Assessing Ohio Farmers: Determining Factors That Affect Their Quality Of Life

Thesis

Presented in Partial Fulfillment of the Requirements for the Degree Master of Science in the Graduate School of The Ohio State University

By

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Abstract

The purpose of this study was to describe and explore factors which may influence the quality of life of farmers enrolled and not enrolled in the Ohio AgrAbility program (OAP) and to examine the differences between these two groups. The Ohio AgrAbility program promotes independence for farmers who want to continue farming after experiencing a disabiling condition.

The descriptive-exploration design of this study was based on survey research. A 34-item questionnaire was developed and utilized. Two constructs were analyzed based on social-demographic questions: external-environmental factors and work-health-leisure factors. Two groups of farmers were studied: those enrolled and not enrolled in the Ohio AgrAbility Program. There was a potential population of 55 farmers in OAP. Non-enrolled respondents comprised a convenience sample of farmers who participated in agricultural annual meetings, conferences, and extension programs. A total of 433 farmers completed the Quality of Life survey.

The findings of this study can be summarized as follows:

1) The sample of farmers with disabilities reported more stress, had a negative outlook on life, and were not satisfied with their quality of life.

2) Farmers not in OAP reported less stress per week, had a positive outlook on life and they more satisfaction with their quality of life.
3) Ohio farmers identified negative factors affecting their quality of life to be financial pressures, agricultural costs, market prices, and state regulations.

4) Significant associations were found between Ohio farmers’ quality of life and their gender, net cash income, outlook on life, health issues, and stress.

Federal, state, and local agencies with rural and farm populations and extension professionals can utilize these findings to better understand farmers’ perceptions, feelings, life outlook and other aspects affecting their quality of life. Having this background will enable agencies and educators to develop educational programs and organize appropriate training materials to meet farmers’ needs. Overall, all farmers showed a need for programs related to stress management, getting enough sleep, and balancing farm work with family life during their busy season. With this information, stakeholders can help farm families have a more positive outlook on life and ultimately increase their overall quality of life.
Dedication

This work is dedicated to my husband David and daughter Evelina
For their support, patience and encouragement
To my dearest mom for her unconditional love
To my loving sister Elieonora for being my best friend.
Acknowledgments

With my deep appreciation I would like to thank everyone who has helped me and assisted me through my Graduate School journey. Special thanks go to my advisor Dr. Dee Jepsen, for giving me enormous guidance, for providing encouragement, and challenging my biases. You showed me what can be achieved with hard work and dedication. Thank you for making it comfortable to work with you.

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With all my heart I would like to express my gratitude to my dear friends Dr. Allan Lines and his wife Betsy, Dr. Tatiana Suspitsyna and Dr. Dmitriy Suspitsyn. Thank you for supporting me throughout my journey, both professionally and personally.
Vita

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Fields of Study

Major Field: Agricultural and Extension Education
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CHAPTER 1: INTRODUCTION

Background and settings

The term “quality of life” is increasingly used in modern society. Quality of life is a multi-disciplinary construct in that it spans multiple objective and subjective dimensions of a person’s daily life. The majority of research on this topic was initiated in the period between 1960-1970, with limited studies on rural or farm populations.

There are two global approaches to the study of quality of life: American and Scandinavian. The American quality of life approach tends to focus on subjective quality of life or well-being of individuals (Campbell, Converse, & Rodger, 1976). Coughenour and Swanson (1988) described subjective well-being as individuals’ perceptions of their life and work. Scandinavian studies focus on objective living conditions of individuals or societal quality of life (Noll, 2002). Dillman and Trembley (1977) identified objective indicators of individuals’ quality of life such as: economic well-being, education, health care, housing, crime, and recreation activities.

Farming is not only an occupation it is a lifestyle. Farm work and farm life are an integrated experience. Barlett and Brown (1985) stated that agricultural development is associated with “progress”. These researchers examined concepts of agricultural development and quality of life through cultural evolution and found that the material measures of quality of life, people’s attitudes, and values can change. Maslowian’s
concept of 1968 described influences on individuals’ economic progress had potential to shape their concrete goals, needs, and overall satisfaction with life.

The following studies focused on similar factors of well-being, and were useful in providing a basis for this study. Molnar (1985) studied determinants of subjective well-being among farm operators and emphasized that quality of life is a global construct based on individual’s expectation and life experience. Molnar also indicated that quality of life implies a sense of well-being or contentment in an individual’s daily life. Dilman and Trembley (1977) reported that rural people’s subjective assessments are strikingly consistent with the objective conditions of their environment. Conghenour & Swanson (1988) emphasized needs to identify factors that have negative effect of farming and to assess the relationship between rewards to satisfaction and farming. Conghenour and Swanson also concluded that satisfaction with farm work influences satisfaction with farm life.

Significance of Agriculture to Ohio

Agriculture is significant for Ohio in that more than 73,000 farms generate general gross sales of more than 7 billion dollars (with crop production at $4.1 billion and livestock and poultry products at almost $3 billion) (USDA, National Agricultural Statistics Service, 2012). Ohio farmers produce a wide range of commodities that have economic impact to the state. A farm is defined as a place with annual sales of agricultural commodities of
$1,000 or more. The market value of agricultural products sold in Ohio is illustrated in Table 1.1. Ranked first among all agricultural products sales are grains, oilseeds, dry beans, and dry peas (47.5%), second is poultry and eggs (12.5%), third is milk and other products from cows (12.2), fourth is hogs and pigs (8.1%), and fifth is cattle and calves (8.0%).
<table>
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<th>Percent of Total Sales, %</th>
<th>Farms, No.</th>
<th>Sales ($1,000)</th>
<th>Rank by Sales</th>
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<td>Total sales</td>
<td>100</td>
<td>75,861</td>
<td>7,070212</td>
<td></td>
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<tr>
<td>Grains, oil seeds, dry beans, and dry peas</td>
<td>45.5</td>
<td>30,658</td>
<td>3,361,48</td>
<td>1</td>
</tr>
<tr>
<td>Poultry and eggs</td>
<td>12.5</td>
<td>5,539</td>
<td>883,301</td>
<td>2</td>
</tr>
<tr>
<td>Milk and other dairy products from caws</td>
<td>12.2</td>
<td>3,681</td>
<td>861,632</td>
<td>3</td>
</tr>
<tr>
<td>Hogs and pigs</td>
<td>8.1</td>
<td>4,505</td>
<td>571,685</td>
<td>4</td>
</tr>
<tr>
<td>Cattle and calves</td>
<td>8.0</td>
<td>21,438</td>
<td>565,746</td>
<td>5</td>
</tr>
<tr>
<td>Nursery, greenhouse, floriculture, and sod</td>
<td>6.3</td>
<td>2,104</td>
<td>444,855</td>
<td>6</td>
</tr>
<tr>
<td>Vegetables, melon, potatoes, and sweet potatoes</td>
<td>1.9</td>
<td>2,902</td>
<td>135,355</td>
<td>7</td>
</tr>
<tr>
<td>Other crops and hay</td>
<td>1.5</td>
<td>16,062</td>
<td>105,160</td>
<td>8</td>
</tr>
<tr>
<td>Fruits, tree nuts, and berries</td>
<td>0.6</td>
<td>1,865</td>
<td>45,419</td>
<td>9</td>
</tr>
<tr>
<td>Other animals and animal products</td>
<td>0.4</td>
<td>2,576</td>
<td>3,088</td>
<td>10</td>
</tr>
<tr>
<td>Horses, ponies, mules, burros, and donkeys</td>
<td>0.4</td>
<td>3,404</td>
<td>26,271</td>
<td>11</td>
</tr>
<tr>
<td>Sheep, goats and their products</td>
<td>0.2</td>
<td>4,907</td>
<td>14,186</td>
<td>12</td>
</tr>
<tr>
<td>Tobacco</td>
<td>0.1</td>
<td>475</td>
<td>10,229</td>
<td>13</td>
</tr>
<tr>
<td>Cut Christmas trees and short rotation woody crop</td>
<td>0.1</td>
<td>594</td>
<td>7,285</td>
<td>14</td>
</tr>
<tr>
<td>Aquaculture</td>
<td>0.1</td>
<td>140</td>
<td>6,582</td>
<td>15</td>
</tr>
</tbody>
</table>

Table 1.1. Market Value of Agricultural Products Sold in Ohio Ranked by Overall Sales 2007.

*Note.* Data adapted from 2007 Census of Agriculture

According to the 2007 Census of Agriculture State Profile, 58% of all farms in Ohio were considered small farms; total sales of agricultural products on these farms
were less than $10,000. The average production expenses per farm in Ohio was $71,973 with the average net cash farm income reported at $27,423. The value of crops including nurseries and greenhouses constituted more than 58% of a farm’s value, while the value of livestock, poultry and their products were 42%. The number of Ohio farms by market value of sales is shown in Figure 1.1.
The Ohio Department of Agriculture Annual Report and Statistics (2012) reports the total farmland in the state is 13.6 million acres. This figure represents nearly 15% of all farmland in the U.S. The average farm size in Ohio is 185 acres.

Ohio’s agriculture is important business to the economic well-being of Ohio and is a significant contributor to the U.S. food supply. Ohio farmers annually produce a diverse number of agricultural products. The profile of Ohio’s top 10 agricultural products for 2012 is displayed in Table 1.2. Ohio ranks first in the nation for Swiss
cheese production; Ohio holds second rank in chicken layer inventory, egg production, and number of calves taken to slaughter. Production of tomatoes, maple syrup, potatoes and cucumbers places Ohio in the top five ranked states.
<table>
<thead>
<tr>
<th>Commodity</th>
<th>Unit</th>
<th>US Rank</th>
<th>Ohio Production or Inventory (Thousand)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swiss Cheese</td>
<td>Lb.</td>
<td>1</td>
<td>137,678</td>
</tr>
<tr>
<td>Chicken Layers Inventory 12/1/11</td>
<td>Head</td>
<td>2</td>
<td>28,481</td>
</tr>
<tr>
<td>Egg Production 12/10-11/11 (million)</td>
<td>No.</td>
<td>2</td>
<td>7,685</td>
</tr>
<tr>
<td>Calves Slaughtered</td>
<td>Head</td>
<td>2</td>
<td>125.7</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>Ton</td>
<td>3</td>
<td>156.6</td>
</tr>
<tr>
<td>Maple Syrup</td>
<td>Gal.</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>All Potatoes</td>
<td>Cwt</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Cucumbers</td>
<td>Ton</td>
<td>5</td>
<td>31.3</td>
</tr>
<tr>
<td>Sweet Corn</td>
<td>Cwt</td>
<td>6</td>
<td>1,586</td>
</tr>
<tr>
<td>Soybeans</td>
<td>Bu</td>
<td>6</td>
<td>206,100</td>
</tr>
<tr>
<td>Corn for Grain</td>
<td>Bu</td>
<td>7</td>
<td>448,950</td>
</tr>
<tr>
<td>Total Processing Vegetables</td>
<td>Ton</td>
<td>7</td>
<td>187.9</td>
</tr>
<tr>
<td>Tobacco</td>
<td>Lb</td>
<td>8</td>
<td>3,990</td>
</tr>
<tr>
<td>All Grapes</td>
<td>Ton</td>
<td>9</td>
<td>5.3</td>
</tr>
<tr>
<td>Oats</td>
<td>Bu</td>
<td>9</td>
<td>2,576</td>
</tr>
<tr>
<td>Chicken Sold</td>
<td>Lb.</td>
<td>9</td>
<td>36,386</td>
</tr>
<tr>
<td>Processed Grapes</td>
<td>Ton</td>
<td>10</td>
<td>5.2</td>
</tr>
<tr>
<td>Strawberries</td>
<td>Cwt</td>
<td>10</td>
<td>28.0</td>
</tr>
<tr>
<td>Milk Cow Inventory 1/1/13</td>
<td>Head</td>
<td>10</td>
<td>270</td>
</tr>
<tr>
<td>Milk Production (Million)</td>
<td>Lb.</td>
<td>10</td>
<td>5,355</td>
</tr>
<tr>
<td>All Cheese Excluding Cottage Cheese</td>
<td>Lb.</td>
<td>10</td>
<td>198,904</td>
</tr>
</tbody>
</table>

Table 1.2. Profile of Top 10 Ohio Agricultural Products.


According to the 2007 Census of Agriculture State Profile 42% of principle operators identified farming as a primary occupation and 88% of these operators are
male. Another 58% principal operators work off the farm more than 200 days a year. The average age of an Ohio farmer is 56 years old.

**Safety and Health Outlook for Ohio’s Farmers**

Agriculture ranks as one of the most dangerous industries. Each year farmers and agricultural workers in Ohio experience injuries that limit their ability to perform farm work. The fatal occupational injury rate in the agricultural industry is 24.4 fatalities per 100,000 workers as compared with the rate of 3.5 in other Ohio industries (Bureau Labor Statistics U.S. Department of Labor, 2012). Some farmers acquire disabilities in off-the-farm incidents or through illness and other health-related problems.

Senior farmers, over the age of 65, are increasing in population. This demographic is not typically working in other occupations at the same frequency as agricultural employment. Age-related problems affect the health of older farm workers. Senior farmers often experience restrictions such as decreased vision or loss of strength.

The National AgrAbility Program (NAP) was established in the 1990 U.S. Farm Bill, with a purpose to facilitate a high quality lifestyle for farmers, ranchers, and agricultural workers experiencing short- and long-term disabilities. The NAP addresses many health conditions, such as spinal cord injuries, amputations, back impairments, and behavioral health issues. Other areas of focus include chronic illness and age-related ailments like arthritis.
Ohio is one of the currently funded AgrAbility projects in the United States. The purpose of the Ohio AgrAbility Project (OAP) is to help increase the likelihood for farmers, ranchers, farm workers, and farm family members who are limited by any type of disability or chronic health condition become more successful. OAP helps farmers with disabilities to continue farming by maintaining their agrarian lifestyle and occupation through collaboration with extension educators, rural health nurses, occupational and physical therapy professionals, assisted technology educators, vocational service providers, and independent living centers.

