EPA, 2002). Current research reveals that consumers are especially sensitive to cancer as a result of exposure to pesticides and other farm chemicals (Steingraber, 2011). Children, because of their underdeveloped immune systems, are at a higher risk of contracting the disease (Vinson, Mehri, Baldi, Raynal, & Gamet-Paystre, 2011).

This problem has been worsened due to the fact that agriculture has become increasingly mechanized and requires timely energy inputs at specific stages of production to achieve optimum yields. It is estimated that energy consumption for agricultural entities averages 47% of gross sales (Schnepf, 2010). In 2002, the agriculture sector consumed 56% of the nitrogen and 67% of the pesticides used in the United States (Schnepf, 2010). A study conducted by Johns Hopkins Bloomberg School of Public Health estimated that our current system of food production is unsustainable (Schnepf, 2010). According to the information within this study, it takes an average of three calories of energy to produce one calorie of edible food. Some foods, such as grain-fed beef, can require upwards of 35 calories for each calorie consumed. The study did not

take into account the cost of transportation and the environmental impact of processing of food. Some researchers estimate that this can add an additional 10 calories to the overall production (Heller, 2010).

The largest input is neither transportation, food processing, nor machinery fuel; it is commercial fertilizers and pesticides. Upwards of 40 % of energy used in the food system is consumed by their production (Heller, 2010). The process of producing these inputs is energy intensive and requires the synthesizing of atmospheric nitrogen and natural gas. Production and distribution of commercial fertilizers and pesticides requires an average of 5.5 gallons of fossil fuels per acre (Mainning, 2012). In addition, more than 1 billion dollars of uranium is attached to fertilizers and spread nationwide every year. This hazardous material is contaminating soil and water supplies as well as humans as it concentrates over time (Jones, 2010).

Manure, a more energy efficient alternative, could be substituted. However, this product is heavy and presents farmers with a material handling problem because of its weight and the costs associated with long distance hauling (Heeter, 2011). This problem is a result of over consolidation and over specialization in farming practices. Large livestock and dairy operations are consolidated in specific areas and the feedstuffs and mono-crops they require are raised elsewhere. This results in excess manure accumulating on some farms and a lack of nutrients on others. This deficit in soil fertility is typically reduced through the use of synthetic fertilizers (Clancy, 2013). Thus, there are stockpiles of manure in some areas and concentrations of chemical fertilizers in others, resulting in excess material handling costs for all concerned.

There are also hidden costs associated with some resources related to agricultural development. Land is one of most significant hidden costs that is far too often ignored by agricultural entrepreneurs. This is due to their beliefs that it is currently owned. However, there is an opportunity cost associated with an alternative utilization that may bring in more or less profits (Cameron, 2011). Another hidden cost is the annual depreciation of useable resources. While this tax deduction is not allowed on land itself, it can be used and is often missed on such items as irrigation ponds and aggregate extraction (Kieso, 2010). Failure to depreciate these items means the business will not be prepared to re-work the pond or financially replace the used portion of the aggregate should the need arise (Hess, 2010).

The Maine Department of Agriculture acknowledges that the management of natural resources is an integral part of its responsibilities (MDA, 2005) and that socio-economic influences have had and will continue to impact rural populations (Yegrorov, 2011).The conservation of farm land is one of those responsibilities and was the motivation behind the formation of the FFF program. The department has realized that socio-economic effects have influenced and will continue to influence rural populations (Yegrorov, 2011). The MDA has established nutrient management best practices and partnered with the University of Maine to develop compost educational workshops. In addition, the MDA has teamed up with the federal government to create best practices for soil and water conservation management.

The MDA has also begun to back up a growing trend towards healthier diets. This also aids in rectifying the natural resource problem. Many of today's diets are reliant on processed foods which have been linked to diabetes and obesity (Bistrian, 2011). New

research reveals that foods that are not processed, such as pasture-raised meat, are healthier because they are leaner and contain more antioxidants which works to assist the body's immune system (Daley, Abbott, Doyle, Nader, & Larson, 2010). Pasture-based farming is a sustainable management practice that provides for an improved quality of life for the animals and producers because of a decreased need to purchase outside inputs and lower transportation and processing costs (Smith, 2011). This type of farming attempts to utilize the natural cycles of the livestock, the crops they feed on and the elements which produce them.

It is clear that high energy usage leads to negative externalities to the environment, nearby communities, and other stakeholders (Tegtmeier, 2004). Sustainability can be integrated into the management of natural resources. Resource preservation can be accomplished through management-intensive sustainable farming tactics. This involves changing existing production practices while selling food products locally. This would help to decrease the dependency on fossil fuels because less transportation would be required. Sustainability also includes the efficient utilization of water. In a USDA report, it is projected that a 10% increase in the efficiency of the nation's irrigation systems would lead to an annual savings of 80 million gallons of diesel currently used for pumping and applying the water (USDA Natural Resources Conservation, 2006). Additionally, employing intensive soil conservation techniques through no-till farming practices would save 3.9 gallons of diesel fuel per acre of land (USDA NRCS, 2006). It is projected that this type of practice, if executed, would decrease the use of about 1 billion dollars' worth of petroleum-based fertilizers and pesticides (USDA, 2006) and would substantially reduce water and soil pollution.

It has been said that farmers live on rust and depreciation. This is due to the fact that physical resources required in agriculture are extensive and include numerous physical assets such as buildings, machinery, equipment, veterinary supplies, livestock, and tools whose purpose is to produce profits for the firm (Mahdjoubi, 2010). These assets physically decrease in worth over time depending on the accounting depreciation schedule. While typical equipment associated with agriculture, such as tractors, can be relatively expensive at costs of over $100,000, this is a small percentage of the operation when compared to specialty equipment for specific operations. The cost of specialized buildings with only one use, such as a milking facility or potato storage barn, can easily surpass one million dollars (Smith, 2011). This type of financial commitment makes the facility reliant upon the market forces of its particular industry. Capital intensive productions systems have many hidden costs which, if not properly planned for, could ultimately lead to business failure. The high annual fixed costs associated with depreciation, and interest on the capital investment, require an economy of scale production system (Engle, 2013).

An economy of scale production system is designed so that the unit cost decreases with greater volumes of production (Porter, 2010). Economies of scale are especially noticeable when there is a proportionally larger amount of equipment, machinery, buildings or other capital construction items (Hsu & Li, 2011). Fixed costs, such as depreciation, do not change with the amount produced. Interest and principal on large capital loans must be paid regardless of the success or failure of a crop (Hadjinicola, 1999) For example, a tractor that is used on 100 acres has an annual depreciation cost per

acre that is 50% less if used on a 200-acre farm. Even if a larger tractor is required, it is not likely to cost twice as much.

Economies of scale are apparent in enterprise budgets developed for several farm sizes of the same crop and production system. Larger farms enjoy reduced production costs per unit giving them a competitive advantage over smaller producers, as long as they can market their product (Dimitri, Effland, & Conklin, 2005). Small producers are required to take reduced profits or seek alternative markets as a result. Many smaller producers have succeeded in recent years by creating higher-valued specialty markets (Willer, 2010). This strategy gives agricultural entrepreneurs the ability to create and acquire new markets while exploiting price premiums (Woodhouse, 2010). When creating and implementing such strategies, budgeting is a crucial activity that must take place. It is important to keep in mind that it is easy for start-up or expanding entrepreneurs to erroneously overlook items from their budget. These omissions of required resources and the costs associated with them can and often result in the overall failure of the business (Taylor, 2010).

In recent years, leasing has been marketed at an increasing rate as an alternative option for entrepreneurs who cannot purchase machinery, equipment and buildings. In most cases, this is a result of the firm having liquidity constraints, low credit scores and restricted access to capital for investing (Beatty, 2010). Leasing is helpful because a firm can outlay the full amount spent per year as compared to depreciating the value of the initial cost over time along with the interest expense incurred. However, leasing in general has a higher net present value and total net present cost associated with it

(Razvan, 2013). Thus, this method of financing assets must be studied closely by the entrepreneur in order to decide if it is the right choice for the firm.

Many researchers conclude that the high equipment costs associated with specific agricultural technology prevent operations from utilizing more modern technologies (Keskin, 2011). To mitigate the high costs of equipment some farm families use reciprocity and pooling of resources (Lalone, 2013). This diversification of strategies allows entrepreneurs to take advantage of multiple opportunities while minimizing associated risks (Lalone, 2013).

While the excessive cost of specialized structures and equipment may lead to economies of scale, there are negative external factors associated with the process. For example, widespread animal housing structures have been linked to human and animal health problems (Villeneuve, 2012). The relationship between rigorous farming activities and the risk of gastrointestinal illness in rural municipalities in the Province of Quebec during the summer and fall rains has been proven to exist (Febriani, 2011). This has caused public health officials to mandate precautionary actions during such times. The links to health hazards associated with rigorous farming have caused some agricultural entrepreneurs to be ostracized and to have additional limitations placed on their procedures as a result.

The use of chemical inputs such as pesticides and the extensive use of pharmaceuticals have resulted in damage to the environment, compromised human and animal health, reduced agricultural sustainability and increased resistance to these substances in pests, animals, and humans (Wilson, 2012). Use of these products has had long-term effects impacting fauna, flora, humans, animals and even beneficial

agricultural predators which have resulted in the proliferation of pests and disease (Horrigan, 2012). These are clearly negative externalities which impact all stakeholders and are not reflected in the true cost of the product (Wilson, 2012).

Food insecurity is not a problem of a resource shortage, but one of lacking political will and/or moral imperative to modify the way food is allocated (Pimental, 1996). One of the projected solutions is to educate the masses on their current dependency on finite resources, the quality of the product produced, and the consequences of depleting these finite resources should we continue down this path. This could result not only in a system which utilizes sustainable agricultural procedures, but also in the recognition that resource management cannot be addressed in isolation. It must, instead, be seen as part of an entire ecosystem whose balance must be preserved (Horrigan, 2012).

Summary and Conclusions

In conclusion, there is an extensive range of literature on the topic of business planning. This literature concentrates predominantly on the actual practice of business planning and how it can best serve the interests of large enterprises and financial institutions. Most scholars and business people believe that that writing of business plans plays an indispensable role in the growth and continued success of a business. Thoughtful business planning allows enterprises to analyze opportunities, acquire financing, and attain objectives in management, operations, marketing, research and development (Pinson, 2008).

There has been little written about the utilization of business planning within the agricultural community. Not only is there little known about whether or not business

planning is an advantageous tool for agricultural producers, but there is also a deficiency of information regarding the extent to which farmers themselves are utilizing business planning as a consistent practice. The nature of agricultural production in general and farming in particular has transformed dramatically over the past century. A practice that was once based on a local and sustainable economy has now been changed into a 21st century industry competing for customers and resources in a national, and often global, field. Farmers are in need of changing technological, educational, and managerial skills if they are to continue to have success in this new agricultural world. Business planning has the potential to assist them to accomplish and sustain a successful farming operation.

Chapter 3: Research Method

Business planning is strongly endorsed by both business schools and government agencies; however, research into the value of written business plans has come to inconsistent conclusions (Honig & Karlson, 2010). In this study, I explored this perspective as it relates to farmers in the New England region and whether or not they use business plans to help them achieve their stated goals. The overall purpose of this mixed methods study was to determine whether farmers who write business plans are more effective in attaining their proposed sales objectives, and if certain material characteristics are more important than others.

The problem statement for this dissertation was that the relationship between having written business plans and the ability of small farms to meet their sales objectives, as well as whether small farms have material characteristics in common was not known. A concurrent, mixed methods design was used to combine quantitative and qualitative data. A survey of 71 small farmers who had written business plans for the Maine FFF program and 71 farmers registered with the MDA had not written business plans measured the relationship between business plan writing and farm success. The quantitative portion of the study determined whether or not farmers who are writing business plans are meeting their proposed sales objectives and assessed what material characteristics these farmers have in common. This portion of the survey was a cross-sectional, controlled questionnaire which consisted primarily of Likert measurement scales. The qualitative component was used to record farmers' perceptions about business plan writing in general; whether or not they feel business plans are a useful tool and why they do or do not choose to use them. This segment of the survey asked farmers to

respond in their own words to survey questions. There were also open-ended comment sections that gave respondents the opportunity to provide additional thoughts and information. Collecting both quantitative and qualitative data allows the researcher to bring together the different strengths of the two methods and validate the quantitative results with the qualitative data.

In this chapter, I provide an overview of the research method and design used to address the primary research questions of the study. The chapter continues with sections on the role of the researcher, relevant population, and how and why the particular sample of participants was selected. Methodological assumptions, limitations, and delimitations are then described. Following this is a description of materials and instruments used and a definition of the key variables in the study. Next is an explanation of the various threats to validity. Finally, the ethical assurances of the study are outlined.