Recognized that farming is a dangerous occupation, it is also understood that farming requires physical strength to complete many of the daily tasks. Physical or mental impairments have potential to adversely affect a farmer’s life and employment status. According to Katherine G. Schomer (2001) even the slightest disability can affect an individual’s working status. The AgrAbility program helps keep farmers working in their livelihood. While not every farmer in the state with a disability is enrolled in OAP, the program is an available resource for every farmer in the state.

**Problem Statement**

It is not well understood which factors affect farmers’ quality of life. Having a better understanding of such variables, and their influence on farmers’ outlook of life,
will provide additional research to this domain, particularly with regards to Ohio agriculturalists.

Dilman and Trembley (1977) attempted to measure quality of life in rural America using three scales: economic well-being, objective indicators, and subjective evaluation. Bogue and Phelan (2005) stated farms are complex. Farm families measure quality of life on many levels making interpretation a serious challenge for researchers. Because of the farmers’ subjective and ever changing life, work conditions and current life experience, quality of life studies are typically exploratory.

Understanding the factors that affect a farmer’s quality of life is important to many rural organizations and stakeholder groups. Providing reliable and valid quality of life indicators is a solid approach for policy makers who plan fact-based course of actions (Young, 2008). Rural communities with federal, state, and local associations may also benefit from this knowledge to implement outreach and assistance programs. Collectively this information has potential to increase support services to rural farm populations with specific targets based on farmers’ needs.

**Purpose of the Study**

This study was designed to explore factors which affect Ohio farmers’ quality of life and examine the differences between the subjective and self-rated quality of life of farmers who were enrolled, as well as non-enrolled, in the Ohio AgrAbility Program.
**Research Questions**

1. Describe the Ohio farmers who were enrolled and not enrolled in the Ohio AgrAbility program according to selected social-demographic characteristics, outlook on life, health status, and stress.

2. Describe external-environmental factors as related to quality of life for farmers enrolled and non-enrolled in the Ohio AgrAbility Program;

3. Describe health-work-leisure factors as related to quality of life for farmers enrolled and non-enrolled in the Ohio AgrAbility Program;

4. Explore any differences in overall quality of life for farmers enrolled and non-enrolled in the Ohio AgrAbility Program based on demographic characteristics and social factors.

**Definitions**

The following definitions were used in this study:

**Quality of life** - “an individual’s perception of their position in life in the context of the culture and value system in which they live and in relations to their goals, expectation, standards, and concerns” (WHOQOL-Group 1998: p.1).

**Objective quality of life** - “refers to variables or measures that can be simultaneously observed by a number of people and involve estimates of frequencies or quantities” (Bogue and Phelan, 2005, p. 81).
Subjective quality of life - “refers to variables or measures that are based on an individual’s evaluation of the impact of events on their physical, social, and/or emotional functioning, or alternatively their rating of importance and satisfaction with various life experiences” (Bogue and Phelan, 2005, p. 81).

Disability - “a condition (such as an illness or an injury) that damages or limits a person's physical or mental abilities” (Retrieved from http://www.merriam-webster.com/dictionary/disability).

Well-being - “Well-being is a positive outcome that is meaningful for people and for many sectors of society. It signifies people perceive that their lives are going well” (Centers for Disease Control, 2013).

Agriculture - “the industry which involves the production of crops and livestock (farming) plus agricultural services, forestry (excluding logging), and fishing” (Murphy, 1992, p. 221).

Farm - “a location or place where raw agricultural products such as livestock or crops are produced; also called a production agricultural operation” (Murphy, 1992, p. 221).

Farmer - “is (also called an agriculturist) is a person engaged in agriculture, raising living organisms for food or raw materials. The term usually applies to people who do some combination of raising field crops, orchards, vineyards, poultry, or other livestock. A farmer might own the farmed land or might work as a laborer on land
owned by others, but in advanced economies, a farmer is usually a farm owner, while employees of the farm are known as farm workers, or farmhands” (Dyer, 2007, p.1-2).

Rural Area - “… is a geographic area that is located outside cities and towns” (World Net Web).

Stress - “…set of physical or mental reactions to anything that places demands upon a person which exceed his or her ability to cope” (Keating, Doherty, & Munro, 1988, p.64)

**Assumptions**

It was assumed in this study that:

1. The participants were Ohio farmers; they may or may not be enrolled in the Ohio AgrAbility Program.

2. The participants answered all questions honestly without pressure and obligation.

3. Different farmers have different life experiences based on their individual, social, and external-environmental factors.

**Limitation of Study**

Possible limitations within this study include:

1. These findings cannot be generalized to all Ohio farmers, because a convenient sample was utilized.
2. This study was not designed to provide longitudinal data.

3. The participants self-reported on their feelings and perceptions.

4. The results of Pearson Chi-square analysis conducted for the purposes of this research is to identify differences between quality of life and farmers’ social demographic characteristics for both group of farmers. It should be considered only as introductory level analysis of their inter-relationship.

**Conceptual Framework**

The conceptual framework was based on the literature review and was established to provide guidance for this research. The goal was to create a baseline measurement of Ohio farmers’ quality of life and thereby fill the gap left by previous research. The theoretical model of relationship between a farmer’s quality of life and subjective indicators is displayed in Figure 2.1. The top level of the figure indicates that a variety of subjective factors may affect farmer’s quality of life. The space between a farmer and their quality of life is pervaded by external-environmental and health-work-leisure subjective factors. Moreover, the number of factors that can affect a farmer’s life can be unlimited.

This study attempts to identify factors that are more prevalent than others, recognizing that additional factors may not have received scientific attention. However, future studies may be launched based on the findings presented here.
Figure 1.2: Conceptual Model of Relationship between Farmers’ External-Environmental Factors, Health-Work-Leisure Factors and Quality of Life for Ohio Farmers.
CHAPTER 2: LITERATURE REVIEW

Quality of life is a multidimensional concept and refers to the overall well being of an individual on a variety of subjective domains. While these domains have been identified and studied in several contexts, researchers often differ in their interpretation of the exact relationship between these constructs. Studies from McCoy and Filson (1996) and Schuessler and Fisher (1985) reasoned that quality of life is a broader category than well-being. They contend it integrates life satisfaction, happiness, socio-economical, and environmental factors. However research from Andrews and Withey (1976), Allardt (1981), and Molnar (1985) suggested no distinction between quality of life and well-being as reflected by a person’s feelings.

The World Health Organization (1997) defines quality of life as “individuals’ perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person’s physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to salient futures of their environment” (p.1).

Lawton (1991) portrayed quality of life as a complex collection of subjective and objective dimensions. Veenhoven (1999) suggested quality of life could be evaluated by comparing the chances, or opportunities, a person has for a good life and the actual
outcome of having a good life. Quality of life indicators provide the most comprehensive information for high-quality evaluation, assessment and decision-making. Zullig, Ward, and Horn (2006) defines the term “quality of life” as an overall sense of well-being including satisfaction and happiness aspects.

**Theoretical background**

Understanding the complexity of multi-level concepts involved in quality of life studies involves a number of analytical dimensions. The literature review helped to identify the basic models intertwined in quality of life research. These can be organized into four broad approaches.

1. *Satisfaction of Human Needs and Subjective Indicators Model*. This perspective was based on the Maslow’s (1968) theory of human need (involving physiological, safety, security, social and belonging, ego, status, and self-esteem factors) and individuals’ subjective satisfaction. The subjective indicators measured life satisfaction with regard to psychological well-being, individual fulfillment, self-worth and happiness. Researchers using this model include Lehman (1988); Andrews and Withey (1976); Campbell, Converse, & Rodger (1976); and Bigelow, McFarland, & Olson (1991).

2. *Health and Psychological Model*. Studies using this approach based quality of life factors according to a person’s social competence, self-efficacy, levels of dignity, and levels of cognition (Larson, 1978; Bowling, Gabriel, Dykes, Dowding, Evans,
Another study by McKeivitt, Redfern, La-Placa, and Wolfe (2003) measured health status, including depression and physical functioning as a basis for a person’s perceived quality of life. Physical functioning in this research was referred as scales of disability.

3. **Social–Environmental Model.** This model included indicators such as social support activities, social connection and networking as factors affecting a person’s quality of life. Researchers using this model included objective and subjective indicators that measured access to leisure facilities, cost of living, educational facilities, area of residency, climate, available transportation, and safety conditions as they impact quality of life perceptions (Putnam, 2000; Rogerson, Findley, Coombes, & Morris, 1989; Rogerson 1995; Grundy & Sloggett, 2003).

4. **Objective Model.** Researchers of this framework utilized impartial indicators at a community level to measure quality of life. The objective indicators included socio-economic levels of living, political and economic choices, level of freedom, cost of living, access to education and health providers, availability to consumer goods, types of housing, and access to public services (Sherman and Schiffman, 1991; Hart, Wearing, & Headey, 1994; Campbell et al., 1976; Gabrial and Bowling, 2004).
Framework of the quality of life measurement instrument

The concept of measuring and assessing quality of life was a popular research topic in the health and social science disciplines in the 20th century. Despite the surge for new knowledge in this domain, no unified measurement instrument was established and replicated with consistency across multiple population groups. Likewise, no congruent or accepted theory emerged for this grand construct. McCoy and Filson (1996) declared that quality of life measurements must depend on the standards set by the research team.

Many studies indicated that well-being should be assessed using subjective indicators (Campbell at.al., 1976; Strumpel, 1976). Atkinson and Zibin (1996) identified a lack of agreement for definitions and measurements in many of the quality of life studies. It was apparent that subjective indicators were based on an individuals’ evaluation of their emotional, social, and physical well-being, including their satisfaction with life experiences.

It is possible for individuals to judge their subjective social indicators. The International Society for Quality of Life Studies (ISQOLS) is an international and academic organization established to promote worldwide collaborative research on this topic. It is their intent to go beyond traditional studies and include subjective indicators of well-being.
A study from Raphael, D’Amico, Brown, Renwick, (1998). designed a quality of life approach based on the humanistic-existential tradition where the individuals have physical, psychological, and spiritual dimensions affected by their environments. They found quality of life as "The degree to which a person enjoys the important possibilities of his/her life" (p.38). The enjoyment of important possibilities is relevant to three major life domains: Being, Belonging and Becoming.

Following similar theories about impact from one’s environment, quality of life studies can also include how one acclimates with their environment. Ericson (1993) emphasized that the subjective indicators should be measured by individual’s present conditions of life and level of their adaptation. Diener (2000) included evaluation of one’s life as a premise for his collection of studies. His research developed four components of subjective well-being: 1) life satisfaction (desire to change life, satisfaction with current life, satisfaction with past, satisfaction with future); 2) satisfaction with important life domains (health, finance, self, leisure, family, work); 3) positive effects (happiness, ecstasy, contentment, affection); and 4) negative effects (sadness, anger, depression, envy, anxiety, guilt). Furthermore, his research emphasized that life satisfaction and happiness does not increase with increasing income (Diener, 2000).
Quality of life has also been measured using objective measures. A study by Dilman and Tremblay (1977) focused on objective indicators such as socio-economic well-being that included: education, health care, housing, crime, environmental quality, and recreational activity as they related to persons’ quality of life. A basic needs approach was developed by Allardt (1993) that holds a core concept of “having, loving, being” as combined objective conditions and personal subjective evaluation. Allardt’s work summarized that the subjective indicators measure an individual’s attitude, whereas objective indicators report factual conditions of life.

**Social factors**

Life satisfaction and happiness are typical factors affecting quality of life as researched by Byars and Dhooper (1991), Wilkening and McGranahan (1978) and Marinoble and Hegenauer (1988). Additional research attempted to measure the subjective and self-reported aspects of social factors as a basis for quality of life (Parmenter, 1994; Raphael et al., 1996; Pavot & Diener, 1993). Lance et al. (1995) defined the following quality of life domains: housing, spouse/partner, leisure, education, health, financial security, family, friendship, religion and transportation.

In their study, McKeivtt et al. (2003) asked the question “How do you define quality of life?” Based on respondent’s answers he identified several categories of definition, such as:
- **Social.** Includes the ability to engage in social interaction; happiness with life satisfaction, well-being, enjoyment of life; and good health.

- **Physical.** Includes physical and functional ability to live independently, and physical well-being.

- **Mental.** Included mental well-being and having mental independence.

- **Economic.** Included financial security and financial independence.

Allardt (1993) developed a theoretical approach to quality of life that was based on basic human needs including following categories: (1) “having”, that was incorporated with housing, income, health, education, working condition; (2) “loving”, defined as needs of social interaction such as communication with family, community; and (3) “being”, as needs of leisure activities and participation in decision making.

**Health-Related Factors**

The Center for Disease Control identified health-related quality of life factors as a broad multi-level concept of subjective evaluation, of which could hold both positive and negative aspects for a person’s perspective. Their constructs included self-reported measures of physical health and mental health. Many researchers incorporated health status into their quality of life measurements.

Subjective health related well-being was associated with health status, psychological well-being, and life satisfaction in a study by Aycan and Eskin (2005).
Diener’s (1999) study, subjective health status depended on the individuals’ perception and was influenced by personality and emotional characteristics. Gabriel and Bowling (2004) associated an overall ‘good health status’ with higher reported quality of life and well-being measurements. Andrews & Robinson (1991) research included a cognitive component, concluding that mental health status needed to be taken into consideration to measure quality of life or subjective well-being.