Research Design and Rationale

The mixed methods design for this nonexperimental, correlational, and comparative research was appropriate for this study since a relationship is being examined between variables and an exploration is being sought for further research. Two groups of New England farmers were surveyed by telephone. One group had written a business plan and one group had not. The advantages of this type of survey are a lack of technical issues that can be found with the use of online surveys, and that participants are not as constrained in their ability to answer open-ended questions (Cozby, 2009). Potential disadvantages to this method include that it was more costly, can take more time, was more demanding on the participants, and limited confidentiality.

In this study, I compared New England farmers who achieved their sales objectives by their age, work experience, and other characteristics. A correlational design assessed the relationship for New England farmers between achieving sales objectives and writing business plans. The study used assessment variables from other research as found in a literature review (David, 2012; Delmar, 2013; Tam, 2010). This portion of the design used dichotomous questions to determine if a relationship existed and if it was positive or negative.

The study also used a comparative design to examine potential influences on achieving sales objectives by New England farmers through a Kruskal Wallis analysis. The Kruskal Wallis test examined whether meeting sales objectives vary by material characteristic. Additionally, the study used open-ended question to access opinions, gain clarity, and obtain insight for future research (Salkind, 2011).

The best suited strategy of inquiry for this study was a mixed design comprised of qualitative and quantitative methods. A mixed method design was better for this study because it confirmed the results acquired while giving me material and direction for future studies. This method was best because of the study's exploratory nature and its goal of finding factors which identify best method practices. Using mixed methods, certain approaches work better than others in obtaining information to answer the problem. At the same time, each method has some application, even if only tangentially, since there is no absolute method for a specific problem (Zikmund, 2003). The best method for this study was a pragmatic approach, which incorporates elements of both exploratory and confirmatory methods (Onwuegbuzie, 2013).

Pragmatism is a research process which results from a practical approach towards solving specific problems and analyzing situations and consequences (Williamson, 2009). Once the problem is identified, a process is developed that uses all practical tools to derive a solution (Williamson, 2009). This methodology is useful for mixed methods research inquiries, where both quantitative and qualitative measurements help the researcher determine in which direction they want to proceed. Since this methodology is a hybrid of other methods and has the ability to creatively use nontraditional methods, it can be viewed as thinking outside the box (Tashakkori & Tedddlie, 1998).

Data that address the qualitative research questions were used to "confirm, cross validate, or corroborate findings" (Clark, Gutmann, & Hanson, 2003, p. 183) with the quantitative hypothesis. This approach is a triangulation of data collection with separate data analysis and the integration of databases at the interpretation or discussion stage of the report while giving priority to quantitative analysis (Tashakkori & Tedddlie, 1998). This methodology is a good fit for this study because: a) it was concurrent and took less time than a sequential model, b) triangulation is familiar to most researchers and will be easily understood, and c) it results in well validated and substantiated findings (Miller, 2011). In this study, triangulation of the qualitative and quantitative data was undertaken during approximately the same period of time to find common themes (Miller & Upton, 2012).

The qualitative descriptive part of the study was used to collect perceptual data among farmers from two groups; those who participated in the FFF program and those who are registered with the MDA. The objective of conducting the qualitative research is to ascertain information about variables that have already been identified or to identify

new variables. Within the qualitative survey, there were comment sections giving respondents the opportunity to provide additional information.

Role of the Researcher

There are no major ethical issues related to the conduction of this study. Categories of potential ethical issues in research include a) protection from harm, b) informed consent, c) right to privacy, and d) honesty with professional colleagues. There was no risk of harm to any participants, researchers, or third parties in the data collection, processing, or publishing of this dissertation. Informed consent was not a factor, as there were no clinical trials and no psychologically sensitive information was sought. Participants were asked only about questions related to small farming and variables that affect small farms' success.

Participants in this study were fully and honestly informed about the purpose of the research and the use of the data they provided, and participation was voluntary. Data were obtained solely through quantitative and qualitative surveys. Participants' confidentiality was preserved throughout the process; no names or identifiable information was recorded on the survey. Neither voice recordings nor images of the participants were taken. Issues of confidentiality were clearly stated in the informed consent letter, which was sent to participants with the survey. In addition, the welfare and safety of research participants was not compromised and no participants were affected adversely as a result of this study. My conduct was professional at all times, and approval from the Institutional Review Board (IRB) was obtained before any data were collected to ensure all participants were protected from any possible harm. The IRB approval number is 08-19-15-0367760.

Methodology

The research questions were addressed through a qualitative descriptive and quantitative design approach. The qualitative descriptive part of the study explored small farmers' perspectives on variables used in the quantitative portion of the study. The quantitative part of the methodology examined relationships between the farmers' demographics and their ability to meet their sales objectives and determine if they share material characteristics with each other. The study can be used to identify metrics that service providers and policy makers can use when developing economic development programs to benefit farmers in the future. Finally, this study can be used to explore possible reasons why alignment gaps might exist between some farmers who write business plans and those who do not as it pertains to their success in achieving their sales objectives and remaining in business.

Population

The relevant population for this study was comprised of New England farmers who had identified themselves as producers of food and/or fiber within the state. According to the 2010 United States Census, there are an estimated 8,100 farms in the state (United States Census Bureau, 2012). The New England region leads the nation in the production of wild blueberries and brown eggs, is second in the production of maple syrup, and eighth in the production of potatoes (United States Census Bureau, 2012). It boasts a vibrant and diverse organic farming community and many farmers are involved in sustainable agricultural production (United States Census Bureau, 2012). There are many different types of crops and animals being raised; in many cases additional value-added processing enables small producers to capture more of the retail market. New England

farmers market their products in a variety of ways; some sell directly to the consumer through on farm retail stores or farmers markets. Others sell their products as commodities which are wholesaled to retailers, used as feed stuffs, or produced into finished products through intermediaries or food manufacturers.

There are two sample groups of farmers that have been identified for this study. The first group is composed of farmers who have participated in the Maine FFF program and the second consists of those farmers who are registered with the MDA. These sample groups were appropriate for this study because they represent a cross section of the population of New England farmers, the sample size was sufficient to give robust results, and it was established that the participants in the FFF Program group have written business plans.

The first group to be studied was an experimental group with a population of 87 farmers who participated in the Maine FFF program and who received Phase 2 grant funding. The sample size consisted of 71 individuals, as a power analysis indicated that this was the minimum sample size required to achieve a power of .90 and a significance level of 10%. A sample size of 71 FFF recipients along with 71 randomly selected New England farmers as identified by the MDA was evaluated using the quantitative methodology. 71 is the minimum sample size required to achieve a power of .90 and a significance level of 10%, with an effect size of 0.10. To arrive at the appropriate sample size for this study, a Westland calculator for determining sample size was used. The results of the performed analysis specified a minimum sample size of 71 was needed in order to achieve decisive evidence to either reject or accept the null hypothesis. A total of 86 farmers were observed to have been participants in the FFF program. The FFF

program was established and funded through the state of Maine and is administered and managed by the MDA (MDA, 2005). Its purpose is to enhance rural development, increase farm revenues, and lessen housing development in rural areas of the state (MDA, 2005). This group of farmers consisted of the entire population or census of FFF grant recipients from 2002-2009. The participants in the FFF program were selected as an experimental group because the FFF specifically required that they produce a written business plan.

The second group was a sample of 71 farmers which were derived from a benchmark group which consists of 766 farmers who have voluntarily registered with the state of Maine's Department of Agriculture Marketing Division as producers of food and/or fiber in the state. These farmers were selected because it was not known how many had written a business plan. This group allowed for the establishment of a baseline to compare against the FFF group. Of the farmers surveyed within this group, the first 71 to respond who had not written a business plan were selected.

I am a former consultant with the FFF program and acquired the list of both groups, experimental and controlled, from the MDA. The Department of Agriculture was interested in seeing the results of this research and was willing to cooperate in any manner possible. This support was expressed as a written agreement between the Maine Commissioner of Agriculture and me.

Sampling and Sampling Procedures

The materials used in this study were an informed consent form a survey invitation letter (Appendices A and D), and the research instrument (Appendix B and C). A survey instrument was developed in order to address the research questions posed. It was

developed through the use of variables identified by the European Commission ("Factors of Business Success," n.d.), and modified according for the farming sector with research from literature reviews and consultation with academics, agricultural service providers, a research statistician and small farmers. A comprehensive review of academic and practitioner literature which was supported by the European Commission aided in understanding the value of material characteristics that are linked to the independent variables in this study. The independent variables consisted of age, business acumen, communication skills, education, internet usage, length of time, material characteristics, obtaining loans, opportunity taking, and tangible assets, and are identified in detail in the next section. Additional insight was garnered by soliciting experts who are versed in research and/or agricultural business development in the New England region. These individuals reviewed the survey instrument to help determine if the survey items addressed the research objectives. The survey was revised and clarified based upon their suggestions for improvement.

In the qualitative portion, validity and credibility are addressed through cross-checking and corroborating evidence throughout the research process (Rudestam & Newton, 2007). Participants in the qualitative study have the ability to validate and corroborate research data in both studies through the interview process. Thus the qualitative research inquiry adds to the information richness from the least amounts of participants who operated their own farm and either wrote a business plan or did not. Reliability is defined as the consistency between measures – in this case, survey responses (Vogt, 2011). Reliability in this study differentiates from validity in that it does not predict the accuracy of the survey questions' ability to measure their intended metrics

(Vogt, 2011). To establish content validity, experts within the field offer the best information in defining items to be measured (Salkind, 2011). In this study assistance was acquired from experts in farming, policy development, and business planning to determine which variables would be best suited for both studies. Quantitative and qualitative variables were assessed separately based upon the research question and the survey item they were linked to (Tashakkori & Tedddlie, 1998).

The survey is self developed because no other survey tool that measures the variables specifically for this research could be found. Concepts, variables, and material design were used from a survey developed by Eurostat, on factors of business success (Eurostat, 2012). Eurostat is the statistical office of the European Union and is located in Luxembourg. Its purpose is to provide the European Union with statistics that enable comparisons between countries and regions. Information gathered from a literature review indicated that successful businesses can be linked to achieving sales objectives. This link enabled the reliability of the Eurostat variables to be used for this research.

The survey is set up so as to navigate the participant from simple to more intricate questions. Questions pertain to the following two topic areas: a) writing business plans and meeting sales objectives and b) common material characteristics among successful small farms. Topic area items were researched using both quantitative and qualitative methods to best determine their validity by using a triangulation assessment method. Quantitative questions used nominal measurement scales when possible and ordinal measurement scales when for questions that cannot otherwise be represented quantitatively, such as farmers' degree of business acumen. Additional questions for those also participating in the qualitative portion of the study, such as those addressing

material characteristics and farmers' perceptions of business plans, were analyzed for common themes and a coding scheme was developed for further analysis (Patton, 2010). Consistent with qualitative research methods, a precise coding scheme cannot be determined until the data have been collected (Patton, 2010). All data were held in strict confidence and used in aggregate form only, without identifying any specific farm or farmer. If participants are interested in the results of the survey, they will have the option to request a copy which will be mailed to them upon completion or visit a designated website.

The two topic areas were selected based upon literature reviews indicating that business plan writing (Karlsson, 2005), specific material characteristics, and sources of financing (Mariotti & Glacken, 2013) are critical to achieving specific business goals. These areas are aligned with the works of Honig and Karlson (2010) which consider the value of business plan writing in small businesses (Zarajczk, 2012). These sections refer to writing business plans and their use in the survivability of the farm, and meeting sales objectives.

All questions were based upon the conviction that business planning improves effectiveness of human action and facilitates goal achievement (Brinckmann et al., 2010). Questions about the independent variable of business plan writing and the dependent variables of meeting sales objectives and survivability were asked in various forms to check the validity of the survey. These questions were designed in order to determine how farmers view various aspects of business planning and whether or not they feel business planning, as a whole or in part, benefits their specific operation.

Data Analysis Plan

Before participants are contacted, approval for the study was obtained from the IRB of Walden University. Two groups of participants were contacted. Participants were contacted differently depending upon the group that they were associated with.

The research questions were addressed through a qualitative descriptive and quantitative design approach. The qualitative descriptive part of the study explored small farmers' perspectives on variables used in the quantitative portion of the study. The quantitative part of the methodology examined relationships between the farmers' demographics and their ability to meet their sales objectives and determine if they share material characteristics with each other. The study can be used to identify metrics that service providers and policy makers can use when developing economic development programs to benefit farmers in the future. Finally, this study can be used to explore possible reasons why alignment gaps might exist between some farmers who write business plans and those who don't as it pertains to their success in achieving their sales objectives and remaining in business.

The following are the specific research questions that guided this study, together with the null hypothesis (H_0) and alternative hypotheses (H_a) proposed.

Quantitative questions

RQ1. To what degree does creating a business plan correspond with farmers operating in the New England Region meeting their proposed sales objectives?

RQ2. To what degree do farmers operating in the New England region who have reached their proposed sales objectives have similar material attributes?

Hypotheses

$H_0$1: Writing a business plan does not correspond with New England farmers meeting their proposed sales objectives.

H_A1: Writing a business plan corresponds with New England farmers meeting their proposed sales objectives.