Several studies focused on age as a variable for quality of life indicators. Diener and Suh (1997) found that a person’s age affected their outlook on life; overall, older people reported more satisfaction with their life. Argyle (1996) concluded that subjective well-being was differentiated by age, and that satisfaction of life increased over one’s life course. Although seniors report high incidences of serious health issues, they also have family support and better financial stability that can affect their well-being. Additional evidence from Argyle (1996) found leisure activities were an important source of subjective well-being.

Baernholdt, Rose, Mattos, Yan, & Hinton (2012) used the Anderson’s (2008) behavioral model to examine the quality of life within adults 65 years old and older. This research included rural and urban areas, and was based on the association between quality of life, human needs, and health behaviors. Effects from three domains were measured: health-related conditions, social functioning, and emotional well-being. They reported
that overall, older adults had a high quality of life. However, those adults in rural areas had a lower social functioning. Goins & Mitchell (1999) examined the relationship between health-related quality of life and population density in urban and five rural residential categories. Their health-related quality of life construct included six domains: self-rated physical health, chronic illnesses, limitation of daily living, instrumental daily activities limitation, mental health, and depressive symptoms. The findings showed a meaningful association between residence and health. Elderly populations reported a better quality of life if they lived in densely populated areas. Their study added to the literature base confirming various life factors were more affected in rural settings. Using analysis of variance they found a statistically significant difference in health-related quality of life factors reported by the rural residents, specifically for the self-rated factors of mental health, chronic illnesses, and depression. The study indicated no significant relationship between residency type and poor physical health.

**Work – Related Factors**

Work environmental characteristics associated with job satisfaction and subjective well-being was found in several studies, suggesting a relationship between quality of life and quality of work (Campbell et al., 1979; Warr, 1994; Clark, 2010). An early study by Cooper and Marshall (1978) identified six categories of occupational stress related to a person’s working conditions, role in the organization, relationship at work, career
development, organizational structure, and home-work interface. Research by Smith et al. (1995) tied personal well-being to the overall quality of three work conditions: (1) health and dangerous work environment, (2) work conditions and specific illnesses, and (3) occupational stress. Two studies (Carloson, 1999; Greenhouse et al. 1997) found work related conflict influences work-family conflict.

Ramesh & Madhavi (2009) specifically analyzed occupational stress among 200 farmers from four villages in India. Their research found the weather, work overload, farm hassles, financial situation, and social interaction led to increased stress. They concluded that financial factors possessed the highest influence on human’s stress.

**Features of Farm Life**

According to Murphy (1992) agriculture is the industry which involves the production of crops and livestock (farming) plus agricultural services, forestry (excluding logging), and fishing. Farming is not only an occupation; farming is also a form of life. According to Nitsch (1987) farm life provides values and qualities such as autonomy, closeness to nature, tradition and continuity. Molnar (1985) has a perspective that farming is associated with a self-determined life style and more closely integrates job and family arrangements. “Rural life has been idealized ever since Thomas Jefferson’s dream of a society of free farmers. Thoughts about slower pace of life, neighborliness, open
spaces, and clean air have exhibited the same magnetic attraction to some people”
(Dillman and Trambley, 1977, p.116.)

Coughenour and Swanson (1988) examined the rewards of farming and associated
high statistical means among the measured parameters of: “good income” (2.74), “good
chance for success” (2.39), “no time pressure” (2.73), “interesting work” (1.42),
“pleasant physical surrounding” (1.56), and “freedom of decisions” (1.63). Djurfeldt and
Waldenström (1999) described farming as autonomous because of the freedom to plan
one’s work. However they went on to identify occupational challenges such as weather
and agricultural policy that provided farmers only “conditional autonomy.”

Quality of Life Application to Farmers

There are several applications where QOL research included farmers. These
studies are presented as they relate to farmers’ subjective well-being, farming system,
economic well-being, occupational stress and health, socio-demographic factors, and
farm structure.

Changes in the U.S. economic situation in rural areas have had significant
consequences for the farmers’ quality of life over the years. In an early article by Dillman
and Trembley (1977), “…People are beginning to act on their preferences in ways that
would suggest they are looking to rural America as a way of improving their quality of
life” (p.117).
Molnar (1985) reported that subjective well-being had a strong association to farm size, income, and off-farm work status categories. Farmers with a larger family income and older farmers indicated higher levels of subjective well-being. Farmers’ age had a positive relationship with quality of life and life experience; however age had a negative relationship with expectation for future quality of life. Furthermore, Molnar’s work identified individual characteristics being more important determinants of subjective well-being than farm structure. A wife’s off-farm work status was not associated with well-being.

Brooks, Bailey and Stucker (1986) studied income and the well-being of farmers. Researchers stated that farmers’ well-being increased with larger farm size and income. They found that the farmer’s view on agriculture’s future had the biggest impact on his personal well-being and his perceptions about non-economic factors. Findings suggest a part-time job increased well-being because of its direct affect to reduce financial pressure and increase overall family income.

A study by Coughenour and Swanson (1992) examined the satisfaction with farming based on rewards and value. They explored the following domains for subjective well-being: farm structure, off-farm work days, farm and family income, personal characteristics, and large-farm optimism/ small-farm pessimism. The authors found that
“satisfaction with farm work is an important component in satisfaction with family life” (p.457).

A more recent study by D’Agostini & Fantini (2008) examined quality of life and quality of living conditions in rural areas; their findings determined differences between these two categories could be measured using a system of relationships between indicators. The social, economic, and environmental conditions were indicators of the Quality of Living Conditions; the degree of social, economic, and environmental satisfaction were indicators of Quality of Life. The magnitude of these two dimensions was significantly different ($t = 3.4; n = 15; P < 0.004$), meaning that improvements in living conditions improve the farmers’ quality of life.

El-Olsa (2007) identified the determinants of a quality of life indicator for farm operators’ households based on data from the 2004 Agricultural Resource Management Survey. He grouped ten instruments under four socio-economic domains that characterized the quality of life: labor market conditions, quality of neighborhood, public and/or private services, and social interaction. This work is notable in that only a small portion of farm operators (nearly 5%) declined to respond to the survey questions, including the quality of life attributes.

Dopper & Kitchaicharoen (2002) studied criteria for living standards and provided the corresponding analyses in farming systems. They identified several
subsystems and developed evaluation criteria for analysis of each system. The subsystem “Farm” included economic success and economic security. The subsystem “Household” included the supply of basic needs, health situation, security of supply, and economic efficiency. The subsystem “Off-Farm Activities” included economic success and economic security. The “Overall System: the family” included economic success, supply success, health situation, social security, risk, education and knowledge. The results found that rural living standards and farming systems should include individual’s needs, preferences and value, besides physical, economic, and administrative sectors.

Katchova (2006) studied the economic well-being of farm and non-farm households. She indicated that the economic well-being of farm households is diverse, complicated, and depends on the life cycle of the households and degree of involvement in agribusiness.

Stress was an identified factor in several research studies. A study by Duncan, Lewis and Volk (1988) indicated that farm life had potential for developing stress due to decreased income and high debt ratio. Walker and Walker (1987) indicated that relationship issues and farm work (especially during busy season) were major stress factors for farmers. Keating, Munro, and Doherty (1988) emphasized that conflict in a farmers’ life was associated with the limited amount of time for farm work, or off-farm employment, especially during the busy seasons.
Melberg (2003) analyzed the relationship between farm stress, social support, and psychological well-being. He measured farmer’s stress using variables such as working conditions, numbers of working hours on and off farm, domestic work, health issues, farm succession, rural and urban area isolation, loneliness, experience of financial and economic pressure including farm income and off-farm income. He also measured social contact using variables such as contacts with siblings, friends and neighbors, and attendance of different cultural, religious, and outdoor activities. Background variables considered by the study included age, level of education, and marital status while psychological well-being was measured by symptoms of stress. This study found variation between social support and psychological well-being. Such factors decreased among farmers as their age increased. Conclusions documented work-related stress factors were on the rise among farmers and their families.

Research by Melberg (2003) indicated that the freedom in the workplace had a positive influence on farmers’ well-being. He found that “farm people are particularly resistant to distress” (p.70). The farming lifestyle brings positive aspects to mental health. factors of freedom, independence and fresh air are an important aspect of farmers’ quality of life.

Coughenour and Swanson (1988) reported “satisfaction with farm work is an important component in satisfaction with farm life” (p. 457). Findings revealed relatively
high satisfaction with farming: 78% were “very satisfied” and “somewhat satisfied” with farming and only 3% were dissatisfied. These researchers concluded that economic and non-economic rewards from farming contribute significantly to satisfaction with farm work.

Melberg (2003) found that farmers’ working environment is important. “Farmers who are often exposed to physical dangers such as explosives, chemicals and heavy machinery, and who work under bad lightning and ventilation conditions tend to report a low level of subjective well-being…experienced loneliness seems to be a strong predictor of male farmer’s mental health, while having positive successors has a positive influence…Off - farm work or farm work hours are not of any noticeable importance to subjective well-being…Social support variables, however are not significantly related to well-being in this analysis of male farmers…Having a close friend to confide in, having frequent contact with siblings or neighbors, or participating in cultural, religious or outdoor activities, have no significant influence on mental health…For male farmers, well-being significantly decreases with age, while this is not case for their wives” (Melberg, 2003, p.67-68).

Bogue & Phelan (2005) conducted research on the quality of life of farm, non-farm, rural, and urban families in Ireland. They defined quality of life as the perceptions and feelings about life experience that included family, hours of work,
success/professional development, and social components. They found no significant differences between quality of life of rural and urban dwelling despite longer work hours for farming families. Sixty percent of rural respondents were satisfied with amount of their hours of work, 27% of farmers think that their farm will be able to provide an adequate income for family, and 54% of farmers believed that the farm will not fund future investments. Eighty four percent of farmers joined social and sport organizations and attended social events, although irregularly. Around 40% of farmers did not take an annual vacation and only 11% respondents took a two-week vacation. About 42% of younger farmers (less than 35 years old) considered their life stressful compared to 21% of 55+ year old farmers. Twice as many of women (59%) experienced stress than men (28%). When asked to rate their quality of life, 80% of rural dwellers considered their quality of life as “good.” Sixty percent of farmers reported their quality of life as “good.” This contrasts to the 30% of urban dwellers who rated their quality of life as a “good.”

Goldschmidt (1978) found a relationship between farm size, farm structure and quality of life in rural areas. His research results defined higher index of quality of life among rural communities with greater number of medium size of farms.

Garrison (1988) examined a series of socioeconomic-demographic factors for the quality of life of rural families. This study used five indicators: home, family and friends, household, finances, community, and environment. She found gender, age, marital status,
employment status, family income, and residence had differing affects on the quality of life indicators.

Summary

In the past fifty years, social science researchers have investigated individuals’ quality of life, well-being, and standard of living. There are two global approaches to quality of life. The American approach focuses on subjective quality of life (Campbell et.al. 1976), while the Scandinavian studies explore objective living conditions of individuals or societal quality of life (Noll, 2002).

Quality of life is a multi-dimensional and complex concept, often using both objective and subjective measures to report life satisfaction. The lack of a unified definition for “quality of life” creates a challenge for categorical measurement.

The literature review helped to organize the primary conceptual models of quality of life into four broad categories. These included the satisfaction of human needs and subjective indicators model, health and psychological model, social-environmental model and the objective model.

Studies utilizing the subjective quality of life approach entailed a broad range of variables based on the individual’s expressions of life satisfaction, perceptions, values, feelings of subjective well-beings, and happiness. Many studies focused on factors that influenced a person’s subjective well-being or quality of life. Among the explored factors
were health-related indicators, work-related, environment related, social, and family-related indicators.

Overall there were a limited number of studies that explored the quality of life for farm populations. Many of the early studies published in the nineteenth century could be considered no longer relevant because of the rapidly changing farm structure and living conditions in the agricultural communities. This is especially true when researches included objective indicators such as access to education, health providers, economic factors, living conditions, and other social indicators. Few studies existed for farm populations and their subjective factors affecting quality of life. Only small amounts of information are known about external-environmental factors and work-health-leisure factors, as they affect farmers’ quality of life. New knowledge is needed to fill the gap from previous studies, especially in relation to understanding Ohio farmers and their perceptions about their quality of life.
CHAPTER 3: METHODOLOGY

This quantitative study was designed to explore subjective factors that affect Ohio farmers’ quality of life and examine any differences between farmers who were enrolled or not enrolled in the Ohio AgrAbility program (OAP). Through survey research, farmers self-rated their perceptions regarding their own quality of life in the last 12 months, taking into account an entire production season. Demographic and socio-economic backgrounds were included in the analysis.

Research Questions

1. Describe Ohio farmers enrolled and non-enrolled in the Ohio AgrAbility program according to selected demographic characteristics, social factors, outlook on life, disability and health issues, and stress;

2. Describe external-environmental factors as related to quality of life for farmers enrolled and non-enrolled in the Ohio AgrAbility Program;

3. Describe health-work-leisure factors as related to quality of life for farmers enrolled and non-enrolled in the Ohio AgrAbility Program;

4. Explore any differences in overall quality of life for farmers enrolled and non-enrolled in the Ohio AgrAbility Program based on demographic characteristics and social factors.
Study Design

The quantitative study utilized a quality of life questionnaire. Quality of life questions included self-reported measurements of subjective conditions in the person’s life. Research objectives were to identify how external-environmental and health-work-leisure factors affected farmers’ lives based on age, gender, type of employment, farm size, net cash income, number of hours worked in their busy season, number of months included in their busy season, disabilities and health issues, outlook on life, and stress.

This study included two groups of Ohio farmers: farmers who were enrolled in the OAP (55 participants) and farmers who were not enrolled in the OAP (400 participants). The descriptive-exploration design was based on survey research. The questionnaire consisted of 34-items and focused on external-environmental, health-work-leisure, and quality of life variables. Social-demographic questions were also included.

The Ohio State University Behavioral and Social Science Institutional Review Board (IRB) approved the research design and survey instrument on August 13, 2013. The study qualified for expedited review and was issued IRB protocol number 2013B0286. The IRB approval letter is in Appendix A.

Participants and Sampling Strategy

All participants for this study were Ohio farmers comprised of two distinct groups. The first group included all Ohio farmers who were actively enrolled in the
Ohio AgrAbility Program at the time a roster was generated in December 2013 (N=55). OAP clients are farmers and other farm workers experiencing disability due to an accident, injury, or chronic health condition. They were self-enrolled clients in the OAP and were 18 years of age or older.

The availability sampling method was used for farmers who were not enrolled in the OAP. This second population was a convenient sample of Ohio farmers who attended various educational programs offered by OSU Extension educators or the Ohio Farm Bureau between December 2, 2013 and January 28, 2014. These events included: the Ohio Farm Bureau’s 2-day annual meeting (December 4, 2013); the Ohio No-Till farm conference in Plain City, Ohio (December 11, 2013); the Shearer Equipment Exhibition in Wooster, Ohio (January 28, 2014), or any of the educational sessions provided by Ohio AgrAbility staff during December 2013. All participants were over the age of 18.

**Instruments and Measurements**

The questionnaire for farmers’ subjective quality of life was used in this study. This instrument included social-demographic questions, two constructs and an overall quality of life variable. The demographic-social background section of the survey included standard demographic questions and specific social background and/or business related questions. The standard demographic questions probed information
about participants’ age, gender, and primary county location in state of Ohio. The social background and/or business related section was comprised of question such as farm employment status (full-time farming, part-time or seasonal work, work off-farm full-time, work off-farm part-time, and work off-farm seasonal), farm size, farm commodities, and cash income questions (categories replicating those used by Ohio Department of Statistics). The survey also inquired about the number of hours worked in the busiest season, the number of months comprising the busiest season(s), and outlook on life. The complete survey is included in Appendix B “Survey of Farmer’s Quality of Life”.

The first construct examined “External-Environmental Factors”. The purpose of the “External-Environmental Factors” construct was to identify which factors affected farmers’ quality of life as having either a negative effect (high, medium and low), no effect, or positive effect (high, medium and low). The respondents were asked to base these answers on their experiences over the past 12 months. By having the farmers reflect on an entire year their responses took into consideration all of the farming season. Thirteen factors comprised this section including: weather during the seasonal period, machinery breakdowns, animal and plant diseases, market prices for agricultural products, agricultural equipment costs, production input costs, time management skills,
financial pressures, eligibility for government programs, and effect of government agencies including OSHA, EPA, and Department of Agriculture.

The second construct was labeled “Health-Work-Leisure Factors”. The “Health-Work-Leisure Factors” construct included nine questions that focused specifically on farmer satisfaction, including: overall health, amount of farm work in the busiest season(s) of the year, hours worked during the busiest season(s), hours of sleep in the busiest season(s), ability to manage farm and family life, amount of vacation or days off, social activities, emotional support, and overall quality of life.

The survey was accompanied by a cover letter, which also served as a welcome flyer to invite participation in the study. This flyer briefly communicated that the Ohio AgrAbility program was conducting this research and that all answers would be treated as anonymous; there was no place for farmers to include their name on the survey form. The OAP clients received their survey by U.S. mail; because of this, an additional personalized letter was included with the survey packet. This recruitment/consent letter provided information about the survey such as purpose of the study, study procedure, rights, a statement of confidentiality, estimated time needed to complete the survey, and researcher contact information. The welcome flyer and recruitment/consent letters for both study groups are provided in Appendixes D and E.
Validity and Reliability

The survey went through internal and external validity testing. The purpose of the content or face validity test was to determine whether the scale items represented the main concept the survey intended to measure. OAP staff (four representatives) and the non-profit Easter Seals organization (three representatives) reviewed the questionnaire and generated additional ideas for content to update the new instrument. The external validity test had the same purpose. The updated questionnaire was sent via email to 15 professionals nation-wide who either represent the AgrAbility programs in other land-grand universities or other professionals from Agricultural Safety and Health programs. The questionnaire was sent two weeks before the ISASH (International Society of Agricultural Safety and Health) conference on June 23-27, 2013 in Sandusky, Ohio. Validity test panelists were asked to either return comments directly to the researcher, or bring their comments to the conference and speak to the researcher. For more information see Appendix G. Seven responses were received from colleagues from the other states. As a result, the questionnaire’s content was updated.

Dillman (1991) recommended the use of the Cronbach Alpha statistic to demonstrate stability of a survey instrument. Bowling (1997) and Bryman & Cramer (1997) found that for a newly developed survey the Cronbach Alpha coefficient should exceed 0.70 and for an established survey the coefficient must exceed 0.80.
To determine reliability of the “Quality of Life” questionnaire, a pilot test was conducted with two groups of farmers. The Missouri AgrAbility program provided access to 40 of their clients, providing a representative sample of farmers enrolled in a disability program. The recruitment letter and questionnaire (Appendices B and F) were sent to their clients in September 2013 with pre-paid returned envelopes back to the OAP. The response rate of Missouri AgrAbility clients was 23%. The second pilot test was conducted during Farm Science Review in September, 2013; this was a 3-day farm show attracting nearly 150,000 farmers. The total number of participants in the second pilot test was 40 individuals.

The reliability coefficient was calculated for this study using the IBM SPSS 20 statistical analysis software package. The reliability coefficient for the construct “External-Environmental Factors” was 0.73 and for the construct “Health-Work-Leisure” was 0.73.

Data Collection

The collection of data from OAP farmers began December 18, 2013. Greenbowsky (1985) and Dillman (1991) emphasized that cover letters increase response rate. A hard copy of the questionnaire and recruitment materials such as a flyer (Appendix B), a cover letter (Appendix D), and incentive (insulated beverage holder) were mailed out to 55 Ohio AgrAbility clients. In the cover/recruitment letter,
participants were asked to participate in the voluntary survey. Participants could refuse to participate or withdraw at any time without penalty or repercussion. Initially, there were 20 respondents from 55 possible responses for a response rate of 36%.

Implementing recommendations from Dillman (1991), follow-up communications were used to increase response rate. If the survey had not been received after four weeks from the date of original mailing, the Dillman study suggested a follow-up by sending out the survey and cover letter a second time. After four weeks hard copies of the same packets were sent out a second time to farmers who did not respond. All participants were provided the enclosed postage-paid envelope for a completed survey. Additional responses were received using this process, bringing the total number of participants to 33, a 60% response rate.

Data collection from Ohio farmers who were not enrolled in the OAP began December 4, 2013. A letter was sent to the Ohio Farm Bureau seeking permission to attend their annual membership meeting and recruit Ohio farmers for this study; this letter was sent in November 2013 (Appendix E). Surveys were completed by 197 farmers at this event. Through participation at the Ohio “No-Till” Conference, an additional 127 responses were collected. During the Shearer Equipment Exhibition, 54 farmers’ responses were collected and 22 responses were received during four educational sessions conducted by the OSU Agricultural Safety and Health Program. During these
statewide sessions, the researcher and OAP staff read the script (see Appendix E) to the farmers about the study objectives and the opportunity to participate. Participants were not coerced to complete the paper-and-pencil survey. Participants might refuse to participate or withdraw at any time without penalty and might skip questions they were uncomfortable in answering at any time without repercussion. The time to complete the questionnaire took about 7 minutes.

**Privacy and Confidentiality**

Participant privacy and confidentiality was maintained throughout the research process. Because the Ohio AgrAbility office maintained all client records, no additional agencies were needed to collect names or contact information about OAP farmers. As a means to track response rate, the researcher coded mailed surveys using a two-letter English alphabet label. The survey did not contain a place for the farmer to include his name or any other personal identifiers.

For Ohio farmers not enrolled in the OAP, the information gathered was completely anonymous. The participants placed their completed questionnaire in a black file box in the back of the room or at the display table.

All data were entered into an SPSS spreadsheet for analyses. All written surveys will be kept until December 1, 2014. Once finished, surveys will be shredded and
discarded. Research findings will be presented as aggregated data and contain no personal identifiers.

**Managing Potential Sources of Error**

Groves (1989) indicated that to make the survey acceptable the researcher has to manage potential sources of error such as sampling error, non-coverage error, and non-response error. Dillman (1991) emphasized that the result of a sampling error can be associated with heterogeneity among members of the population.

**Sampling error.** The Ohio farmers who were enrolled in the OAP were a census and self identified group of people who were already Ohio AgrAbility clients. The Ohio farmers who were not enrolled in the OAP were farmers who attended annual meetings, conferences, and OSU Extension’s education sessions. This group was a convenient sample of 400 Ohio farmers. The sampling error was minimized, taking into account that farmers volunteered to participate in the study, and each farmer attending the annual meeting, conferences and educational sessions had an equal chance of completing the survey.

**Non-coverage error.** As Dillman (1991) suggested to reduce non-coverage error, researchers need to manage the sampling frame and ensure all participants have the opportunity to be selected into the sample. In this study the farmers who were enrolled in OAP presented a census that automatically avoided the non-coverage error. Only
those Ohio farmers who attended the statewide meetings and workshops were able to participate in the Quality of Life research; however participants represented a broad range of Ohio locations and were acknowledged by the researcher as a convenient sample.

Non-response error. According to Dillman (1991) non-response error does not associate with low response rate; the low response rate is a result of using mail surveys. Dillman (1978) suggested the use of techniques to improve response rates such as: financial incentives, material incentives, content of cover letter, follow up reminders, anonymity of response, color of questionnaire, personalization of correspondence, length of questionnaire, and return postage. This study used many of these techniques:

- A welcome flyer and material incentives for all Ohio farmers;
- Cover letters, follow-ups, personalization of correspondence, and outgoing and return postage (for Ohio OAP farmers); and
- Consent scripts and anonymity of response (for Ohio farmers in the convenient sample).
CHAPTER 4: FINDINGS

The purpose of this exploratory study was to identify factors that influence Ohio farmers’ quality of life and describe differences between those farmers that are enrolled in Ohio’s AgrAbility Program with those that are not enrolled. This chapter presents the results for each research objective.

Research Objective 1

Describe the Ohio farmers who were enrolled and non-enrolled in the Ohio AgrAbility program according to selected social-demographic characteristics, outlook on life, health status, and stress.

This research question was explored through several demographic characteristics and social factors of Ohio farmers. These characteristics and factors included farm operators’ age, gender, employment status, operations by farm size, farm commodities, net cash farm income, number of work hours a day in the busy season, work months in the busy season, outlook on life, disability and health issues, and stress. Selected demographic characteristics, social factors, outlook on life, disability and health issues, and stress. Descriptive statistics were used to report this research objective. All available data was utilized and missing data was not included in the analysis. The results are summarized in Table 4.1., 4.2., and 4.3.
A total of 433 farmers participated in the study with 33 of these enrolled in the Ohio AgrAbility Program and 400 non-enrolled. Participants’ frequency distribution is reported by enrollment status throughout this chapter.

The average age of farmer participants enrolled in the OAP was 55-64 years old (42.4%), with almost 73% male. Nineteen percent considered their farm employment status as a full-time job and 8% considered it as a part-time job. The average age for farmers who were not enrolled in the OAP was 35-64 years old (69.8%) with almost 83% male. Over 60% considered their farm employment status as a full-time job.
<table>
<thead>
<tr>
<th>Demographic Factors</th>
<th>Enrolled</th>
<th>Non-enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td><strong>Age Group</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 34</td>
<td>3</td>
<td>9.1</td>
</tr>
<tr>
<td>35-54</td>
<td>9</td>
<td>27.3</td>
</tr>
<tr>
<td>55-64</td>
<td>14</td>
<td>42.4</td>
</tr>
<tr>
<td>65 and over</td>
<td>7</td>
<td>21.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>33</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>24</td>
<td>72.7</td>
</tr>
<tr>
<td>Female</td>
<td>9</td>
<td>27.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>33</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Employment status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>19</td>
<td>57.6</td>
</tr>
<tr>
<td>Part-time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>farm/seasonal work</td>
<td>8</td>
<td>24.2</td>
</tr>
<tr>
<td>Work off-farm full-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>time</td>
<td>1</td>
<td>3.0</td>
</tr>
<tr>
<td>Work off-farm part-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>time</td>
<td>4</td>
<td>12.1</td>
</tr>
<tr>
<td>Work off-farm seasonal</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>33</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 4.1. Frequency Distribution of Ohio Farmers who were Enrolled and Non-enrolled in the Ohio AgrAbility Program by Demographic Characteristics: Age, Gender and Employment Status.

As reported in Table 4.2, 67% of farmers who were enrolled in the OAP had less than 179 acres of land. Their major commodities were field crops (66.7%), livestock (48.5%), poultry and poultry products (27.3%), and fresh vegetables (21.2%). Nearly 42% of farmers who were non-enrolled in the OAP had more than 500 acres of land. Their major agricultural production was similar to the AgrAbility farmers with
commodities of field crop (87.8%), livestock (34.4%), fresh vegetables (35.4%), and milk and milk products (21.7%).