$H_0$2: Small farming operations in the New England region that meet their proposed sales objectives do not have material characteristics in common.

H_A2: Small farming operations in the New England region that meet their proposed sales objectives have material characteristics in common.

All members of the first group were required to write business plans as part of their participation in the FFF Program. This group consists of a population of 87 individuals who received grant funding from the Farms for the Future program from 2002-2009. The sample size consisted of 71 participants. These individuals were originally informed by the FFF program that if they accepted grant funding that they would be consenting to being surveyed at a later date by the MDA or some other institutional entity for research purposes. Each of the FFF program members was mailed a letter of invitation as seen in Appendix A. Within 2 weeks each participant was be contacted by phone and surveyed.

The second group or benchmark group was comprised of 71 farmers which have been selected from a group of 766 farmers that are actively registered with the MDA in

2013. An invitation letter (Appendix D) and an informed consent letter was mailed asking for their participation. Within 2 weeks each participant was contacted by phone and surveyed.

It is not known whether the participants in this group have or have not have written a business plan. This was determined during the data collection stage of the research which 71 of the respondents who have not written business plans were randomly selected. This random sampling process was used to ensure that the same number of participants was surveyed from each group. Since the total population of registered MDA farmers is larger than 71, prospective participants were selected at random to mitigate selection bias in the final results.

Those participants who reply had their information entered into an Excel PhStat2 management system which was specifically designed for this type of research. Participants of both groups received a letter of invitation as seen in Appendices A and D explaining the purpose of the study, its importance to aiding fellow farmers and how their responses remained confidential. This letter helped the research participants understand the purpose of the survey ahead of time. Members of the benchmark group were surveyed using the document found in Appendix B, while those in the experimental group be were surveyed with the document as found in Appendix C. These surveys use both closed and open ended questions which allow for both concise data and the ability to explore additional ideas.

Figure 1 illustrates the procedure utilized in gathering, handling and evaluating data.

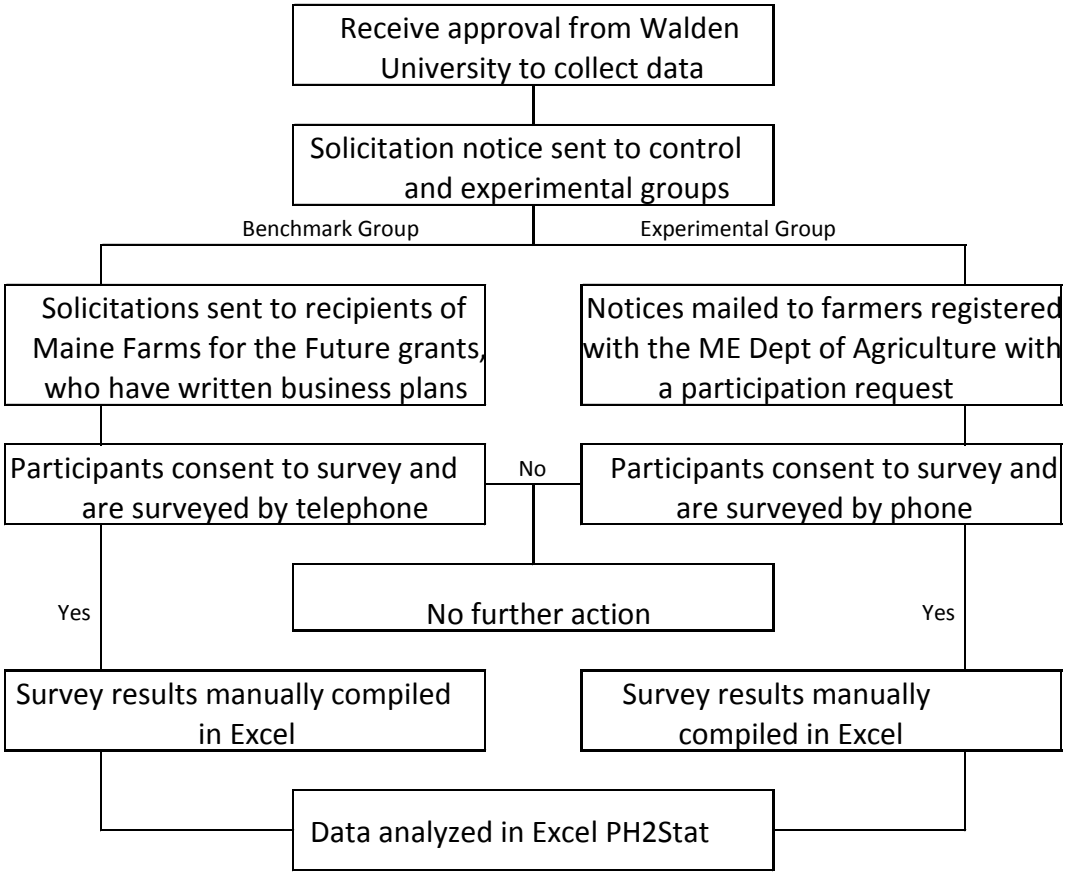

Figure 1

Procedure utilized in gathering, handling and evaluating data

Once the data from the surveys were collected it was imported and processed using Excel PhStat2 management system which had a document that is specifically designed for this research. Groups were categorized as control and experimental.

A Kruskal-Wallis test was conducted to determine if there is any significant difference across the main independent variable, written business plan. The nonparametric Kruskal-Wallis test was used in the analysis of the data because it is the most appropriate tool to measure an independent variable whose data includes ranked scores while the population distribution for the test variable cannot be assumed to be normally distributed (Kutner, 2005). This test is used when there is one nominal variable and one measurement variable, and the measurement variable does not meet the normality assumption of an ANOVA (Levine, 2008). Data from this research were tested to meet the assumptions associated with the application of the Kruskal-Wallis test (Kutner, 2005). The significance level to be used for these tests is .05.

Post hoc analysis was conducted using a Mann-Whitney U test to examine pairwise comparisons between cohort groups. Data analysis procedures were repeated on any significant results from the initial tests to examine any significant relationships between rank score and other covariates. Qualitative data were analyzed by identifying and coding common themes found across surveys (Patton, 2010). Qualitative data were then analyzed manually and validated through triangulation with the quantitative results (Patton, 2010).

Operational Definition of Key Variables

Key variables are categorized as dependent and independent variables. The dependent is meeting sales objectives. The independent variables are grouped into two categories, business plan writing and material characteristics. Material characteristics have several independent variables which are specific to age, education, length of time in operation, internet usage, communication between employees, and ability to take

advantage of opportunities. The focus of the analysis of the independent variables is to determine if writing business plans aids in meeting sales objectives and to assess what characteristics of the individuals who meet their sales objectives and write business plans have in common.

Age: The independent variable of age is operationally defined in groupings whereby the respondents may disclose their age. If there are two individuals who work on the farm, then the one that is responsible for day to day operations was the one recorded. Age groups were 20-29, 30-39, 40-49, 50-59, 60-69 and 70+. This variable was selected because it is one factor that has been identified as an antecedent for entrepreneurial cognition and empirically tested (David, 2012).

Business Acumen: The independent variable, business acumen is operationally defined as the respondent's opinion of himself to effectively understand financial statements and conduct analysis for his business. This variable is used because business acumen of financial analysis is cited as one of the two top reasons why businesses fail (Ebert, 2011). In this research, this variable is aligned with finance, as defined in the resource-based view theory (David, 2012).

Business plan writing: This independent variable was used to analyze pertinent data obtained from research questions. It is a dichotomous variable (yes-no), which was constructed based upon a literature review (Timmins, 1990; Shane & Delmar, 2012) and operationally designed as a comparative measure to determine whether or not business plan writing has a relationship with meeting sales objectives. In this context it is viewed as a process resulting in a written document that describes in relative detail how a

business plans achieves its intended goals using the resources it currently has or has access to (David, 2012).

Communication Skills: The independent variable, communication skill is operationally defined as the respondent's opinion of himself to effectively communicate to employees. This variable is a prerequisite for organizational success and seen as a key component in meeting employee needs (Ruck & Welch, 2011). In this research, this variable is aligned with human resource, as defined in the resource-based view theory (David, 2012).

Education: The independent variable, education is operationally categorized in groupings. These are: did not graduate high school, high school, 2-year college degree, 4-year college degree, master degree, and doctorate degree. Business owners with higher education degrees have been considered a contributing factor that has been identified with influencing firm growth (Wiklund & Shepherd, 2003; Hatch, 2012).

Internet Usage: The independent variable, internet usage is operationally defined as using the internet effectively to conduct research for one's business (CUNY, 2013). This variable explores the participant's ability to navigate and internet and access information either for primary or secondary research (Aaker, 2012). In this research, this variable is aligned with the resource technology, as defined in the resource-based view theory (David, 2012).

Length of time: The independent variable, work experience, is operationally defined as the number of years the owners have been farming. This is measured categorically as less than 3 years, 3 – 5 years but less than 6 years, 6 – 9 years but less

than 10 years, and 10 years or more. Work experience is considered a factor that influences the growth of a business (Ju, 2012)

Meeting sales objectives: This dependent variable was used to analyze pertinent data obtained from research questions. This is a dichotomous variable (yes-no), which was constructed based upon a literature review (Kirzner, 2011) and operationally designed to measure whether the businesses of the surveyed participants were successful in meeting their sales goal objective as they projected. Also, this variable is used to determine if those participants that met their sales objectives and wrote business plans have specific material characteristics in common. This variable is used because it is considered the best relationship of future performance of a firm, because it is least likely to be manipulated by management and it is easily available (Kirkpatrick, 2009).

Obtaining Loans: The independent variable, obtaining loans is operationally defined as the respondent's opinion of himself to effectively obtain financing from a financing institution using a Likert scale, their ability to lease equipment and utilize the USDA Farm Credit System, both using a dichotomous solution. This variable is used because lack of financing is cited as one of the two top reasons why businesses fail (Ebert, 2011). In this research, this variable is aligned with finance, as defined in the resource-based view theory (David, 2012).

Opportunity Taking: The independent variable, opportunity taking is operationally defined as the respondent's opinion of himself to effectively recognize and take advantage of opportunities for their business. This variable is the use of resources and organizing methods to form new means, ends, or mean-ends relationships (Ekhardt &

Shane, 2003; Hajanson, 2010). In this research, this variable is aligned with resource entrepreneurship, as defined in the resource-based view theory (David, 2012).

Tangible Assets: The independent variable, tangible assets are operationally defined as the respondent's opinion that he/she currently owns sufficient land, building and equipment to adequately operate their farm using a Likert scale. This variable is cited in various studies as being a limitation to profitable farming and farm entry (Eswaran & Kotwal 1986; Donoghue 2011). In this research, this variable is aligned with capital, as defined in the resource-based view theory (David, 2012).

Threats to Validity

External Validity

The quality and validity of the information collected in the survey were dependent on the survey participants. The farmers being surveyed are not all from the same category: they produce different crops using a variety of methods on farms of different sizes and they are not necessarily subject to the same market forces and issues. Farmers who are involved in the production of commodities (dairy and beef, for example) are subject to price swings which can be greatly influenced by the commoditization of their product. In contrast, farmers who sell directly to their patrons are less affected by price changes. All farmers, too, are subject to unpredictable variables such as unseasonal or extreme weather events, crop or livestock disease, and other unexpected events and expenses. As a result, their perceptions and attitudes towards business plans and survival and their personal definitions of success may lead to unintentional biases in their responses that affect external validity.

The survey was set up so as to navigate the participant from simple to more intricate questions. Questions pertain to the following two topic areas: a) writing business plans and meeting sales objectives and b) common material characteristics among successful small farms. Topic area items were researched using both quantitative and qualitative methods to best determine their validity by using a triangulation assessment method. Quantitative questions used nominal measurement scales when possible and ordinal measurement scales when for questions that cannot otherwise be represented quantitatively, such as farmers' degree of business acumen. Additional questions for those also participating in the qualitative portion of the study, such as those addressing material characteristics and farmers' perceptions of business plans, were analyzed for common themes and a coding scheme was developed for further analysis (Patton, 2010). Consistent with qualitative research methods, a precise coding scheme cannot be determined until the data have been collected (Patton, 2010). All data were held in strict confidence and used in aggregate form only, without identifying any specific farm or farmer. If participants are interested in the results of the survey, they will have the option to request a copy which will be mailed to them upon completion or visit a designated website.

The two topic areas were selected based upon literature reviews indicating that business plan writing (Karlson, 2010), specific material characteristics, and sources of financing (Mariotti & Glacken, 2013) are critical to achieving specific business goals. These areas are aligned with the works of Honig and Karlson (2010) which consider the value of business plan writing in small businesses. These sections refer to writing business plans and their use in the survivability of the farm, and meeting sales objectives.

All questions were based upon the conviction that business planning improves effectiveness of human action and facilitates goal achievement (Brinckmann et al., 2010). Questions about the independent variable of business plan writing and the dependent variables of meeting sales objectives and survivability were asked in various forms to check the validity of the survey. These questions were designed in order to determine how farmers view various aspects of business planning and whether or not they feel business planning, as a whole or in part, benefits their specific operation.