With regards to income, almost 40% of Ohio AgrAbility clients gained less than $1,000 income for the last year and had farms with reportable losses. Only 18.2% of OAP farmers earned more than $50,000. This contrasts to the non-enrolled farmers whereby almost 70% earned more than $25,000 income last year (including 39.2% of those who gained more than $50,000 income).

Similar to reported income, farmers enrolled in the OAP reported different work schedules. More than 15% of farmers who were enrolled in the OAP worked less than 4 hours a day, while almost 37% of non-enrolled Ohio farmers worked between 12-14 hours per day in the busy season. For most of the farmers who were enrolled in the OAP the busy season comprised of three to six months, whereas the busiest season for non-enrolled Ohio farmers comprised three to eight months.
<table>
<thead>
<tr>
<th>Demographic Factors</th>
<th>Enrolled Frequency</th>
<th>Enrolled Percent</th>
<th>Non-enrolled Frequency</th>
<th>Non-enrolled Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm size</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-69 acres</td>
<td>14</td>
<td>46.7</td>
<td>34</td>
<td>8.5</td>
</tr>
<tr>
<td>70-179 acres</td>
<td>6</td>
<td>20.0</td>
<td>69</td>
<td>17.3</td>
</tr>
<tr>
<td>180-499 acres</td>
<td>5</td>
<td>16.7</td>
<td>129</td>
<td>32.3</td>
</tr>
<tr>
<td>500-999 acres</td>
<td>2</td>
<td>6.7</td>
<td>105</td>
<td>26.2</td>
</tr>
<tr>
<td>1,000 or more acres</td>
<td>3</td>
<td>10.0</td>
<td>63</td>
<td>15.7</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>100.0</td>
<td>400</td>
<td>100.0</td>
</tr>
<tr>
<td>Operators by commodities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Field crops</td>
<td>22</td>
<td>66.7</td>
<td>352</td>
<td>87.8</td>
</tr>
<tr>
<td>Livestock</td>
<td>16</td>
<td>48.5</td>
<td>138</td>
<td>34.4</td>
</tr>
<tr>
<td>Poultry and poultry products</td>
<td>9</td>
<td>27.3</td>
<td>57</td>
<td>14.2</td>
</tr>
<tr>
<td>Fresh vegetables</td>
<td>7</td>
<td>21.2</td>
<td>142</td>
<td>35.4</td>
</tr>
<tr>
<td>Milk products</td>
<td>2</td>
<td>6.1</td>
<td>87</td>
<td>21.7</td>
</tr>
<tr>
<td>Processes vegetables</td>
<td>2</td>
<td>6.1</td>
<td>11</td>
<td>2.7</td>
</tr>
<tr>
<td>Fruits</td>
<td>2</td>
<td>6.1</td>
<td>16</td>
<td>4.0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>2</td>
<td>6.1</td>
<td>7</td>
<td>1.7</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>12.1</td>
<td>50</td>
<td>12.5</td>
</tr>
<tr>
<td>Total</td>
<td>33</td>
<td></td>
<td>400</td>
<td></td>
</tr>
<tr>
<td>Net cash income</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farm with losses</td>
<td>9</td>
<td>27.3</td>
<td>3</td>
<td>0.8</td>
</tr>
<tr>
<td>Farm with gains less $1,000</td>
<td>4</td>
<td>12.1</td>
<td>5</td>
<td>1.3</td>
</tr>
<tr>
<td>$1,000 - $4,999</td>
<td>3</td>
<td>9.1</td>
<td>12</td>
<td>3.1</td>
</tr>
<tr>
<td>$5,000 - $9,999</td>
<td>3</td>
<td>9.1</td>
<td>34</td>
<td>8.8</td>
</tr>
<tr>
<td>$10,000 - $24,999</td>
<td>7</td>
<td>21.2</td>
<td>70</td>
<td>18.2</td>
</tr>
<tr>
<td>$25,000 - $49,000</td>
<td>1</td>
<td>3.0</td>
<td>110</td>
<td>28.6</td>
</tr>
<tr>
<td>$50,000</td>
<td>6</td>
<td>18.2</td>
<td>151</td>
<td>39.2</td>
</tr>
<tr>
<td>Total</td>
<td>33</td>
<td>100.0</td>
<td>385</td>
<td>100.0</td>
</tr>
<tr>
<td>Hours work in busiest</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-4 hours or less</td>
<td>5</td>
<td>15.2</td>
<td>11</td>
<td>2.8</td>
</tr>
</tbody>
</table>
Table 4.2. Frequency Distribution of Ohio Farmers who were Enrolled and Non-enrolled in the Ohio AgrAbility Program by Social Factors: Farm Size, Operators by Commodity, Net Cash Income, Hours Worked in the Busy Season, and Months Worked in the Busy Season.

<table>
<thead>
<tr>
<th>season</th>
<th>5-7 hours</th>
<th>8 hours</th>
<th>9-11 hours</th>
<th>12-14 hours</th>
<th>15-17 hours</th>
<th>18 and above</th>
<th>I don’t know</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>8</td>
<td>5</td>
<td>-</td>
<td>1</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>15.2</td>
<td>15.2</td>
<td>12.1</td>
<td>24.2</td>
<td>15.2</td>
<td>-</td>
<td>3.0</td>
<td>100.0</td>
</tr>
<tr>
<td></td>
<td>31</td>
<td>26</td>
<td>87</td>
<td>146</td>
<td>77</td>
<td>16</td>
<td>2</td>
<td>396</td>
</tr>
<tr>
<td></td>
<td>7.8</td>
<td>6.6</td>
<td>22.0</td>
<td>36.9</td>
<td>19.4</td>
<td>4.0</td>
<td>0.5</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Work months in busy season</th>
<th>1 month</th>
<th>2 months</th>
<th>3 months</th>
<th>4 months</th>
<th>5 months</th>
<th>6 months</th>
<th>7 months</th>
<th>8 months</th>
<th>9 months</th>
<th>10 months</th>
<th>11 months</th>
<th>12 months</th>
<th>I do not know</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>6.1</td>
<td>6.1</td>
<td>12.1</td>
<td>15.2</td>
<td>12.1</td>
<td>12.1</td>
<td>9.1</td>
<td>9.1</td>
<td>9.1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>9.1</td>
<td>100.0</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>11</td>
<td>52</td>
<td>66</td>
<td>74</td>
<td>42</td>
<td>19</td>
<td>49</td>
<td>42</td>
<td>17</td>
<td>5</td>
<td>15</td>
<td>2</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>33</td>
<td>100</td>
<td>400</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

As shown in Table 4.3, 74.2% farmers who were enrolled in the OAP had a positive outlook on life whereas farmers who were not enrolled in the OAP had more than a 95% positive outlook on life. All Ohio AgrAbility clients had disability or health...
issues whereas only half of the farmers who were non-enrolled had health issues. Almost 70% of Ohio AgrAbility clients experienced stress three or more days a week while almost half of farmers who were non enrolled experienced stress only one or two days a week.
<table>
<thead>
<tr>
<th>Demographic Factors</th>
<th>Enrolled</th>
<th>Non-enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td><strong>Outlook on life</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive outlook most of the time</td>
<td>23</td>
<td>74.2</td>
</tr>
<tr>
<td>Negative outlook most of the time (52% or greater)</td>
<td>8</td>
<td>25.8</td>
</tr>
<tr>
<td>Total</td>
<td>31</td>
<td>100</td>
</tr>
<tr>
<td><strong>Disabilities &amp; health issues</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Yes</td>
<td>33</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>33</td>
<td>100</td>
</tr>
<tr>
<td><strong>Stress</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2 days a week</td>
<td>6</td>
<td>18.2</td>
</tr>
<tr>
<td>3-4 days a week</td>
<td>10</td>
<td>30.3</td>
</tr>
<tr>
<td>5-6 days a week</td>
<td>5</td>
<td>15.2</td>
</tr>
<tr>
<td>All days a week</td>
<td>8</td>
<td>24.2</td>
</tr>
<tr>
<td>I do not know</td>
<td>4</td>
<td>12.1</td>
</tr>
<tr>
<td>Total</td>
<td>33</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 4.3. Frequency Distribution of Ohio Farmers who were Enrolled and Non-enrolled in the Ohio AgrAbility Program by Outlook on Life, Health Status, and Stress Factors

Ohio farmers with disabilities who enrolled in the Ohio AgrAbility program represented an older group of farmers, with less of acres of land, working less hours in their busiest season, gained less income, experienced stress more than three days a week,
had health issues, were more likely to hold a negative outlook on life, and faced many challenges to continue farming than other Ohio farmers.

**Research Objective 2**

*Describe external-environmental factors as related to quality of life for farmers enrolled and non-enrolled in the Ohio AgrAbility Program.*

To satisfy this research objective, data were analyzed using descriptive statistics. All available data were utilized and missing data were not included in the analysis. As was indicated in chapter 3, the Cronbach’s alpha coefficient for the “External-Environmental Factor” construct was 0.73.

Farmers who were enrolled in the OAP reported that the highest negative effects on their quality of life was financial pressure (36.4%) and cost of agricultural equipment (21.2%). Medium negative effects included input costs (31.3%), machinery breakdowns and market price for agricultural products (30.3%). Low negative effects were related to animal and plant diseases (36.4%), time management (27.3%) and weather conditions (27.3%). More than 60% of farmers indicated “no effect” for factors such as OSHA, EPA, and Ohio Department of Agriculture regulations. Table 4.4. displays the respondent’s rating for the external-environmental factors construct for farmers who were enrolled in the Ohio AgrAbility program.
<table>
<thead>
<tr>
<th>External-Environmental Factors</th>
<th>Negative effect, %</th>
<th>No effect, %</th>
<th>Positive effect, %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>Weather conditions</td>
<td>15.2</td>
<td>24.2</td>
<td>27.3</td>
</tr>
<tr>
<td>Machinery breakdowns</td>
<td>6.1</td>
<td>30.3</td>
<td>15.2</td>
</tr>
<tr>
<td>Diseases (animal and plant)</td>
<td>-</td>
<td>21.2.</td>
<td>36.4</td>
</tr>
<tr>
<td>Market price for agricultural products</td>
<td>6.1</td>
<td>30.3</td>
<td>27.3</td>
</tr>
<tr>
<td>Costs for agricultural equipment</td>
<td>21.2</td>
<td>21.2</td>
<td>24.2</td>
</tr>
<tr>
<td>Input costs</td>
<td>18.8</td>
<td>31.3</td>
<td>28.1</td>
</tr>
<tr>
<td>Time management skills</td>
<td>6.1</td>
<td>15.2</td>
<td>27.3</td>
</tr>
<tr>
<td>Financial pressure</td>
<td>36.4</td>
<td>15.2</td>
<td>27.3</td>
</tr>
<tr>
<td>Government regulations</td>
<td>21.2</td>
<td>24.2</td>
<td>15.2</td>
</tr>
<tr>
<td>Eligibility for government programs</td>
<td>12.1</td>
<td>6.1</td>
<td>9.1</td>
</tr>
<tr>
<td>OHSA regulations</td>
<td>6.3</td>
<td>3.1</td>
<td>18.8</td>
</tr>
<tr>
<td>EPA regulations</td>
<td>6.1</td>
<td>12.1</td>
<td>18.2</td>
</tr>
<tr>
<td>Ohio Department of Agriculture regulations</td>
<td>-</td>
<td>9.1</td>
<td>12.1</td>
</tr>
</tbody>
</table>

Table 4.4. Percentage of Respondents Rating for External-Environmental Factors that Affect Farmers’ Quality of Life who were Enrolled in the Ohio AgrAbility Program

The results presented in Table 4.5 show different factors affecting farmers who were non-enrolled in the OAP. Factors such as weather conditions (17.4%) and
government regulation (17.3%) had a medium negative effect. Farmers indicated a low negative effect for the external-environmental factors of input costs (37.7%) and financial pressure (36.6%). The majority of farmers rated the list of external-environmental factors as having a low negative effect to no effect on their quality of life.
<table>
<thead>
<tr>
<th>External-Environmental Factors</th>
<th>Negative effect, %</th>
<th>No effect, %</th>
<th>Positive effect, %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>Weather conditions</td>
<td>2.5</td>
<td>17.4</td>
<td>30.0</td>
</tr>
<tr>
<td>Machinery breakdowns</td>
<td>1.8</td>
<td>15.0</td>
<td>31.8</td>
</tr>
<tr>
<td>Diseases (animal and plant)</td>
<td>1.3</td>
<td>10.1</td>
<td>34.2</td>
</tr>
<tr>
<td>Market price for agricultural products</td>
<td>3.0</td>
<td>11.8</td>
<td>32.4</td>
</tr>
<tr>
<td>Costs for agricultural equipment</td>
<td>3.3</td>
<td>16.8</td>
<td>32.8</td>
</tr>
<tr>
<td>Input costs</td>
<td>3.3</td>
<td>17.3</td>
<td>37.7</td>
</tr>
<tr>
<td>Time management skills</td>
<td>1.3</td>
<td>14.5</td>
<td>31.1</td>
</tr>
<tr>
<td>Financial pressure</td>
<td>3.3</td>
<td>15.0</td>
<td>36.6</td>
</tr>
<tr>
<td>Government regulations</td>
<td>3.3</td>
<td>17.3</td>
<td>31.6</td>
</tr>
<tr>
<td>Eligibility for government programs</td>
<td>2.0</td>
<td>11.8</td>
<td>30.7</td>
</tr>
<tr>
<td>OHSA regulations</td>
<td>1.5</td>
<td>11.6</td>
<td>32.2</td>
</tr>
<tr>
<td>EPA regulations</td>
<td>2.8</td>
<td>13.8</td>
<td>35.2</td>
</tr>
<tr>
<td>Ohio Department of Agriculture regulations</td>
<td>0.8</td>
<td>11.3</td>
<td>31.9</td>
</tr>
</tbody>
</table>

Table 4.5. Percentage of Respondents Rating for External-Environmental Factors that Affect Farmers’ Quality of Life who are Non-Enrolled to Ohio AgrAbility Program

Tables 4.4 and 4.5 reported respondents rating for external-environmental factors using the questionnaire’s 7-point scale, where the range included effect size (high,
medium and low) within negative and positive scales. Table 4.6 provides a summarized report of these data, without effect size.