Internal Validity

There was also the potential for respondent error and/or bias as a result of the nature of the survey itself. A self administered and reported questionnaire opens the door to the possibility of respondent exaggeration, falsehood, or inaccurate recall of facts. Respondents could have altered their opinions in response to the questions asked. Any of these factors could have affected the internal validity of the survey results.

Validity and credibility were addressed through cross-checking and corroborating evidence throughout the research process (Rudestam, & Newton, 2007). Participants in the study have the ability to validate and corroborate research data in both studies through the interview process. Thus the research inquiry adds to the information richness from the least amounts of participants who operated their own farm and either wrote a business plan or did not. Reliability is defined as the consistency between measures – in this case, survey responses (Vogt, 2011). Reliability in this study differentiates from validity in that it does not predict the accuracy of the survey questions' ability to measure their intended metrics (Vogt, 2011). To establish content validity, experts within the field offer the best information in defining items to

be measured (Salkind, 2011). In this study, assistance was acquired from experts in farming, policy development, and business planning to determine which variables would be best suited for both studies. Quantitative and qualitative variables were assessed separately based upon the research question and the survey item they were linked to.

Ethical Procedures

There are no major ethical issues related to the conduction of this study. Categories of potential ethical issues in research include a) protection from harm, b) informed consent, c) right to privacy, and d) honesty with professional colleagues. There was no risk of harm to any participants, researchers, or third parties in the data collection, processing, or publishing of this dissertation. Informed consent was not a factor, as there were no clinical trials and no psychologically sensitive information was sought. Participants were asked only about questions related to small farming and variables that affect small farms' success.

Participants in this study were fully and honestly informed about the purpose of the research and the use of the data they provide, and participation was voluntary. Data were obtained solely through quantitative and qualitative surveys. Participants' confidentiality was preserved throughout the process; no names or identifiable information was recorded on the survey. Neither voice recordings nor images of the participants were taken. Issues of confidentiality are clearly stated in the cover letter which was sent to participants with the survey. In addition, the welfare and safety of research participants was not compromised and no participants were affected adversely as a result of this study. My conduct was professional at all times, and approval from the

IRB was obtained before any data was collected to ensure all participants were protected from any possible harm.

Summary

A mixed methods research design was used to explore whether or not writing business plans aids New England farmers in achieving their proposed sales objectives. It also identified the material characteristics that the participants had in common and determined what opinions these farmers had on business planning. A cross-sectional research method was used for sampling and data collection. Two groups of New England farmers were identified. The first group is the population of members taken from the FFF program. These individuals had written a business plan. The second group is farmers who have registered with the Department of Agriculture. Members of this group were sub categorized into those who had written a business plan and those who had not. This allowed for further analysis to determine if there were statistical distinctions between the groups. Data were analyzed using a Kruskal-Wallis, a 2 sample *t*-test, and a Mann Whitney test to test the hypothesis and acquire inference.

Chapter 4: Results

The purpose of this study was to determine if business plans can impact the success of small farms in the New England region and if successful small farms have material characteristics in common. Most small farms in America were displaced by bigger, more industrialized counterparts over the last century, yet small farms are considered essential to solving long term problems that include food security, economic security, and climate change. Given the singular and pressing nature of these exigencies, the importance of understanding the how small farms can avoid failure has never been greater. This research was intended to broaden the scope of empirical observations related to those factors that are associated with successful small farms, since no major studies have published research regarding the effectiveness of small farm business plans. In this chapter, I present the results from the descriptive statistical analysis, the inferential analysis, and the qualitative research.

Participants in the quantitative portion of this mixed-methods study belong to a sample of 142 individuals who own or have owned small farms in the New England region. Seventy-one of these individuals had enrolled in the Maine FFF program which requires all participants to write a business plan, and 71 (Non-FFF) had not written business plans. Additional demographic information is presented in Table 1. In the qualitative portion of this study, 20 participants (ten from the FFF group, and ten from the Non-FFF group) were selected at random for more in-depth surveys. The research was guided by two quantitative and two qualitative research questions. The quantitative research questions and hypotheses were:

RQ1: To what degree does creating a business plan correspond with farmers operating in the New England region meeting their proposed sales objectives?

RQ2: To what degree do farmers operating in the New England region who have reached their proposed sales objectives have similar material attributes?

$H_0$1: Writing a business plan does not correspond with New England farmers meeting their proposed sales objectives.

H_A1: Writing a business plan corresponds with New England farmers meeting their proposed sales objectives.

$H_0$2: Small farming operations in the New England region that meet their proposed sales objectives do not have material characteristics in common.

H_A2: Small farming operations in the New England region that meet their proposed sales objectives have material characteristics in common.

These quantitative research questions are analyzed using Mann-Whitney U tests. For the first research question, the sample was divided into two groups, one FFF and one Non-FFF, to examine if differences exist between each group's ability to meet its sales objectives. Results showed that differences between the groups were statistically significant at the 5% level. For the second research question, the sample was divided into two groups, one that had reported meeting its sales objectives in the past, and one that had never met its sales objectives. Each group contained 91 and 51 participants, respectively. Twenty-two pairwise comparisons of material characteristics show that eight material characteristics have statistically significant differences across the two groups.

I used the qualitative portion of this study to examine farmers' perceptions about the usefulness of writing business plans and what drivers motivate farmers to write them. Data for this portion were collected via open-ended survey questions. The small farmers surveyed in this portion of the study included 10 individuals who were randomly selected from the sample of 142 participants. The qualitative results are presented in the next section, after the quantitative results.

Research Setting

Each of the participants that consented to participate in the study was surveyed via telephone correspondence. No additional contact was made following the conducting of the study. There were not any organizational or personal conditions observed during the survey that indicated any variation in the interpretation of the results. Participants in the study did not indicate any major changes in budgetary funding, personnel, or any other type of trauma that could have potentially modified the results of the survey.

Demographics

Data used in this statistical analysis were gathered via telephone surveys with two groups of small farmers and former farmers from the New England region. One group includes only farmers who had enrolled in Maine's FFF program, which requires each participant to write a business plan. The second group (Non-FFF) is comprised of farmers and former farmers who were not enrolled in Maine's FFF program and had never written a business plan. Each group had 71 participants.

The median age bracket of the 142 survey respondents was 50–59, which is slightly higher than the mean, which falls between the 40–49 and 50–59 age brackets. All respondents were residents of the New England region. Educational attainment followed

an approximately normal distribution, with the majority of respondents (82, or 58%) having a 4-year, college degree and no advanced degrees. Twenty-three had advanced degrees (PhD/Masters 22/1). Twenty graduated from a 2-year college program, 16 had only high school diplomas, and one did not graduate from high school. Of the entire 142 person sample, 128 are currently farming and the remaining 14 had farmed in the recent past. The median farm size was 51–100 acres, and 28 farms fell into this category. 64 farms were larger, with 27, 26, and 11 farms reaching a maximum size of 101–200, 201–400, and 400+ acres, respectively. 50 farms were smaller than the median, with 23 having between 21–50 acres and 27 having between 1–20 acres. 63% (92 participants) had been farming for 10 or more years, while 24 had been farming between 6–9 years and 25 had been farming between 2–5 years. Only three had farmed for less than 2 years.

Data Collection

Before participants were contacted, approval for the study was obtained from the IRB of Walden University. Two groups of participants were contacted. Participants were contacted differently depending upon the group that they were associated with.

All members of the first group were required to write business plans as part of their participation in the FFF Program. This group consisted of a population of 87 individuals who received grant funding from the FFF program from 2002–2009. The sample size consisted of 71 participants. These individuals were originally informed by the FFF program that if they accepted grant funding that they would be consenting to being surveyed at a later date by the MDA or some other institutional entity for research purposes. Each of the FFF program members was mailed a letter of invitation as seen in Appendix A. Within 2 weeks, each participant was contacted by phone and surveyed.

The second group or benchmark group was 71 farmers selected from a group of 766 farmers that were actively registered with the MDA in 2013. An invitation letter (Appendix D) and an informed consent letter were mailed asking for their participation. Within 2 weeks, each participant was contacted by phone and surveyed.

It was not known whether the participants in this second group had or had not written a business plan. This was determined during the data collection stage of the research in which 71 of the respondents who had not written business plans were randomly selected. This random sampling process was used to ensure that the same number of participants was surveyed from each group. Since the total population of registered MDA farmers is larger than 71, prospective participants were selected at random to mitigate selection bias in the final results.

Those participants who replied had their information entered into an Excel PhStat2 management system which was specifically designed for this type of research. Participants of both groups received a letter of invitation as seen in Appendices A and D explaining the purpose of the study, its importance to aiding fellow farmers, and how their responses remained confidential. This letter helped the research participants understand the purpose of the survey ahead of time. Members of the benchmark group were surveyed using the document found in Appendix C, while those in the experimental group were surveyed with the document found in Appendix D. These surveys used both closed and open-ended questions which allowed for both concise data and the ability to explore additional ideas.

Once the data from the surveys were collected it was imported and processed using Excel PhStat2 management system which had a document specifically designed

for this research. Groups were categorized as control and experimental. A Mann Whitney U test was conducted to determine if there was any significant difference across the main independent variable, a written business plan. The nonparametric Mann Whitney U test was used in the analysis of the data because it was the most appropriate tool to measure an independent variable whose data includes ranked scores while the population distribution for the test variable cannot be assumed to be normally distributed (Kutner, 2005). This test is used when there is one nominal variable and one measurement variable, and the measurement variable does not meet the normality assumption of an ANOVA (Levine, 2008). Data from this research were tested to meet the assumptions associated with the application of the Mann Whitney U test (Kutner, 2005). The significance level used for these tests was 0.05.

Quantitative Results

Data used in this statistical analysis were gathered via telephone surveys with two groups of small farmers and former farmers from the New England region. One group included only farmers who have enrolled in Maine's FFF program, which requires each participant to write a business plan. The second group (Non-FFF) was comprised of farmers and former farmers who are not enrolled in Maine's FFF program and had never written a business plan. Each group had 71 participants.

RQ1: To what degree does creating a business plan correspond with farmers operating in the New England region meeting their proposed sales objectives?

$H_0$1: Writing a business plan does not correspond with New England farmers meeting their proposed sales objectives.

H_A1: Writing a business plan corresponds with New England farmers meeting their proposed sales objectives.

To analyze the first research question, a pairwise comparison of farmers' abilities to meet their sales objectives was conducted using a Mann-Whitney U test. Each group had 71 participants. Since one group (FFF) wrote business plans while the other (Non-FFF) did not, the prediction of the null hypothesis was that there would be no significant difference between the ability of each group to meet its sales objectives. Binary "Yes" and "No" responses were converted to a Likert scale and compared using a two-tailed *Z*-test statistic at a 5% level of significance. Fifty-one out of 142 respondents claimed to have never met their sales objectives, compared with 91 who claimed that they had. Fifty-four out of 71 (77%) of FFF participants met their sales objectives, compared with 37 out of 71 (52%) of the Non-FFF group. Mann-Whitney U test results show the differences between the two groups to be statistically significant at the 5% level with a *Z*-test statistic of 2.462 and a *p*-value of 0.014. As a result, the null hypothesis was rejected and the alternative hypothesis – that there are differences in the ability of farmers to meet their sales objectives when they have written business plans – was accepted.

RQ2. To what degree do farmers operating in the New England region who have reached their proposed sales objectives have similar material attributes?

H_02: Small farming operations in the New England region that meet their proposed sales objectives do not have material characteristics in common.

H_A2: Small farming operations in the New England region that meet their proposed sales objectives have material characteristics in common.

The second research question was investigated by using the same sample of 142 participants that was used to study the first research question, but groups were redefined for the second question based on participants' self-reported history of meeting their sales objectives. Fifty-one participants reported that they have never met their sales objectives, and 91 reported that they had. A Mann-Whitney U test was applied to determine if there were differences in each of the 22 material characteristics that were considered in this study between farmers who met their sales objectives and those who did not.

Assumptions were that all responses are independent of each other, and that all responses were ordinal, except for yes/no questions, which were categorical. All categorical data had been converted to binary Likert scales to reflect ordinal characteristics. Distributions were assumed to be nonparametric and similar across groups. It was also assumed that the participants understood the research questions and answered honestly to the best of their abilities. Copies of business plans and other hard materials were not collected from participants.

To address the second hypothesis, twenty-two pairwise comparisons were made using Mann-Whitney U tests to determine if differences exist between farmers who claimed to have met their sales objectives and those who did not. Fourteen questions returned results that were not significant at the 5% level, and eight questions were found to be statistically significant at the 5% level. The question on whether participants are currently farming revealed that 87 out of 91 individuals who had met their sales objectives are currently farming, while 41 out of 51 farmers who had not met their sales objectives were no longer in business. This pairwise comparison returned a *Z*-statistic of -

1.501 and a *p*-value of 0.133. The results were not statistically significant at the 5% level and the null hypothesis was not rejected.

Participants were asked to answer how long they had been farming for within the following ranges: 2 years or less, 3–5 years, 6–9 years, or 10 years or more. Of the group with 51 individuals who claimed to have never met their sales objectives, three had been farming for 2 or fewer years, 14 had been farming for between 3 and 5 years, eight had farmed for between 6 and 9 years, and 26 had farmed for 10 or more years. Of the group of 91 participants that had met its sales objectives, zero had farmed for 2 years or fewer, 11 had farmed for 3 to 5 years, 16 had farmed for 6 to 9 years, and 64 had been farming for 10 years or more. While both groups feature a median value of 10 years or more, 70.0% of farmers who met their sales objectives had been farming for 10 or more years, while 51.0% of those who had not met their goals had farmed for this long. The Mann-Whitney U test produced a *Z* test statistic of -2.371 and a *p*-value of 0.018. These results were found to be statistically significant at the 5% level and the null hypothesis was rejected in favor of the alternative hypothesis.

Participants were asked to report their age within the following ranges: 18–29, 30–39, 40–49, 50–59, 60–69, and 70+. For the group comprised of farmers that did not meet their sales objectives, one was between 18 and 29, 11 were between 30 and 39, 12 were between 40 and 49, 21 were between 50 and 59, three were between 60 and 69, and three were 70 or older. The median age group was 50–59, and the average age group fell between 40–49 and 50–59. Of the group that comprised farmers who had met their sales objectives, zero were between the ages of 18–29, 11 were ages 30–39, 18 were 40-49, 42 were between ages 50 and 59, 14 were 60–69, and six were 70 or older. The group that

had met its sales objectives was skewed toward the older age brackets, with 68.1% being at least 50 years old. In the group that had not met its sales objectives, 52.9% were 50 or older. This pairwise comparison produced a *Z* test statistic of -2.007 and a *p*-statistic of 0.045 and was statistically significant at the 5% level. The null hypothesis was rejected and the alternative was accepted.

Whether farms are organic or conventional was considered as a variable, and of the group that had not met its sales objectives, 16 were organic and 35 were not. Of those who had met their sales objectives, 46 were organic and 45 were not. The *Z*-test statistic was -1.892 and a *p*-statistic of 0.058. The results were not significant at the 5% level and the null hypothesis was not rejected.

Participants were asked if they had access to the internet, and 47 of 51 farmers that did not meet their sales objectives reported that they did. 87 out of 91 farmers that have met their sales objectives claimed to have access to the internet. The *Z*-test statistic for this variable is -0.340, and the *p*-value is 0.734. It was not significant at the 5% level and the null hypothesis was not rejected. Participants were also asked if they used internet for business purposes and to rate their abilities to access information via the internet on a scale of 1 to 5. Each question earned a *Z*-score of -0.340 and -0.300, respectively and a *p*-score of 0.764 and 0.723, respectively. Neither was significant at the 5% level and the null hypothesis for each question was not rejected.

Individuals were asked if they use innovative software or technology to help run their farms. The pairwise comparison reveals a *Z*-test statistic of -1.133 and a *p*-score of 0.257. This test was not significant at the 5% level and the null hypothesis can not be

rejected. Farmers were also asked to name the software and technology they use; this information is presented in the qualitative results.

Participants were asked if they or their spouses were employed off of the farm. Thirty-five out of the group of 51 reported that they were, and 49 out of the group of 91 reported being employed elsewhere as well. The *Z*-test statistic for this variable is 1.459 and a *p*-value of 0.145. The null hypothesis was not rejected for this comparison.

Educational attainment was considered as a variable that may be linked to farmers' abilities to meet their sales objectives. Of the 51 that have never met their sales objectives, one did not graduate from high school, seven had acquired no more than a high school diploma, seven had an associate's degrees, 30 had earned no more than bachelor's degrees, five had master's degrees, and zero had acquired a doctorate of philosophy. The group of 91 had zero participants that did not graduate from high school, nine with only high school diplomas, 13 had earned associate's degrees, 51 with bachelor's degrees, 17 with master's degrees, and one with a doctorate of philosophy. 67% of the first group had earned at least a bachelor's degree, compared with 76% of the latter group. The *Z*-test statistic was -1.278 and the *p*-score was 0.201. The results of this comparison were not significant at the 5% level and the null hypothesis was not rejected.

Of the 51 survey respondents that did not meet their sales objectives, 31 (60.8%) were reportedly running, or had recently run, a first-generation farm. Six ran second-generation farms, eight ran third-generation farms, five ran fourth-generation farms, and the group's final participant ran a fifth-generation farm. 57 people in the group of 91 participants (62.6%) reported running a first-generation farm, 15 reported running second-generation farms, five reported running third-generation farms, five reported

running fourth-generation farms, five reported running fifth-generation farms, and five ran farms that had been owned and operated by family members for more than five generations. The test statistic for this comparison is 0.117, and the *p*-score is 0.907. The results were not significant at the 5% level, and the null hypothesis was not rejected.

No correlation was found between farmers' abilities to meet their sales objectives and whether they used a Farm Credit Service or Farm Service Agency. Forty-seven out of 51 small farmers who never met their sales objectives had never used one, compared to 89 out of 91 small farmers who had met their sales objectives who had never used a Farm Credit Service or Farm Service Agency. The *Z*-test statistic for this variable is 0.557, and the *p*-value is 0.577. The results were not found to be significant at the 5% level, and the null hypothesis was not rejected.

Survey respondents were asked if they had ever leased machinery or equipment, and 48 of the group of 51 had not done so. Of the group of 91 respondents, only one had ever leased equipment. The *Z*-test statistic for this comparison is 0.472, and the *p*-score is 0.637. The results were not significant at the 5% level, and the null hypothesis was not rejected.

Four of 51 survey respondents whom had never met their sales objectives had bought crop insurance at some point, while 47 claimed to have never purchased a policy. Six survey respondents who had met their sales objectives had purchased crop insurance, while the remaining 85 never had. A pairwise comparison yields a *Z*-test statistic of 0.123 and a *p*-score of 0.902. The results were not significant to at a 5% level, and the null hypothesis was not rejected.

Survey respondents were asked to report their annual gross sales, and 40 in the group of 51 participants did not exceed $100,000. Seven farmers earned between $100,000 and $249,999, and the remaining four cleared in excess of $250,000. Of the group of 91 participants, 55 did not have gross sales that exceeded $100,000, 20 cleared between $100,000 and $249,999 and the remaining 16 cleared over $250,000. Only 21.6% of those that never met their sales objectives earned at least $100,000 in gross sales, compared to 39.6% of those that did meet their sales objectives. The *Z*-test statistic is -1.843, and the *p*-value is 0.065. The results of this test were not significant at the 5% level and the null hypothesis was not rejected.

Small farmers were asked if they thought writing a business plan was useful. For those farmers that had never met their sales objectives, 20 of 51, or 39.2% thought that they were, compared to 31 individuals (60.8%) who did not think they were useful. 63 out of 91, or 69.2%, of farmers who met their sales objectives thought that writing a business plan was a useful activity, compared to 28 (30.8%) that did not. This pairwise comparison yields a *Z*-test statistic of -2.962 and a *p*-score of 0.003. The results were statistically significant at the 5% level and the null hypothesis was rejected.

Participants were asked about their abilities to access financing on a scale of 1 to 5, with 1 representing extremely poor or no access to financing and 5 representing excellent access to financing. The distribution for the group of 51 respondents that did not meet their sales objectives is: Seven answered “1”, 12 answered “2”, 18 answered “3”, four answered “4”, and 10 answered “5”. The distribution for the group of 91 respondents that met their sales objectives is: zero answered “1”, five answered “2”, 24 answered “3”, 45 answered “4”, and the remaining 17 participants answered “5”. The

median score for the group with 51 participants is “3” and the median score for the group of 91 participants is “4”. The *Z*-test statistic for this variable is -4.055 and the *p*-score is (to three decimal places) is 0.000. The results were significant to a 5% level and the null hypothesis was rejected.

Participants were asked to rate the adequacy of the size of their farms with respect to their farms’ long term needs, on a scale of 1 to 5. A score of 1 represents farms that are inadequately sized to reach the level of expansion that would be necessary for long term optimization, and a score of 5 represents farms that can absorb future growth. Participants that did not meet their sales objectives reported the following distribution: Two answered “1”, eight answered “2”, 24 answered “3”, seven answered “4”, and 10 answered “5”. Participants that had met their sales objectives reported the following distribution: two answered “1”, three answered “2”, 34 answered “3”, 40 answered “4” and 12 answered “5”. The median for the 51 individuals who did not meet their sales objectives is “3” and the median for the group of 91 who did is “4”, indicating that groups that are more adequately sized for future expansion are more likely to meet their sales objectives. This comparison yields a *Z*-test statistic of -2.124 and a *p*-value of 0.034. The results were significant at the 5% level and the null hypothesis was rejected.

Arable acreage was considered as a possible factor in whether small farmers were able to meet their sales objectives. The group of 51 participants had not met their sales objectives reported the following distribution: 16 managed 1–20 acres, five managed 21–50 acres, nine managed 51–100 acres, eight managed 101–200 acres, seven managed 201–400 acres, and six managed more than 400 acres. Within the group of 91 participants that had met their sales objectives, 11 managed 1–20 acres, 18 managed 21–50 acres, 19

managed 51–100 acres, 19 managed 101–200 acres, 19 managed 201–400 acres, and five managed more than 400 acres. The *Z*-test statistic for this variable is -1.103 and the *p*-score is 0.270. These results were not significant at the 5% level and the null hypothesis was not rejected.

Long range building and equipment needs were considered as a variable that might impact small farmers' abilities to meet sales objectives. Farmers were asked to rank their capital equipment needs on a scale of 1 to 5, with 1 representing a major deficiency in capital investment and 5 representing an adequate stock of equipment and buildings. The group that did not meet its sales objectives reported the following distribution: zero answered "1", 14 answered "2", 26 answered "3", seven answered "4", and four answered "5". The group that has met its sales objectives reported the follow distribution: two answered "1", six answered "2", 29 answered "3", 46 answered "4", and eight answered "5". The median score for the group that did not meet its sales objectives was "3" and the median score for the group that did was "4", indicating that those who were able to meet their sales objectives have comparatively more adequate capital investments than those who were not. The *Z*-test statistic for this comparison is -3.816, and the *p*-score (to three decimal places) is 0.000. The results were significant at the 5% level and the null hypothesis was rejected.

Individuals in groups that were stratified by ability to meet sales objectives were vetted to determine if they had written business plans. Of the 51 respondents that did not meet their sales objectives, 16 (31.4%) had written a business plan. Of the 91 that did meet sales objectives, 54 (59.3%) had written business plans. The *Z*-test statistic for this

comparison is -2.566 and the *p*-score is 0.010. The results were significant at the 5% level and the null hypothesis was rejected.

Participants were asked if they would consider writing a business plan, or consider writing another business plan if they had written one in the past. Twenty-one of the 51 (41.2%) small farmers whom had not met their sales objectives said they would, while the remaining 30 said that writing a business plan would not be a future consideration. Fifty-seven out of 91 people (62.6%) whom had met their sales objectives in the past said they would consider writing (another) business plan, compared to 34 who claimed they would not. The *Z*-test statistic for this variable is -2.118 and the *p*-score is 0.034. The results were significant at the 5% level and the null hypothesis was rejected.

In summary, 22 material characteristics were compared across two groups that were divided into two categories based on whether individuals in each group had ever met their sales objectives. Eight of these material characteristics were found to be statistically significant at the 5% level. Those characteristics were: the number of years each individual has been farming for, the age of the farmer, the perception that writing business plans is a useful business activity, individuals' abilities to access financing, the size of farms in relation to long term needs, long range building equipment and building needs, whether individuals had written business plans in the past, and whether participants would consider writing (another) one in the future. The null hypotheses for these eight variables were rejected and alternative hypotheses – that these eight material characteristics are associated with successful small farms – are accepted. The remaining 14 material characteristics were not found to be statistically significant at the 5% level and those null hypotheses were not rejected.

Qualitative Results

The purpose of the qualitative component of this study was to understand farmers' perceptions of business plans and why they decide to write them. In this portion of the study, ten farmers from each group were randomly selected from the group of 142 quantitative study participants for more in-depth surveys. These surveys were conducted between August and September of 2015, and each participant was currently farming in the New England region. In this section, demographic information was presented for both groups, followed by FFF survey results and Non-FFF survey results, respectively.

Information that can be found within Table 1 consists of demographic information, including participants' age range, genders, and the number of years they have been farming for. I used a unique identifier for each person in Table 1 so individual survey responses can be traced to respondents' demographic information. Participants are sorted according to group (FFF or Non-FFF).