As illustrated in Table 4.6, the following external-environmental factors had a major negative effect on the quality of life for farmers who were enrolled in the OAP: financial pressure (78.9%), input costs (78.2%), weather conditions (66.7%), costs for agricultural equipment (66.6%), and market price for agricultural products (63.7%). Farmers reported that OSHA regulation (68.8%), EPA regulation (63.6%), and Ohio Department of Agriculture regulation (60.6%) had no effect on farmers’ quality of life. Major positive effects on farmers’ quality of life were government regulation (36.4%), market price for agricultural products (36.4%) and eligibility for government programs (30.4%).

The major negative effects among farmers who were not enrolled in the OAP program included the following external-environmental factors: input costs (58.3%), EPA regulation (51.8%), financial pressure (54.9%), cost for agricultural equipment (52.9%), and government regulations (52.2%). The major positive effects were weather conditions (40.5%), time management skills (28.6%), market price of agricultural products (26.7%), and machinery breakdowns (27.8%).
<table>
<thead>
<tr>
<th>External-Environmental Factors</th>
<th>Enrolled</th>
<th>Non-enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Negative effect</td>
<td>No effect</td>
</tr>
<tr>
<td>Weather conditions</td>
<td>66.7</td>
<td>12.1</td>
</tr>
<tr>
<td>Machinery breakdowns</td>
<td>51.6</td>
<td>33.3</td>
</tr>
<tr>
<td>Diseases (animal and plant)</td>
<td>57.6</td>
<td>21.2</td>
</tr>
<tr>
<td>Market price for agricultural products</td>
<td>63.7</td>
<td>24.2</td>
</tr>
<tr>
<td>Costs for agricultural equipment</td>
<td>66.6</td>
<td>24.2</td>
</tr>
<tr>
<td>Input costs</td>
<td>78.2</td>
<td>18.8</td>
</tr>
<tr>
<td>Time management skills</td>
<td>48.6</td>
<td>24.2</td>
</tr>
<tr>
<td>Financial pressure</td>
<td>78.9</td>
<td>12.1</td>
</tr>
<tr>
<td>Government regulations</td>
<td>60.6</td>
<td>27.3</td>
</tr>
<tr>
<td>Eligibility for government programs</td>
<td>27.3</td>
<td>42.4</td>
</tr>
<tr>
<td>OHSA regulations</td>
<td>28.2</td>
<td>68.8</td>
</tr>
<tr>
<td>EPA regulations</td>
<td>36.4</td>
<td>63.6</td>
</tr>
<tr>
<td>Ohio Department of Agriculture regulations</td>
<td>21.2</td>
<td>60.6</td>
</tr>
</tbody>
</table>

Table 4.6 Percentage Summaries of Respondents Rating for External-Environmental Factors that Affect Farmers’ Quality of Life between Enrolled and Non-Enrolled farmers in the Ohio AgrAbility Program.
Research Objective 3

*Describe Health-Work-Leisure factors as related to quality of life for farmers who were enrolled and non-enrolled in the Ohio AgrAbility Program.*

The data were analyzed utilizing descriptive statistics. All available data were utilized and missing data were not included in the analysis. As was indicated in chapter 3, the Cronbach’s alpha coefficient for the “Health-Work-Leisure Factor” construct was 0.73.

Respondents indicated their satisfaction for nine items using a five-point Likert-type scale (1 = completely satisfied, 2 = very satisfied, 3 = somewhat satisfied, 4 = not satisfied, 5 = not at all satisfied). During analysis, the data were re-coded into a three-point Likert scale combining all satisfied ratings and unsatisfied ratings into their respective categories. The results showed wider distribution between the new labels of not satisfied (4&5), somewhat satisfied (3), and very satisfied (1&2). The results of the descriptive statistics of the Health-Work-Leisure factors construct are summarized in Table 4.7.

For the farmers enrolled in the OAP, more than 55% were not satisfied with their overall health status, but reported satisfaction from the emotional support they received from others (81.8%). Although 60% of these farmers reported satisfaction with their farm work and number of hours worked in the busiest season, they were not satisfied (60.6%)
with the time they received time for vacation or days off during the last year. When asked to rate their satisfaction for overall quality of life, 27.3% of OAP clients were not satisfied and 45.5% of them were somewhat satisfied.

Satisfaction ratings among these same nine factors were compared to farmers who are not enrolled in OAP. More than 80% of farmers were satisfied with their health, farm worked in the busy season, managing both work and family life in busy season, social activities, emotional support, and time received for vacation or days off. However, almost 20% of respondents were not satisfied with hours of sleep during the busiest season and 13.6% were not satisfied with managing their farm work and family life during their busiest season. A major contrast to the OAP farmers were the number of Ohio farmers who reported a high quality of life (77.5% of were satisfied and 21.5% were somewhat satisfied).
<table>
<thead>
<tr>
<th>Health – Work-Leisure Factors</th>
<th>Enrolled</th>
<th>Non-enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Satisfied</td>
<td>Somewhat satisfied</td>
</tr>
<tr>
<td>Overall health</td>
<td>15.2</td>
<td>27.3</td>
</tr>
<tr>
<td>Farm work in busy season</td>
<td>25.0</td>
<td>43.8</td>
</tr>
<tr>
<td>Work hours in busy season</td>
<td>25.0</td>
<td>46.9</td>
</tr>
<tr>
<td>Hours of sleep in busy season</td>
<td>21.3</td>
<td>39.4</td>
</tr>
<tr>
<td>Managing both farm work and family in busy season</td>
<td>21.3</td>
<td>24.2</td>
</tr>
<tr>
<td>Received time for vacation or days off during the last year</td>
<td>18.2</td>
<td>21.2</td>
</tr>
<tr>
<td>Social activities</td>
<td>24.2</td>
<td>39.4</td>
</tr>
<tr>
<td>Emotional support</td>
<td>33.3</td>
<td>48.5</td>
</tr>
<tr>
<td>Overall quality of life</td>
<td>27.2</td>
<td>45.5</td>
</tr>
</tbody>
</table>

Table 4.7. Percentage of Respondents Rating for Health-Work-Leisure Factors that Affect Farmers’ Quality of Life who were Enrolled and Non-Enrolled in the Ohio AgrAbility Program
Research Objective 4

Explore any differences in overall quality of life for farmers enrolled and non-enrolled in the Ohio AgrAbility Program based on demographic characteristics and social factors.

For this research objective the Pearson’s chi-squared test was conducted. The variable overall quality of life was recoded into a three-point Likert-type scale (1 = not satisfied, 2 = somewhat satisfied, 3 = completely satisfied). The results of the Pearson’s chi-square test are presented in Table 4.8. The Pearson chi-square test revealed five significantly different factors that associated with farmers’ overall quality of life.
### Table 4.8. Chi-square analysis on difference of overall farmers’ quality of life by social-demographic factors.

<table>
<thead>
<tr>
<th>Social-Demographic factors</th>
<th>Population</th>
<th>n of valid cases</th>
<th>X²</th>
<th>df</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td>Enrolled</td>
<td>33</td>
<td>13.898</td>
<td>12</td>
<td>.307</td>
</tr>
<tr>
<td></td>
<td>Non-enrolled</td>
<td>395</td>
<td>7.311</td>
<td>12</td>
<td>.836</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td>Enrolled</td>
<td>33</td>
<td>7.007</td>
<td>2</td>
<td>.030</td>
</tr>
<tr>
<td></td>
<td>Non-enrolled</td>
<td>394</td>
<td>10.446</td>
<td>2</td>
<td>.005</td>
</tr>
<tr>
<td><strong>Type of employment</strong></td>
<td>Enrolled</td>
<td>30</td>
<td>8.028</td>
<td>8</td>
<td>.431</td>
</tr>
<tr>
<td></td>
<td>Non-enrolled</td>
<td>395</td>
<td>4.130</td>
<td>8</td>
<td>.845</td>
</tr>
<tr>
<td><strong>Farm size</strong></td>
<td>Enrolled</td>
<td>30</td>
<td>8.564</td>
<td>8</td>
<td>.380</td>
</tr>
<tr>
<td></td>
<td>Non-enrolled</td>
<td>425</td>
<td>8.519</td>
<td>8</td>
<td>.384</td>
</tr>
<tr>
<td><strong>Net cash income</strong></td>
<td>Enrolled</td>
<td>33</td>
<td>21.735</td>
<td>6</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td>Non-enrolled</td>
<td>382</td>
<td>3.174</td>
<td>6</td>
<td>.787</td>
</tr>
<tr>
<td><strong>Work hours in busy season</strong></td>
<td>Enrolled</td>
<td>33</td>
<td>7.920</td>
<td>12</td>
<td>.791</td>
</tr>
<tr>
<td></td>
<td>Non-enrolled</td>
<td>393</td>
<td>14.106</td>
<td>14</td>
<td>.442</td>
</tr>
<tr>
<td><strong>Work months in busy season</strong></td>
<td>Enrolled</td>
<td>33</td>
<td>21.438</td>
<td>18</td>
<td>.258</td>
</tr>
<tr>
<td></td>
<td>Non-enrolled</td>
<td>393</td>
<td>31.396</td>
<td>24</td>
<td>.143</td>
</tr>
<tr>
<td><strong>Outlook on life</strong></td>
<td>Enrolled</td>
<td>31</td>
<td>14.212</td>
<td>2</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td>Non-enrolled</td>
<td>391</td>
<td>4.997</td>
<td>2</td>
<td>.082</td>
</tr>
<tr>
<td><strong>Disabilities or health issues</strong></td>
<td>Enrolled</td>
<td>33</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Non-enrolled</td>
<td>395</td>
<td>7.105</td>
<td>2</td>
<td>.029</td>
</tr>
<tr>
<td><strong>Stress</strong></td>
<td>Enrolled</td>
<td>33</td>
<td>15.219</td>
<td>4</td>
<td>.004</td>
</tr>
<tr>
<td></td>
<td>Non-enrolled</td>
<td>393</td>
<td>18.550</td>
<td>4</td>
<td>.001</td>
</tr>
</tbody>
</table>

For the gender variable there was a significant association between gender and overall quality of life among farmers who were enrolled in the OAP: X²(2, N=33) =7.007; p=.030. Males composed 72.7% of the total population and females represented the remaining 27.3%. Overall, 55.6% of the females and 44.4% of the males were not
satisfied by their quality of life. This can be re-stated to say, female OAP farmers were more likely to be unsatisfied with their quality of life than male OAP farmers.

There was a significant association between gender and overall quality of life among farmers who were not enrolled in the OAP: \( X^2(2, N=394) = 10.446; p = .005 \). Males consisted of 82.5% of the total population with females representing 17.5%. There were similar findings with this group, in that 75.0% of females and 25.0% of males were not satisfied with their quality of life.

The net cash income variable was recoded into four groups. Group 1 were farmers with losses; group 2 were farmers with income less than $10,000; group 3 were farmers with income less than $50,000 and more than $9,999; and group 4 were farmers with income more than $50,000. There was a significant association between cash income groups and overall quality of life among farmers who were enrolled in the OAP: \( X^2 (6, N=33) = 21.735; p = .001 \).

Farmers with losses composed 27.3% of farmers enrolled in the OAP with 77.8% of them reported they were not satisfied with their quality of life. Many of the farmers who gained less than $50,000 reported they were somewhat satisfied with their quality of life. While most of farmers who gained more than $50,000 reported that were very satisfied with their quality of life. This result indicated that as farmers with disabilities report higher income, they were more likely to be satisfied with their quality of life.
There was a significant association between outlook on life and overall quality of life among farmers who were enrolled in the OAP: \( X^2 (2, N=31) = 14.212; p=.001 \). Over 74% of farmers enrolled in the OAP reported a positive outlook on life. Of this group, 25% of them were unsatisfied with their overall quality of life. Of those 25.8% farmers who reported a negative outlook, 50% were unsatisfied with their overall quality of life.

Likewise, there was a significant association between outlook on life and overall quality of life among farmers who were not enrolled in the OAP: \( X^2 (2, N=391) = 4.997; p=.082 \). Of the 95.7% of farmers who had a positive outlook on life, 75% of them were satisfied with overall quality of life. A low 0.8% of farmers in this group reported a negative outlook on life, with a corresponding low (0.7%) of them not satisfied with their overall quality of life.

This finding indicates that farmers who had a positive outlook on life were more likely to be satisfied with their overall quality of life. And similarly, farmers who had a negative outlook on life were more likely to be unsatisfied with their quality of life.

A significant association was found to exist within the non-enrolled OAP farmer group for the variables disability and health status and overall quality of life: \( X^2 (2, N=395) = 7.105; p=.029 \). Although this group is not participating in the OAP, 48.9% of the farmers reported a health problem. Yet 46% of them were satisfied by their overall quality of life. Farmers who did not report any health issues (51.1%) indicated they were
satisfied with their overall quality of life 53.9% of the time. This finding indicates that farmers without a disability and health issues were more likely to be satisfied with their quality of life while farmers who have a disability and health issues were more likely to be unsatisfied with their overall quality of life.