Participants a through j belong to the group of farmers that have written a business plans (FFF) and participants k through t denote those individuals that did not write business plans (Non-FFF). 60% of the FFF group is male and 40% is female, and the median age bracket is 40–49 years old. These ten respondents reported farming for an average of 13.9 years. Participants k through t belong to the group of farmers that has not written business plans (Non-FFF). 70% of this group is male and 30% is female, and the median age bracket is 30-39. This group reported farming for an average of 11.6 years, though participant r reported farming for 52 years – more than twice as long as anyone else in the Non-FFF group – which gives this distribution a heavy rightward skew.

Table 1

Demographic Information

Participant	Group	Gender	Years Farming	Age
a	FFF	M	22	60-69
b	FFF	M	27	70+
c	FFF	M	4	30-39
d	FFF	M	11	40-49
e	FFF	M	12	50-59
f	FFF	M	15	40-49
g	FFF	F	6	30-39
h	FFF	F	12	40-49
i	FFF	F	7	40-49
j	FFF	F	23	50-59
k	Non-FFF	F	7	40-49
l	Non-FFF	F	4	30-39
m	Non-FFF	F	5	30-39
n	Non-FFF	M	7	30-39
o	Non-FFF	M	21	50-59
p	Non-FFF	M	4	30-39
q	Non-FFF	M	3	20-29
r	Non-FFF	M	52	70+
s	Non-FFF	M	11	50-59
t	Non-FFF	M	2	30-39

Information that can be found within Table 2 consists of all responses from the FFF group to the questions “What system does your farm use for developing sales objectives?” Table 3 presents answers to the same question from the Non-FFF group.

Table 2

Sales Objectives (FFF)

What system does your farm use for developing sales objectives (FFF)?
a) Sales are determined by what we sold last year and then we decide what we want to do this year based on that information. We take into account markets and resources available (land and equipment available).
b) Basically grow the same things that we have grown for the past 30 years.
c) We look at what we grew last year and what was successful and what wasn't. We take into account what grew well and what sold well. They are not always the same. Sometimes we will give a bad crop a second chance if we think is has potential based on some other factors not taken into account the previous year.
d) We figure what we need for income to pay the bills and then look at what each crop has made us in the past. Based on previous sales we can determine what we can plant and how much we need to meet the minimum required.
e) Soon after harvest season we know what we sold in each crop and how much of a return we could generate per acre. Since some crops bring more per acre we consider what our customers will buy and how to create a balance of getting the most money for our crops compared to what our customers will buy. The goal is to keep our customers satisfied and returning while making more from our land-base.
f) We designed and calculated a formula a few years ago based on historical sales and yield. We update this annually with new information at the end of the growing season. Essentially, we start with the marketplace and determine what they are buying and what crops we can grow to keep them coming back year after year.
g) We start with what we sold last year and what customers asked for that we did not grow. Then we develop a large map of our farm which is on the wall and also make a wall size chart of what we can grow with expected yields and gross sales. Included in this map are puzzle pieces of plots of land that when put into place on the farm map tell us what our expected return should be. From here we create a plan of what activities need to be accomplished to achieve our goals. During the winter we create labor maps and to-do lists which keep us on track with assignments or tasks that will need to be accomplished during the growing season.

What system does your farm use for developing sales objectives (FFF)?

h) We start by getting feedback from our customers during the year. We find out what they want and how best to accomplish their wishes. If we are assessing crops that have been grown in the past, then we use past information to determine how much we can sell and how much it will make us. If it is a new crop, then we research the crop to see what it will yield in our area and they enter the market slowly by only planting a small amount of it. This lets us see how it grows and how much the market will purchase.

i) We work with our milk buyer and develop a plan on how much milk we can produce based upon our herd average and how many cows we have.

j) Our primary purpose is to create products or add-value from our herbs that meet customers' needs. Since our business is labor-intensive then we need to keep in mind the costs associated with developing each product from planting and growing to harvesting, drying and processing into various products. Several years ago, we worked with an accountant to help us with managing and tracking costs. This process gave a method of determining pricing for our products on an hourly basis. Since most of our herbs are perennials we develop products that meet the needs of our clients while maximizing the output and potentially the profits.

(table continues)

Table 3

Sales Objectives (Non-FFF)

What system does your farm use for developing sales objectives (Non-FFF)?
k) We estimate what we can grow on the farm based on what we have done in the past and what has been successful with our customers.
l) We grow about the same every year and work with our milk coop to supply the most amount of milk that we can. They pay us on volume.
m) We don't have a method of producing sales objectives.
n) We determine what we need to live on and what our expenses are and figure out what we need to grow to meet this goal.
o) We examine what our customers purchased last year and what they didn't. From this information we determine what changes we need to make to meet the desires of our clients for the upcoming year.
p) We have an orchard with so many trees. We care for the entire orchard in hopes of getting the maximum yield and harvest according to what God gives us. We are limited by the prices that are set by the market.
q) We don't have a method for developing sales objectives.
r) Our sales objectives are determined by how many calves we raise and what beef prices are in the fall of the year. We keep about 70 cows and sell about half for freezer beef with the remainder going to a feed lot.
s) We use prices and yields from previous years to try to determine what sales will be in the coming year. From past experiences we know that our land will only produce so much, the labor expense needs to be controlled and that our customers will only buy so much. Due to these limitations we try to produce as much as we can and sell as much as we can.
t) We determine what we need for our family needs and back into our sales objectives. Due to this we figure out how much we need to produce in order to meet this goal. Our objective is to spend time together as a family having a quality of life more than it is making money.

Qualitative study participants were asked "why (or why not) do you think writing a business plan is useful to the long term sustainability of your farm?" Responses to this question are presented for the FFF group in Table 4. Responses to this same question are presented in Table 5 for the Non-FFF group.

Table 4

Long Term Sustainability (FFF)

Why do you (not) think that writing a business plan is useful to the long term sustainability of your farm (FFF)?
a) Life changes and it helps you update what needs to be done to keep up with those changes.
b) Helps treat the farm as a business and helps us eliminate the duplication of expenses
c) Helps with determining the use of resources and how to project income.
d) It makes you question what you are doing and tracking if it is successful or not.
e) It just makes sense. Keep us organized when things get too busy.
f) It helps us get the financing we need to keep the farm going.
g) It gives us goals and objectives to keep us focused and on track.
h) It provides us with the opportunity to reflect on decisions and make goals for next year.
i) It takes out some of the guess work and provides a road map for next year. It is like mind-mapping your business.
j) It helps us plan and not run by the seat of our pants.

Table 5

Long Term Sustainability (Non-FFF)

Why or why not, do you think writing a business plan is useful to the long term sustainability of your farm (Non-FFF)?
k) I don't know, we never needed one before and we did just fine. It might be good for farmers who need financing.
l) I think it is a waste of time. My father and grandfather never wrote one.
m) I don't know, we never wrote one, maybe we should.
n) It makes sense to be organized and plan.
o) It could be used as a yardstick against what you are doing and would be better to understand what is going on internally.
p) We think it would be a good idea but we don't have the time.
q) Writing a business plan takes a lot of time and money that could better be used elsewhere.
r) I think it is a good idea. We have talked about it but never taken the time. Maybe this year we will do it.
s) It could help one manage costs and set goals better.
t) It would be helpful to see where your time and effort is put.

Answers to the remaining qualitative questions elicited significantly shorter responses than did those in Table 2, Table 3, Table 4, and Table 5. While these questions were open-response, the answers to the remaining survey questions can be described categorically, these responses from both groups have been aggregated for convenience and appear in Table 6. These results can be seen below.

Table 6

Operations

Do you collect data for your farming operation and if so what types (production- or demand-related)?	FFF	Non-FFF
Production-related	10	8
Demand-related	10	2
Who else has access to your data?		
CPA/Manager	10	0
Banker	7	6
Seed company	2	1
Crop consultant	2	0
No one	0	0
What purposes does your farm utilize the internet for?		
Research customers	9	0
Research new crops	9	3
Get new ideas	4	0
What software packages does your farm use?		
WWW	9	6
Excel	9	1
QuickBooks	9	2

On the question of how sales objectives are developed (Table 2 and Table 3), farmers that had written business plans seemed to be slightly more methodical than those that had not. Ten of 10 FFF participants set sales objectives, compared to seven of ten Non-FFF participants. FFF responses were also more elaborate, averaging 65 words per response, compared to Non-FFF participants who averaged 35 words per response. Free responses were analyzed for literal meaning and all farmers were found to exhibit one or more of three primary motivators for setting sales objectives – some rely on supply-side potential to guide them through planning for the year ahead, others rely on projected demand, and still others consider income needs as a primary determinant of future sales objectives. Eight FFF vs. five Non-FFF farmers considered supply and demand factors, respectively, as primary drivers of future sales, and two from each group indicated that income need was a primary driver.

Farmers who had written business plans (Table 4 and Table 5) report a wide variety of reasons for doing so and derive many perceived benefits. Some of those benefits include helping with changes in resource allocations, eliminating the duplication of expenses, forecasting income and vital resources, tracking expenses and scrutinizing decisions, general organization, access to financing, and providing a roadmap. No one responded that the purpose of writing a business plan was a matter of form or something they did only to meet the requirements of FFF – all 10 respondents from the qualitative portion of the study found perceived value in writing a business plan.

Those who hadn't written business plans were split on whether doing so was a productive use of time. In general, respondents could identify benefits that may accompany having a valid business plan, but in general they felt that they did not need

one to be successful and did not want to invest the time and money required to create one. Results for the remaining qualitative research questions are displayed in Table 6. FFF farmers are more likely to use innovative software to help them run their businesses, and they identified Excel, WWW, and QuickBooks as the three most popular programs. Nine participants used each software program to for management purposes. By comparison, one, six, and two Non-FFF participants, respectively, used those programs, and did not identify any substitutes. A final difference between those who have business plans and those who do not is the will and/or need to share data. Ten out of 10 business plan holders share farm data with a CPA or manager, while zero out of 10 of non-business plan holders share data with a CPA or manager.

Summary

As stated in the literature review in Chapter 2, no major studies evaluating the usefulness of business plans to small farmers have been conducted. There have not been many studies dedicated to business planning and entrepreneurship (Brush, et al., 2003), and even fewer on small farmers and their processes for achieving success (Bjornberg & Nicholson, 2007). Therefore, identifying the existing knowledge base that is broadened by this study is difficult because it does not exist. This research as a topic is new.

The two theoretical frameworks used in this study were institutional theory and resource-based theory. Institutional theory is a theory emphasizes legitimacy, isomorphism, and rational myths (Scott, 2008). This theory predicts that small farmers would write business plans as a matter of form, even if their projected utility is ambiguous. The qualitative results did not support this notion, because the majority of both groups identify business plans as having value, and because members of the FFF

group were able to clearly articulate how that value is derived. Because quantitative and qualitative results predicted real, if intangible, value of business plans, institutional theory was not a valid predictor of why small farmers write them. Resource-based theory predicts that farmers will write business plans because they garner value from them, and the results of the qualitative research supported this theory. This was evidenced not only in FFF farmers' perceptions of value in business plans, but also in their relative propensity to use technology, collect and share data, and consider market-based factors when setting sales objectives. The results helped to expand the current knowledge base because no major studies have evaluated the value of business plans or the material characteristics that successful small farms have in common with each other.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this study was to determine if business plans could help small farmers reach their sales objectives and if successful small farms had material characteristics in common. Many small farmers choose to write business plans, and many investors and lending institutions require business plans before they will consider making investments or providing loans. Yet, there is little consensus on whether business plans contribute any real value to their owners' business entities despite the widespread use of these documents. The usefulness of business plans is unknown because, prior to now, no major academic studies had been conducted to evaluate whether these documents could affect the success of business entities.

Interpretation of Findings

This study was significant because the success of small farms is considered essential to solving a myriad of burgeoning global problems, including those that involve food security, economic security, and environmental degradation. The economic climate for small farms in the United States has deteriorated almost continuously for the past century. As a result of poor policy decisions and changing economics, the vast majority of small farms in the United States have disappeared over the last 100 years. Because no major improvements in the economic climate for small farms appear to be imminent, an essential part of improving the survival rates of small farms includes identifying those factors that help small farmers reach their sales objectives in spite of unfavorable economic conditions. Business plan are considered to be the central planning document for most small businesses, including small farms. It is therefore essential to understand if these documents are useful, how they may derive value in the small-scale agricultural

sector, and what motivates farmers to invest the resources that are required to create them.

The research questions in this study were explored using a mixed methodology. This study was nonexperimental, correlational, and comparative, and Mann-Whitney U tests were conducted for all pairwise comparisons in the quantitative portion of the research. The data for the quantitative tests were gathered during the summer of 2015 from 142 small farmers in the New England region--71 had written business plans and 71 had not. In the qualitative portion of this study, participants were asked about their perceptions of business planning. Ten farmers from each group were selected to participate in the qualitative portion of this study.

RQ1: To what degree does creating a business plan correspond with farmers operating in the New England Region meeting their proposed sales objectives? The null hypothesis states that writing a business plan does not correspond with New England farmers meeting their proposed sales objectives. The alternative hypothesis states that writing a business plan correspond with New England farmers meeting their proposed sales objectives.

The findings from my study show that of the 71 FFF participants, 54 (or 77%), had met their sales objectives while 37 of the 71 Non-FFF participants (52%) met their sales objectives. A pairwise comparison of the two groups was made using a Mann Whitney U test. The value of this test's Z test statistic was 2.462, and the p score was 0.014. The results were statistically significant at the 5% level and indicated that there was a difference between the two groups' abilities to meet their sales objectives. As such, the null hypothesis was rejected in favor of the alternative hypothesis. These findings

were consistent with resource-based theory, which states that the more efficiently and effectively firms use their resources, the more sustainable and competitive they become (Forcadell, 2007).

RQ2: To what degree do farmers operating in the New England region who have reached their proposed sales objectives have similar material attributes? The null hypothesis stated that there was no difference between the material characteristics of small farms that have met their sales objectives and small farms that have not. The alternative hypothesis stated that there were differences between the material characteristics of small farms that have not met their sales objectives and small farms that have not.

To test the validity of the second research question, pairwise comparisons using a Mann Whitney U test were conducted for each of the 22 material characteristics that were considered. The same 142 participants that were surveyed for the first research question supplied the data for the second research question as well, but the groups were divided according to whether participants had met their sales objectives. Of the 22 characteristics, 14 were not statistically significant at the 5% level. Eight material characteristics were found to be statistically significant at the 5% level. Each of the material characteristics that were found to be statistically significant are discussed individually.

Experience was found to have an impact on small farms' likelihood of success. Survey respondents were asked how long they had been farming. Seventy percent of those who met their sales objectives reported that they had been farming for 10 or more years. By contrasts, 51% of farmers who had not met their sales objectives had been farming for 10 or more years. The results of a Mann Whitney U test showed that this

material characteristic was statistically significant at the 5% level, with a *Z* test statistic of -2.371 and a *p* value of 0.018. Limitations included the possibility that respondents with more experience were more hesitant to admit failure and the possibility that more experience corresponds to farmers setting more realistic revenue expectations.

The age of small farmers was found to be linked to the success of small farms. Of farmers that said they had met their sales objectives, 68.1% reported being 50 years old or older. Of the group that did not meet its sales objectives, 52.9% reported being at least 50 years old. The results of a Mann Whitney U test showed that the results of this pairwise comparison were statistically significant at the 5% level, with a *Z* test statistic of -2.007 and a *p* value of 0.045. Limitations included the possibility that older respondents were more hesitant to admit failure and the possibility that older farmers are more conservative in setting sales projections.

Small farmers that perceived business plans to be useful were found to be more likely to meet their sales objectives than farmers who did not think business plans had much value. Nearly 61% of farmers that thought business plans were useful were able to meet their sales objectives. By contrast, 30.8% of farmers who felt that business plans did not have much value met their sales objectives. The relationship between perceived usefulness of business plans and farmers' abilities to meet sales objectives was found to be statistically significant at the 5% level, with a *Z* test statistic of -2.962 and a *p* score of 0.003. Limitations included the possibility that respondents who had met their sales objectives were more optimistic with the answers the provided to other questions.

Individuals with comparatively greater access to financing were found to be more likely to meet their sales objectives than those whose access to financing was not as

adequate. Participants were asked to self-rate their access to financing on a scale of 1 to 5, with 1 being the least adequate and 5 being the most adequate. The median value for those who did not meet their sales objectives was 3, while the median value for those that had was 4. A pairwise comparison produced results that were found to be statistically significant at the 5% level. The *Z* test statistic was -4.055 and the *p* score (rounded to three decimal places) was 0.000.

The adequacy of farm size with respect to long term needs was found to be a significant factor in small farmers' abilities to meet their sales objectives. Farmers were asked to measure the adequacy of farm size to long term needs on a scale of 1 to 5, with 1 being the least adequate and 5 being the most adequate. The median score for farmers that had met their sales objectives was 4, and the median score for farmers that had not met their sales objectives was 3. The results of a Mann Whitney U test were significant at the 5% level, with a *Z* test statistic of -2.124 and a *p* value of 0.034.

Long range building and equipment needs were found to be a significant factor in small farms' abilities to meet their sales objectives. Survey respondents reported their long term asset sufficiency on a scale of 1 to 5, with 1 representing capital deficiencies and 5 representing capital sufficiency. The median score for the group that did not meet its sales objectives was 3, and the median score for the group that did meet its sales objectives was 4. The results of a Mann Whitney U test were significant at a 5% level, with a *Z* test statistic of -3.816 and a *p* score (rounded to three decimal places) of 0.000.

Individuals who met their sales objectives were more likely to have written business plans. It was expected that this pairwise comparison would return statistically significant results, since the results in RQ1 were significant; however, it was also

expected that the results would be different after the groups were redefined by farmers' abilities to meet their sales objectives. The *Z* test statistic for this comparison was -2.566 and the *p* score was 0.010. These results, while slightly more significant than those obtained by analyzing RQ1, are essentially the same and were significant at a 5% level.

Survey respondents' receptiveness to writing (another) business plan was found to be linked with small farmers' abilities to meet their sales objectives. This correlation was expected since those who wrote business plans likely realized that they had value, given those farmers were more likely to meet their sales objectives. 62.6 percent of farmers who had met their sales objectives said they would consider writing (another) business plan, while 41.2% of those that did not meet their sales objectives said they would consider writing (another) business plan. The results were significant at the 5% level. A Mann Whitney U test returned a *Z* test statistic of -2.118 and a *p* score of 0.034.

The material characteristics that were found to be statistically significant fell into three categories: experience, capital, and planning. In addition to the implications highlighted at the beginning of this chapter (which were broadly categorized as economic, environmental, and food security) each category was associated with its own unique set of implications. Experience included a) the number of years' experience in farming and b) the age of the farmer. Capital included c) the farmer's ability to access financing, d) the size of the farm compared to long term needs of the farm, and e) long range building and equipment needs. Planning included f) whether the farmer had written a business plan, g) the opinion that writing business plans is useful, and h) the opinion that a (subsequent) business plan should be written in the future.

An implication of the experience category was that small farmers are less likely to achieve success if their decision-making process is not guided by experience. This conclusion is logical. Millions of small farms in the United States disappeared over the last century due to the sector's poor economic climate. Because the margin for error in small farming is low, small strategic missteps can be costly. This means that it may be very difficult for small farmers to stay in business without having an experienced farmer contributing insight to farms' executive teams.

An implication of the capital category was that undercapitalized farmers will struggle to meet their sales objectives. Conversely, small farmers who have access to financing, room for expansion, and proper buildings and equipment are more likely to succeed. It is therefore crucial for farmers to have access to financing, since adequate financing is what allows them to make the land, building, and equipment acquisitions that are necessary for survival.

The planning category was related to experience and capital. Planning was related to experience because the latter category indicated that the margin for error in the small farming sector is low. Planning, as a practice, tends to reduce the margin for error. Planning is related to capital because investors and creditors are more likely to finance business entities after reviewing a business plan (State of Maine, 2010, title 7, ch. 10:B, sec. 317). The implication of this category was that small farmers who do not engage in long term planning, such as that associated with writing a business plan, are less likely to meet their sales objectives.

The 14 material characteristics that were not found to be statistically significant at the 5% level were a) whether participant's were currently farming, b) whether the farms

were organic, c) whether farmers have internet access, d) if farmers use internet for business purposes, e) whether farmers have the ability to access relevant information online, f) the use of innovative software or technology, g) the level of off-farm employment by the farmer or the farmer's spouse, h) education level, i) farms' generation number, j) the use of farm credit or farm service for financing, k) whether farms lease machinery or equipment, l) whether farmers had purchased crop insurance, m) gross sales, and n) the number of acres. The purpose of the qualitative portion of this study was to better understand how farmers perceived the business planning process, what motivates them to write business plans, and to identify areas for future research. In this portion of the study, survey respondents were asked questions about how they derive sales objectives. Respondents who had written business plans gave significantly more detailed responses than did those that did not write business plans. An implication of these data was that small farmers who write business plans are far more thorough in their planning processes, which reduces their margin for error and increases their chances of success.

Farmers were asked how they derive value from business plans. Respondents who had written business plans generally felt that writing them was worthwhile, while those that did not generally saw less value in them. This indicated that small farmers make the decision not to write business plans because they choose not to; the decision not to write business plans negates the possibility that farmers choose not to write business plans because they are unable to do so.

Small farmers were asked about the software and technologies they rely on and who they share their data with. As the results showed in the previous chapter, farmers

who wrote business plans were more likely to use software to record financial and production-related data. They were also more likely to share data with team members and important contributors, such as CPAs, managers, bankers, crop consultants, etc. These results indicated that long term planners find more value in using technology for team member integration than do farmers that do not write business plans. The three material characteristics related to business plans (f, g, and h) were consistent with resource-based theory because farmers who allocated time for the efficient planning of resource allocation realized their desired results more frequently. The remaining 19 material characteristics were tested to investigate possible areas for future research.

Limitations of the Study

Limitations that applied to all questions included the risk that the quality of the data was poor and the risk that the response rate was low. Ultimately, the response rate was quite high. Additional limitations included the risk that too few FFF participants would respond to a survey request to produce an adequately-sized sample for robust results and that fewer than 71 Non-FFF respondents would have written a business plan. Neither limitation was ultimately a factor. Another limitation was the possibility that differences between the FFF and Non-FFF groups existed in addition to the former group's propensity to write business plans. This limitation was more relevant for the first quantitatively analyzed research question and less relevant for the remaining 22 pairwise comparisons of material characteristics because only the first question involved splitting groups according to FFF enrollment. For the remaining quantitative comparisons, groups were split according to whether survey respondents met their sales objectives, which was not dependent on FFF enrollment. Another limitation included the possibility of bias

toward writing business plans for those whom had done so. A final limitation was that farmers who write business plans were more likely to set sales objectives that were realistic as a result of the planning process they go through. Additional questions and specific limitations are addressed in greater detail as individual research questions are discussed later in this chapter.

I was compliant with all professional ethical and federal standards. Data were collected after receiving approval from Walden University's IRB. All participants were assured confidentiality, which was maintained throughout the data collection and post collection processes. Potential ethical issues that could have arisen during the conduction of this study were mitigated by the study's design, which ensured that no known physiological, psychological, safety, or stress-related issues would be encountered. No remuneration was awarded in exchange for participating in this study, and all individuals asked to participate were notified of this policy in advance. Rights of participants, including protection from harm, informed consent, the right to privacy, and honesty with professional colleagues were not breached at any time. Individuals belonging to populations that are generally considered vulnerable were not contacted for surveys. Every participant that was involved in this study consented by signing an informed consent form, and a system for maintaining privacy was approved by the research institution's IRB and upheld by myself.

Recommendations

There are strong arguments–particularly economic, environmental, and food security arguments–for increasing the number of small farms. There is evidence that the economic climate for small farms in the United States is poor and unlikely to change in

the near future. It is therefore necessary for small farmers to learn how to operate as efficiently as possible to ensure the long term growth of the sector. Based on the results of this research, a series of recommendations can be made for improving the viability of small farming models. Topics for future research are also discussed in this section.

The most important recommendation that can be made based on the findings of this research is for small farmers to write business plans. There was quantitative evidence that the existence of a business plan and farmers' abilities to meet their sales objectives are correlated. Qualitative analyses indicated that there may be a cause-and-effect relationship, since farmers who write business plans offered detailed explanations for how they derive value from them. Those explanations suggested that farmers who write business plans use them as a central component in long-term planning and information sharing. It is likely, therefore, that using business plans to guide decision-making on small farms can help to reduce the margin of error and operate with greater efficiency. Furthermore, business plans are an important component in any business's ability to access financing, which was found to be positively correlated to farmers' abilities to meet their sales objectives. This finding reinforces the recommendation that farmers should write business plans because doing so will improve their chances of attracting capital. Programs, such as Maine FFF, seem to be succeeding at helping farmers to write business plans and attract financing. One reason for why farmers do not write business plans is that some do not find value in writing them, but the results of this study clearly contrast that assertion. Governments interested in increasing the number of small farms should maximize the assistance they offer to farmers that want to write effective business plans.

A second recommendation is for the establishment of state-sponsored information mediums where small farmers can easily gain access to expert advice. Age and experience were both found to be positively correlated to small farmers' abilities to meet their sales objectives; however, these assets are not readily accessible to new farmers. Virtually all farmers had access to the Internet and many reported utilizing the Internet for business purposes. Notwithstanding, most survey respondents reported using the Internet for researching customers, crops, and new ideas, but no one reported using the Internet specifically for decision-making purposes. Farming is a complex practice that forces decision-makers to account for unsystematic risks such as weather, pests, commodity prices, availability of water for irrigation, etc. By establishing information mediums where farmers can gain access to expert advice from experienced farmers, governments may be able to improve the chances that small farms will survive.