The stress variable was recoded into two groups. Group 1 (stress 1-2 days a week); Group 2 (stress three and more days a week); and Group 3 (selected the answer “I do not know”). There was a significant association between stress and overall quality of life among farmers who were enrolled in the OAP: $X^2 (4, N=33) = 15.219; p=.004$. Over 18% of farmers reported they had stress 1-2 days a week and 55.6% of them were satisfied with their overall quality of life. Another 69.7% of farmers reported stress three or more days a week and 77.8% of them were unsatisfied with their quality of life. This finding means that farmers who were enrolled in the OAP experienced stress more often and were more likely unsatisfied with their overall quality of life.

This finding was repeated in the Ohio farmers who were non-enrolled in OAP, showing a significant association between stress and overall quality of life: $X^2 (4, N=393) = 18.550; p=.001$. Of the 48.9% of farmers experiencing stress 1-2 days a week, 52.1% of them were very satisfied with their quality of life. The 38.7% of farmers reporting they had stress more than 3 days a week, 25% were unsatisfied with their quality of life. As a result, farmers who experienced stress 2 days or less each week were more likely to be
satisfied with overall quality of life, while farmers who experience stress 3 or more days a week were more likely to be less satisfied with overall quality of life.
CHAPTER 5: DISCUSSION

This chapter will summarize the research process that includes the research problem, purpose, objectives, and methodology of the study. Chapter five reviews the findings from this research and discusses the implication of the results. The chapter will provide suggested recommendations for Agricultural Extension educators and further research related to this field.

Statement of Problem

It is not well understood which factors affect farmers’ quality of life. Having a better understanding of such variables, and their influence on farmers’ outlook of life, will provide additional research to this domain, particularly with regards to Ohio agriculturalists.

Dilman and Trembley (1977) attempted to measure quality of life in rural America using three scales: economic well-being, objective indicators, and subjective evaluation. Bogue and Phelan (2005) stated farms are complex. Farm families measure quality of life on many levels making interpretation a serious challenge for researchers. Because of the farmers’ subjective and ever changing life, work conditions and current life experience, quality of life studies are typically exploratory.

Understanding the factors that affect a farmer’s quality of life is important to many rural organizations and stakeholder groups. Providing reliable and valid quality of
life indicators is a solid approach for policy makers who plan fact-based course of actions (Young, 2008). Rural communities with federal, state, and local associations may also benefit from this knowledge to implement outreach and assistance programs. Collectively this information has potential to increase support services to rural farm populations with specific targets based on farmers’ needs.

**Purpose and Research Objectives**

This study was designed to explore factors which affect Ohio farmers’ quality of life and examine the differences between the subjective and self-rated quality of life of farmers who were enrolled, as well as non-enrolled, in the Ohio AgrAbility Program.

**Research Questions**

1. Describe the Ohio farmers who were enrolled and not enrolled in the Ohio AgrAbility program according to selected social-demographic characteristics, outlook on life, health status, and stress.

2. Describe external-environmental factors as related to quality of life for farmers enrolled and non-enrolled in the Ohio AgrAbility Program;

3. Describe health-work-leisure factors as related to quality of life for farmers enrolled and non-enrolled in the Ohio AgrAbility Program;

4. Explore any differences in overall quality of life for farmers enrolled and non-enrolled in the Ohio AgrAbility Program based on demographic characteristics and social factors.
Methods of study

This quantitative study was designed to explore subjective factors that affect Ohio farmers’ quality of life and examine any differences between farmers who were enrolled or not enrolled in the Ohio AgrAbility program (OAP). Through survey research, farmers self-rated their perceptions regarding their own quality of life in the last 12 months, taking into account an entire production season. The questionnaire for farmers’ subjective quality of life was used in this study. This instrument included social-demographic questions, two constructs and an overall quality of life variable. Demographic and socio-economic backgrounds were included in the analysis.

Data Collection

Data collection procedure was developed for farmers who were enrolled and not enrolled in the OAP. The first group included all Ohio farmers who were actively enrolled in the Ohio AgrAbility Program at the time a roster was generated in December 2013 (N=55). The availability sampling method was used for farmers who were not enrolled in the OAP. This second population was a convenient sample of Ohio farmers who attended various educational programs offered by OSU Extension educators or the Ohio Farm Bureau between December 2, 2013 and January 28, 2014. These events included: the Ohio Farm Bureau’s 2-day annual meeting (December 4, 2013); the Ohio No-Till farm conference in Plain City, Ohio (December 11, 2013); the Shearer
Equipment Exhibition in Wooster, Ohio (January 28, 2014), or any of the educational sessions provided by Ohio AgrAbility staff during December 2013. All participants in two study groups were over the age of 18.

Limitations

Ohio farmers who were enrolled in the AgrAbility Program represented a census of 55 clients. The 60% response rate was lower than expected and may affect the final results for that group of farmers.

Ohio farmers who were not enrolled in the Ohio AgrAbility program were limited to a convenient sample from 400 farmers. The sample consisted of farmers who attended the Ohio Farm Bureau annual meeting (197 respondents), No-till Conference in Plain City, Ohio (127 respondents), Shearer Equipment Expo in Wooster, Ohio (54 respondents) and during four educational sessions of OSU Agricultural Safety and Health Program (22 respondents). Because of the convenient sampling these findings cannot be generalized to all Ohio farmers.

Data Analysis

Data obtained from this study was analyzed through the IBM SPSS® 20 statistical program. To satisfy research objectives the following analysis was conducted:

1. Descriptive statistics (percentage and frequencies) were used to describe the Ohio farmers who enrolled and non–enrolled in the Ohio AgrAbility
program according to selected demographic characteristics and social factors. The analysis seeks to describe external-environmental and health-work-leisure factors as related to quality of life of farmers who enrolled and non-enrolled to OAP.

2. Chi-squared analysis was used to examine the difference in overall quality of life of farmers who enrolled and non-enrolled to Ohio AgrAbility Program based on the in demographic characteristics and social factors.

**Summary of Findings, Discussion and Implication.**

This section summarizes the findings that were provided in Chapter Four and follows the order of research objectives outlined in Chapter One.

**Research Objective 1.** Describe the Ohio farmers who were enrolled and not enrolled in the Ohio AgrAbility program according to selected social-demographic characteristics, outlook on life, health status, and stress. Descriptive statistics were used to report this research objective.

A description of Ohio farmers who were enrolled and non-enrolled in the Ohio AgrAbility program according to selected demographic characteristics and social factors found both similarities and differences between two groups. For example there were similarities among the main agricultural commodities for both groups of farmers in field
crops, livestock, fresh vegetables, milk products, and poultry and poultry product. The majority of farmers were male.

Ohio farmers with disabilities who were enrolled in the OAP average as an older group of farmers (55-64 years) with less acres of land (almost 67% of farmers had less than 179 acres). On average, farmers with disabilities work about 4-8 hours in busiest season that comprised three to six months. The health conditions of Ohio AgrAbility clients make for many challenges to continue farming. They gained less income than farmers who were not enrolled in the OAP. For instance, there were 27.3% farmers with losses, 30.3% earned less than $10,000, 21.2% farmers earned between $10,000 - $25,000 and only 18.2% gained more than $50,000. Also, 25% of OAP farmers.

The Ohio farmers who were not enrolled in the OAP represented a wider age range (35-64 years old) with 50.1 % reported no health concerns. For most of them farming is a main occupation and full time job. This group of farmers have more acres of land (74.2% of farmers have more than 180 acres of land) and work more than 12-14 hours a day in the busiest season that comprised three to nine months. Almost 40% of this group of farmers earned more than $50,000 income during the last 12 months. Only 5% of this farmer group reported a negative outlook on life and they experienced stress only one or two days a week.

Discussion
Haug and Folmar (1986) stated that higher income, social-economic status, good health, functional ability, and type of employment have a strong association with higher levels of well-being. Bowling (1995; 1996) mentioned that people age 65 and over indicated health as an important component of well-being. Bowling (1995) stated that health was similarly important to people in both poor and good health.

Based on the findings of this study, farmers with disabilities have more challenges to continue farming than those farmers who do not have health issues. Farmers with disabilities work less hours a day and gain less income, while farmers who have not experienced disability are able to work more intensively in busy season and gain more income. As a result, disabled farmers had a negative outlook on life because they experienced health issues and more stress than farmers who were in the non-enrolled group. General health status and good level of physical and mental health were associated with overall quality of life and subjective well-being (Bowling, Farquhar, & Grundy, 1996; Breeze, Jones, Wilkinson, Latif, Bulpitt, & Fletcher, 2004. The findings of Ohio study support this claim.

However, Thomas (1981) contended that among some people with disabilities are “healthy optimists” who modify their health and life expectations. The findings of the Ohio Quality of Life survey indicated 27.3% of farmers with disabilities were satisfied with their quality of life and also reported that they are “healthy farmers”. Schomer
(1995) stated that people with different disabilities have different likelihood of working abilities.

**Recommendation**

Various professionals could focus on developing programs for farmers who have disability or health issues to educate them how to manage stress or how to support a “healthy optimists” status. Having these topics addressed by federal, state, and local agencies and Extension professionals will help farm families have a more positive outlook on life and ultimately increase their overall quality of life. Future research should focus on the underlying structure of farmer’s stress formation and stress management.

**Research Objective 2.** *Describe external-environmental factors as related to quality of life for farmers enrolled and non-enrolled in the Ohio AgrAbility Program.*

The two study groups in this research reported similar factors that negatively affected their quality of life. These factors included financial pressure, costs for agricultural equipment and production input costs. These farmer groups differed on other factors that affected their quality of life in a positive manner.

The major negative effects on the quality of life of farmers who were enrolled in the Ohio AgrAbility Program were: financial pressure, input costs, costs for agricultural equipment, market price for agricultural products, and weather conditions. Farmers who
were enrolled in the OAP reported that OSHA regulation, EPA regulation, and the Ohio Department of Agriculture had no effect on their quality of life. Major positive effects on farmers’ quality of life were government regulation, market prices for agricultural products, and eligibility for government programs.

The major negative effects on the quality of life of farmers who were not enrolled in the OAP included the factors input costs, EPA regulation, financial pressure, costs for agricultural equipments, and government regulation. The major positive effects were weather condition, time management skills, market price of agricultural products, and machinery breakdown.

Discussion

There is limited research about farmers’ quality of life and its relationship with external-environmental factors. Milestad and Darnhofer (2008) studied farm resilience in organic farming in Sweden and reported that organic farming loses quality because of the effects of government regulation and market dynamics. Willock, Deary, Edwards-Jones, Gibson, McGregor, Sutherland, and Grieve (1999) reported that the business and environmental–oriented farming behavior affect farmers’ decision-making. The following factors were studied: achievement in farming, legislation, pessimism about farming, openness in farming, financial risk, chemical use, and policy communication. Willock et al. (1999) found that market-openness in farming influenced quality of life objectives and
had a strong association with environmentally-oriented farming behavior. Bowling (1995; 1996) reported financial security was identified as one of the top five components of quality of life. Other studies examined quality of life according to factors such as education, social and health condition, culture, public safety, and government administration (Young, 2005). The Ohio Quality of Life study reported that financial questions negatively affected farmers’ quality of life. Furthermore, most government agencies have negative or no effect on a farmers’ quality of life. However, agricultural market dynamics had a positive effect on quality of life during the last 12 months.

**Recommendation**

It is important for Extension educators, as well as federal and state agencies to have knowledge about farmers’ perceptions and feelings regarding external-environmental aspects affecting their quality of life. The subjective indicators of farmers’ quality of life affected by external-environmental factors might be a basis for assessing real problems facing farm society. Understanding external-environmental factors that affect a farmer’s life might lend assistance to objective assessments to determining priorities, strategies, and resources for farm development. Having this background will enable educators to develop educational programs and organize appropriate training materials to meet the farmers’ needs.
For example, farmers with disabilities had positive effects from market prices and eligibility for government programs. In the future, agricultural extension professionals should focus on developing appropriate programs that address farmers’ financial pressure and farm costs management. Future researchers should focus on the factors that affected farmers’ quality of life such as government policy and social innovations that help to have a balance between economic factors (price and costs), technological innovation (plant, animal or agricultural machinery) and political support of American Agriculture.

**Research Objective 3.** Describe health-work-leisure factors as related to quality of life for farmers enrolled and non-enrolled in the Ohio AgrAbility Program.

The two study groups in this research reported similarities in that they were satisfied with farm work in the busiest season and emotional support received from others. Almost 27% of OAP clients were not satisfied by their overall quality of life and more than half of them were not satisfied by overall health and time received for vacation days.

More than 77% of Ohio farmers who were not enrolled in the Ohio AgrAbility program were satisfied with their overall quality of life and 21.5% were somewhat satisfied. Most of them were satisfied with their health, farm work in the busy season, managing both farm work and family in the busy season, social activities, emotional
support, and time received for vacation or days off during the busy season. However, several respondents (20%) reported they were not satisfied with hours of sleep received during the busiest season or how they managed their farm work and family life in the busiest season (13%).

**Discussion**

Lance, Mallard, & Michalos (1995) identified important life domains such as health, family, finance, work, friends, employment, recreation activities (leisure), religion, education, and transportation. Many researchers (Bowling 1995; Farquhar 1995; Ball, Whittington, Perkins, Patterson, Hollingsworth, King, & Combs 2000) identified emotional happiness and well-being as important components of quality of life. People with poor health need social/leisure activities and independence (Bowling 1995). Farquhar (1995) stated that for older people their relationship with family is very important. Ball et al. (2000) found that family was ranked as a positive and important component in people’s quality of life. Involvement in social activities prevents loneliness and enhances well-being (Bowling 1994; Bowling, Banister, Sutton, Evans, & Windsor 2002).