I did not attempt to evaluate whether the quality, format, or original author of a business plan affects farmers' abilities to meet their sales objectives, and this is one area where more research should be done. While differences in material characteristics between farmers who met their sales objectives and farmers who did not were sought, attempts to identify key characteristics that can be implemented at will to improve farms' survival rates were unsuccessful. Identifying characteristics that can be adjusted at will to improve success rates is a second area for future research.

Implications

The purpose of this section is to draw logical conclusions based on the results of the quantitative and qualitative analyses as they pertain to the significance for individuals/families, organizations, and society as a whole. This was done by first

discussing the global impact of small farms and evaluating the potential impact that each implication has for positive social change. They key implications that were able to be drawn from this study are listed below.

One implication of this study was the ability to potentially impact social change at the individual/family level in that it may help small farmers become more competitive in spite of unfavorable economic policy. This would be achieved by identifying factors that contribute to the success of small farms that are currently succeeding despite unfavorable economic conditions. The continued success of small farming operations is immensely important in the United States and around the world (Cassudo, 2012; Fitzgerald, 2010; Hoppe, 2010; Ringler, 2011). Small farming operations has been a major source of economic activity in the United States for over 100 years, and small farmers continue to be an important yet diminished component of the economy (USDA, 2007). However, industrial farming has led to millions of small farms over the past century to close, which has caused a massive reduction in the size of the small farming sector (Fitzgerald, 2010). The impact of industrial farming has weakened rural communities nationwide, prompting continued attempts by Congress to adopt more favorable policy toward small-scale farming (Clinton, 1999). Unfortunately, these attempts have had little impact on the economic climate for small farms (Hoppe, 2010).

An implication of this study at the societal level was its potential to positively impact and improve the environmental health of farmland and areas affected by the pollution caused by industrial farming, or at least slow the high degree of environmental degradation caused by industrial farms (Cassudo, 2012). Industrial farming, which includes factory farms, is a leading cause of pollution and greenhouse gas emissions

(Cassudo, 2012; Czarnezki, 2011). Industrial farms use considerably more pesticides than small farms do and are a major cause of agricultural pollution (Haines, 2010). Consolidated animal feeding operations (industrial farming with animals), contribute to high levels of deforestation, air pollution, and water pollution (Cassuto 2012). Additionally, a necessary byproduct of consolidated production is increased transportation from farms to consumers. Centralized production, therefore, increases the volume of fossil fuels needed to distribute food (Cassuto, 2012). Czarnezki (2011) estimated that 25% of all carbon emissions can be attributed to the production and distribution of food. The strengthening of local farming operations could potentially reduce these emissions created through the process consolidated production and therefore potentially impact social change at the organizational level.

A final implication of this study at the organizational and family level was its ability to potentially impact and reduce food security risks by causing these to be partially mitigated if small farming operations can improve their sustainability rates. In addition to causing economic and environmental problems, industrial farming is worsening the problem of food security (Cassuto 2012; Greger 2010; Mundt 2011). Livestock forced to live in CAFOs may be exposed to diseases–including those intentionally introduced by terrorists–that can be rapidly communicated to each other and to large numbers of humans (Greger, 2007). The lack of biodiversity, which is a necessary byproduct of large, commercial farms, increases the risk that disease will decimate large percentages of the food supply (Mundt, 2011). Monocropping also increases exposure to pests and depletes nutrients in the soil (Cassudo, 2012). Climate change is another threat to food security. It has been estimated that the amount of arable land will decrease by 2% by 2050 (Ringler,

2011) and that rainfall and growing seasons are likely to change where food can be grown (Mundt, 2011; Nelson, 2010). The general consensus among scholars and food security advocates (as well as environmental activists) is that in order to solve the problems created by industrial farms, they must be displaced by smaller, more sustainable counterparts as quickly as possible to minimize the risk of future food crises (Czarnezki, 2011).

Conclusions

In conclusion, it is essential that the number of small farming operations increases. This increase must occur with the expectation that economic conditions for small farms will likely not improve. Farmers who write business plans were found to be more capable of meeting their sales objectives. Furthermore, small farmers who have met their sales objectives were more likely to have found value in business plans than those who did not, and those who had established business plans were offered more detail and were more advanced in how they approached the business planning process as well as the process of establishing sales objectives. The results of this study suggest that small farming operations may improve their chances at success if they engage in creating a business plan. The recommendations based on the results of this study are to increase the number of farmers that are willing to engage in business planning, as well as for local, state, and federal governments to provide programs to offer guidance throughout the business planning process, and for governments to establish information mediums where farmers can access the decision-making skills of experienced farmers. Areas for future research include studying whether various types of business plans are more effective than

others, along with whether there are material characteristics that farmers are able to utilize in order to improve their chances of success.

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Appendix A: Letter of Invitation for FFF Farmers

Walden University
Letter of Invitation to Participate in Research
The Value of Business Planning in Agriculture: A Survey

Dear Fellow Farmer,

As part of my work toward a doctoral degree at Walden University, I am conducting a study that examines the relationship between business planning and meeting sales objectives within the New England farming community. As a recipient of Farms for the Future funding you have been invited for this survey. The results may be published as a doctoral dissertation and/or in academic journals and may be of value to New England agricultural policy makers, farmer supportive service providers and educators, and New England farmers themselves.

I would greatly appreciate your input to help further our knowledge in this area. The phone survey should take approximately 15 minutes to complete.

Your confidentiality will be preserved throughout the study. Information will be used in the aggregate without identifying you or your farming operation. Survey results will be made available online at […] once the project has been completed.

The Institutional Review Board at Walden University has approved this survey. On the reverse side of this letter is the Informed Consent statement describing the nature of the survey.

If you are interested in participating, please return a signed consent form via the pre-paid envelope. You will then be contacted via phone to administer the survey. If you have any questions, concerns, or comments about this study, please contact me by phone at XXXXXXX or by email at XXXXXXXX
Sincerely,

Kenny W Roberts
PhD Candidate
School of Management, Walden University
XXXXXXXXX

Appendix B: Survey

A Survey on the Value of Business Planning for New England Farmers
Walden University, School of Management

The purpose of this study is to gain an understanding of the relationship between business planning and agricultural survivability within the New England farming community. Estimated survey completion time is 15 minutes**.** All data will be held in strict confidence and used only in aggregated form, without identifying you. The results may be published as a doctoral dissertation and/or in academic journals. Your response represents your agreement to participate in this study. Please answer the following questions in full and Thank you in advanced for your participation.

1. Are you currently farming?
   - Yes
   - No

2. How many years have you been farming?

   - 2 years or less
   - 3-5 years
   - 6-9 years
   - 10 years or more

3. What is your age?

   - 18-29
   - 30-39
   - 40-49
   - 50-59
   - 60-69
   - 70+

4. Is your farm organic?
   - Yes
   - No

5. Do you have internet access?

   - Yes
   - No

6. Do you use the internet for business purposes?

- Yes
- No

7. On a scale of 1 to 5, with five being the highest, how would you rate your ability to access information on the internet?

Low				High
1	2	3	4	5

8. Do you use any innovative software or technology for your business?

- Yes
- No

9. If so what new software or technology are you using?

10. Are you or your spouse employed off the farm?

- Yes
- No

11. What is your highest level of education?

- Didn't graduate high school
- High school
- 2 year college degree
- 4 year college degree
- Master
- Doctorate

12. How many generations has your farm been in your family, including your generation.

- 1
- 2
- 3
- 4
- 5
- More than 5

13. Have you ever used the Farm Credit System or Farm Service Agency to assist in financing?

- Yes
- No

14. Have you ever leased machinery or equipment?
- Yes
- No

15. Have you ever purchased crop insurance?
- Yes
- No

16. What are the gross sales on your farm?
- Less than $100,000
- Between $100,000 and 249,999
- More than $200,000

17. Have you met and/or exceeded the sales objectives and objectives that were stated in your business plan?
- Yes
- No

18. If not, what do you believe was/were the reason(s) for not meeting sales objectives? (Please explain).

19. Do you think that writing a business plan is useful to the long term sustainability of your farm?

- Yes
- No
- Don't know

20. Why or why not?

21. On a scale of 1 to 5, with five being the highest, how would you rate your ability to access financing for your farm?

Low				High
1	2	3	4	5

22. On a scale of 1 to 5, with five being most adequate, how would you rate the size of your farm in terms of meeting your long range needs?

Low				High
1	2	3	4	5

23. How many acres are you farming?

- 1-20
- 21-50
- 51-100
- 101-200
- 201-400
- 400 +

24. On a scale of 1 to 5, with five being most adequate, how would you rate your farm's long range building and equipment needs?

Low				High
1	2	3	4	5

25. Would you write another business plan?

- Yes
- No
- Don't know

Appendix C: Survey

A Survey on the Value of Business Planning for New England Farmers
Walden University, School of Management

The purpose of this study is to gain an understanding of the relationship between business planning and agricultural survivability within the New England farming community. Estimated survey completion time is 15 minutes**.** All data will be held in strict confidence and used only in aggregated form, without identifying you. The results may be published as a doctoral dissertation and/or in academic journals. Your response represents your agreement to participate in this study. Please answer the following questions in full and Thank you in advanced for your participation.

1. Are you currently farming?
   - Yes
   - No

2. Have you written a formal business plan for your farm?
   - Yes
   - No

3. Do you have a system for projecting your future sales?
   - Yes
   - No

4. Have you met and/or exceeded the sales objectives and objectives that were stated in your business plan?
   - Yes
   - No

5. If not, what do you believe was/were the reason(s) for not meeting sales objectives? (Please explain).

6. How many years have you been farming?
   - 2 years or less
   - 3-5 years
   - 6-9 years
   - 10 years or more

7. What is your age?
   - 18-29
   - 30-39
   - 40-49

- 50-59
- 60-69
- 70+

8. Is your farm organic?
   - Yes
   - No

9. Do you have internet access?

   - Yes
   - No

10. Do you use the internet for business purposes?
    - Yes
    - No

11. On a scale of 1 to 5, with five being the highest, how would you rate your ability to access information on the internet?

Low				High
1	2	3	4	5

12. Do you use any innovative software or technology for your business?
    - Yes
    - No

13. If so what new software or technology are you using?

14. Are you or your spouse employed off the farm?
    - Yes
    - No

15. What is your highest level of education?
    - Didn't graduate high school
    - High school
    - 2 year college degree
    - 4 year college degree
    - Master
    - Doctorate

16. How many generations has your farm been in your family, including your generation.

- 1
- 2
- 3
- 4
- 5
- More than 5

17. Have you ever used the Farm Credit System or Farm Service Agency to assist in financing?

- Yes
- No

18. Have you ever leased machinery or equipment?

- Yes
- No

19. Have you ever purchased crop insurance?

- Yes
- No

20. What are the gross sales on your farm?

- Less than $100,000
- Between $100,000 and $249,999
- More than $200,000

21. Have you met and/or exceeded the sales objectives and objectives that were stated in your business plan?

- Yes
- No

22. If not, what do you believe was/were the reason(s) for not meeting sales objectives? (Please explain).

23. Do you think that writing a business plan is useful to the long term sustainability of your farm?

- Yes
- No
- Don't know

24. Why or why not?

25. On a scale of 1 to 5, with five being the highest, how would you rate your ability to access financing for your farm?

Low				High
1	2	3	4	5

26. On a scale of 1 to 5, with five being most adequate, how would you rate the size of your farm in terms of meeting your long range needs?

Low				High
1	2	3	4	5

27. How many acres are you farming?

- 1-20
- 21-50
- 51-100
- 101-200
- 201-400
- 400 +

28. On a scale of 1 to 5, with five being most adequate, how would you rate your farm's long range building and equipment needs?

Low				High
1	2	3	4	5

29. Would you consider writing a business plan for your farm in the future?

- Yes
- No
- Don't know

Appendix D: Letter of Invitation for General Farmers

Walden University
Letter of Invitation to Participate in Research
The Value of Business Planning in Agriculture: A Survey

Dear Fellow Farmer,

As part of my work toward a doctoral degree at Walden University, I am conducting a study that examines the relationship between business planning and meeting sales objectives within the New England farming community. As a farmer within the New England region, you have been invited for this survey. The results may be published as a doctoral dissertation and/or in academic journals and may be of value to New England agricultural policy makers, farmer supportive service providers and educators, and New England farmers themselves.

I would greatly appreciate your input to help further our knowledge in this area. The phone survey should take approximately 15 minutes to complete.

Your confidentiality will be preserved throughout the study. Information will be used in the aggregate without identifying you or your farming operation. Survey results will be made available online at […] once the project has been completed.

The Institutional Review Board at Walden University has approved this survey. On the reverse side of this letter is the Informed Consent statement describing the nature of the survey.

If you are interested in participating, please return a signed consent form via the pre-paid envelope. You will then be contacted via phone to administer the survey. If you have any questions, concerns, or comments about this study, please contact me by phone at XXXXXXX or by email at XXXXXXX.
Sincerely,

Kenny W Roberts
PhD Candidate
School of Management, Walden University
XXXXXXX