Myers (2000) mentioned that social support and positive family relationships were important factors in handling major life crises. Friend and family support prevents distress and illnesses and was considered a major emotional help (Argule, 1996). Argule
further found that some type of leisure proved helpful to an individual’s physical health, mental health and overall well-being, while at the same time helped them develop social relations. The findings within the Ohio Quality of Life study supports earlier research. Thus Ohio farmers who were enrolled and not enrolled in the OAP were satisfied with their emotional support and positively affected farmers’ quality of life.

Coughenour and Swanson (1988) found that satisfaction with farm work was an important component of a farmer’s life. Within the Ohio Quality of Life study, both farmer groups were satisfied with their occupational work. However they were not satisfied with hours of work, hours of sleep, and managing family and farm in the more demanding season of the year. Campbell, Converse and Rodger (1976) found strong relationships between life satisfaction and quality of work life. Job environment may provide individuals with low level of control and therefore affect their stress (Karasek, 1979). Donna and Griffin (1999) found that the employee’s well-being can be identified through dangerous work settings and health, type of work environment, working conditions, and stress. The findings of the Ohio Quality of Life study indicated that farmers with disabilities were less satisfied with received time for vacation compared to farmers who were not enrolled in the OAP program; in addition, they were less satisfied with hours of sleep during the most demanding seasons.
The Ohio Quality of Life study found farmers in both groups were satisfied with farm work in the busiest season. However, farmers who were not enrolled in the program were not satisfied with their work hours. Gutek, Searle and Klepa (1991) found that long working hours and work overload may cause family conflict. However, flexible work hours provide better integration between family life and work and may positively affect an individual’s quality of life.

**Recommendation**

It is important for federal, state, and local specialists and Extension professionals to have knowledge about farmers’ perceptions, feelings, life satisfaction, and other aspects affecting their quality of life. Having this background will enable educators to develop educational programs and organize appropriate training materials to meet farmers’ needs. For example, farmers with disabilities were especially concerned about self-health management and received time for vacation or days off during the year. Overall, all farmers showed a need for programs related to stress management, getting enough sleep, and balancing farm work with family life during their busy season. Having these topics addressed by federal, state, and local specialists and Extension professionals will help farm families have better life satisfaction and ultimately increase their overall quality of life. Future research should focus on the underlying structure of farmer’s self-health management and factors affecting farmer’s life satisfaction.
Research Objective 4. Explore any differences in overall quality of life for farmers enrolled and non-enrolled in the Ohio AgrAbility Program based on demographic characteristics and social factors.

The Pearson chi-square test revealed five significantly different factors that associated with farmers’ overall quality of life. The factors were gender, cash net income, outlook on life, health and stress.

Four of the five factors affecting quality of life for OAP farmers were: gender, cash net income, outlook on life, and stress. The fifth factor, health, was a factor affecting everyone in OAP, and therefore it was statistical assumption by 100% of the population. Females within this group were less likely to be satisfied by overall quality of life. All OAP farmers who reported less income also reported a negative effect for their overall quality of life. Among 20% of farmers who reported a negative outlook on life, half of them also reported they were not satisfied with their overall quality of life. Farmers with disabilities experienced more stress each week and this negatively affected their overall quality of life.

The four of five factors affecting quality of life for non-enrolled farmers were: gender, outlook on life, disability and health issues, and stress. Income was not a factor affecting this group. Females were less likely to be satisfied with overall quality of life.
The majority of farmers who were not enrolled in the OAP had a positive outlook on life most time (52% and greater) and the majority were satisfied by their overall quality of life. Almost 50% of farmers who were not enrolled in OAP had health issues and only less than half of these were not satisfied with their overall quality of life. Farmers in this group were less likely to experience stress during the week and it positively affected their overall quality of life satisfaction. The major health issues among farmers who were not enrolled in the OAP were arthritis, back pain, high blood pressure, diabetes and heart problems.

**Discussion**

Based on human ecology theory, Garrison (1998) examined socioeconomic-demographic determinants of the quality of life of rural population and found that age, gender, race, marital status, residence, employment status, household size, and family income differently affected individuals’ quality of life. The social-demographic factors used in the Ohio Quality of Life study included questions about age, gender, employment status (residency), farm size, location in Ohio, agricultural commodities, net cash income, hours of work in the busiest time in year, amount of active work months, and outlook on life. The result of the Ohio study found five variables that affected farmers’ overall quality of life. Again, these factors included gender, outlook on life, income, health and stress.
The results of the Ohio Quality of Life study were similar to the results of Diener (1994) and Molnar (1985) suggesting age, employment status, residence, and farm size did not have a relationship with farmers’ quality of life. Furthermore, findings of this research supported Garrison’s (1998) study that income and gender are significant determinants for quality of life. Goldschmidt (1978) found a relationship between farm size and quality of life. However, the findings of the Ohio study did not support this claim. Additional research studies focusing on the five domains are discussed below.

**Health:** Aycan and Eskin (2005) found positive association between well-being and self-reported psychological well-being. Subjective well-being had a strong association with a person’s health condition. Subjective well-being and health depended on an individual’s perceptions and current emotional adjustments (Watten, Vassend, Myhrer & Syversen 1997; Diener, Suh, Lucas, & Smith 1999). Similar to those studies, the Ohio Quality of Life study found a strong relationship between farmers’ quality of life and health status for farmers who were not enrolled in the OAP.

**Type of employment:** Argyle (1999) found that employment status is an important factor of an individual’s life satisfaction. Unemployment causes lower levels of subjective well-being and has a stronger negative effect if another person in the family is unemployed (Clark, 1998). The Ohio Quality of Life study did not report any unemployment status. Furthermore, the Ohio study found that the type of employment
(full-time farm, part-time/seasonal work, work off-farm full-time, work off-farm part-
time and work off-farm seasonal) did not have any association with farmers’ quality of
life.

Gender: There are differing results regarding a person’s gender and their
subjective well-being. Diener, et al. (1999) found women reported higher well-being than
men. Likewise, women experienced stronger emotions (positive or negative) than men
(Nolen-Hoeksema and Rusting, 1999). However, the Ohio Quality of Life study did not
support these previous research findings; the Ohio research found gender to have a strong
association with farmers’ quality of life in that women were less likely to be satisfied
with their quality of life than men.

Age: Subjective well-being was affected differently by a person’s age (Diener, et
al., 1999). Argyle (1996) stated that elderly people may have less financial pressure and
have family support. However, they may have health issues that affect their well-being.
Diener and Suh (1998) found that life satisfaction increases over the course of their life.
In the Ohio Quality of Life study, no associations were found between age and farmers’
quality of life.

Stress: A common occupational illness is stress and a result of the lack of fit
between environment, demand, and an individual’s need (Cooper and Cartwright, 1994).
Danna and Griffin (1999) found stress had a significant association with low well-being
and an individual’s health. They further identified factors such as job insecurity, working hours, work overload, risks and danger, new technologies, quality of physical environment, and other factors to affect working conditions (Danna and Griffin, 1999). Melberg (2003) studied farming, stress, and psychological well-being; he found a strong relationship between stress, social support, and well-being. The Ohio Quality of Life study supports previous research and found that stress had a significant association with overall quality of farmers’ life.

**Recommendation**

To minimize the differences in quality of life between enrolled and non-enrolled Ohio farmers, extension and public health professionals may develop educational intervention to maintain physical health, social relationships, support, and increase participation of farmers with disabilities in the educational programs to promote better quality of life. For example, programs could focus on farm financial management, women’s life satisfaction in rural areas, stress management for farmers and their families, and health intervention for farmers with disability or other health issues. Almost 50% of farmers who were not enrolled in the OAP are potential OAP clients because of the type of health issues they reported.

Future research should focus on the underlying structure of women’s life satisfaction in rural areas, factors that affect farmers’ financial pressure, and factors of
farm stress. Also, future studies might take a direct approach to the farmers’ spouses’ employment status and how it affects the farm family’s quality of life. In addition it would be interesting to study the farmer’s household size and family farm structure and its influence on farmers’ quality of life.

**Conclusion and Implication**

Quality of life research has been conducted in the past in a variety of academic disciplines. In the Ohio Quality of Life study, attempts were made to identify factors that may affect the quality of life of Ohio farmers. A questionnaire was developed that may be called a farmer quality of life indicator system and could be a useful way of determining the quality of life status of selected groups of farmers. That instrument helped assess Ohio farmers’ social-demographic characteristics, farmers’ self-reported perception regarding outlook on life, stress, environmental factors, and health-work-leisure factors.

Ohio farmers who were enrolled in the Ohio AgrAbility program represented an older group of farmer with disabilities. Farmers with disabilities have many challenges to continue farming. As a result of their health conditions they work fewer hours a day and their busiest season comprises fewer months in a year. However, this group also reported they gain less income from production agriculture. Moreover, 25% of these farmers had a negative outlook on life and experienced more than three days of stress each week. The major negative effects on quality of life for farmers with disabilities were financial
pressures, production input costs, costs for agricultural equipment, market price for agricultural products, and weather conditions. Farmers reported that OSHA, EPA, and the Ohio Department of Agriculture regulations had no effect on their quality of life. Major positive effects on OAP farmers’ quality of life were government regulation, eligibility for government programs, and market prices for agricultural products. Almost 28% of Ohio AgrAbility clients were not satisfied with their overall quality of life and more than half of them were not satisfied by overall health or their received time for vacation days. However, most of them were satisfied by emotional support received from others, farm work in the busiest season, and work hours in busiest season (13%).

The Pearson chi-square test revealed four significantly different factors that associated overall quality of life for farmers with disabilities. Thus, the overall quality of life for farmers with disabilities included gender, cash net income, outlook on life, and stress. Females were less satisfied by overall quality of life. All OAP farmers who reported less income also reported a negative satisfaction for their overall quality of life. Among 20% of farmers who reported a negative outlook on life, half of them also reported they were not satisfied with their overall quality of life. Farmers with disabilities experienced more stress each week and this negatively affected their overall quality of life.
The Ohio farmers who were not enrolled in the Ohio AgrAbility Program represented a younger group of farmers, with fewer reported health problems. For most of this group farming was a main occupation and full-time job. This group of farmers worked more than 12-14 hours a day in the busiest season that comprises three to nine months. The main commodities of Ohio farmers were field crops, livestock, fresh vegetables, and milk products. Almost 40% of this group gained more than $50,000 income during the last 12 months. Only 95% of this group had a negative outlook on life and experienced stress only one or two days a week.

The major negative effects on quality of life among farmers who were not enrolled in the Ohio AgrAbility program were input costs, EPA regulation, financial pressure, costs for agricultural equipments, and government regulation. The major positive effects were weather conditions, time management skills, market price of agricultural products, and machinery breakdown.

More than 77% of Ohio farmers who were enrolled in Ohio AgrAbility program were satisfied with overall quality of life and 21.5% were somewhat satisfied. Most of them were satisfied with their health, farm work in busy season, managing both farm work and family in the busy season, social activities, emotional support, and time received for vacation days. However, almost 20% of respondents reported they were not
satisfied with hours of sleep during the busiest season and not satisfied with managing both farm work and family life in the busiest season (13%).

The factors affecting quality of life for non-enrolled farmers were: gender, outlook on life, disability and health issues, and stress. Income was not a factor affecting this group. Females were less likely to be satisfied with overall quality of life. The majority of farmers who were not enrolled in the OAP had a positive outlook on life most time (52% and greater) and the majority was satisfied by their overall quality of life. Almost 50% of farmers who were not enrolled in OAP had health issues and only less than half of these were not satisfied with their overall quality of life. Farmers in this group were less likely to experience stress during the week and it positively affected their overall quality of life satisfaction.

There are several implications from this study that effect farmers’ quality of life. Studies reporting quality of life variables are limited for the agricultural population. When studies are available, they are outdated or focused on satisfaction by services that were provided to the target population. The Ohio Quality of Life study attempted to identify those factors that farmers perceived important to their overall quality of life.

Within rural communities there are federal, state, and local associations that can significantly impact the farm operation and ultimately the perceptions of a farmer’s outlook on life. Stakeholders should be aware that the strongest factors revealed in the
Ohio study were related to stress management, women’s satisfaction with life, health improvement and other factors such as time management, farm financial systems, eligibility for government programs, and other government agencies’ regulations. Their work should focus on increasing farmers’ quality of life through appropriately designed educational programs.

Policy makers, community development specialists, government specialists, and other stakeholders who have influence over economic development in rural areas can impact a farmer’s quality of life. These stakeholders can directly influence the effect of environmental factors (such as eligibility for a government program, OSHA regulation, or EPA regulation) by designing assistance programs or informational resources and factsheets to help them better understand and/or implement the requirements.

Farm associations and rural organizations with farmer memberships, including Cooperative Extension Systems, can also contribute to a farmer’s personal development. These groups have an opportunity to provide emotional and peer support as well as developing programs where farmers identify needs. Programs could include stress management, balancing pressures, and getting enough sleep during the busy season.

Rural health intervention specialists, rural rehabilitation specialists, National AgrAbility programs and other rural public health organizations have an opportunity to provide resources, training programs, and other services to farmers with disabilities.
These professionals can specifically provide supportive services for independent living and caregiver support.

Ohio farmers have many external factors that affect their daily operation and their outlook on life. Recognizing and quantifying their perceptions is an important aspect for improving life in rural areas. Collectively working together to understand the results of this study, and their implications to agricultural occupations, can positively influence the overall perceptions of farmers’ quality of life.
Resources


position: baseline data from a randomised controlled trial. *Journal of epidemiology and community health*, 58(8), 667-673.


Appendix A: The IRB protocol approval

Behavioral and Social Sciences Institutional Review Board
Office of Responsible Research Practices
300 Research Administration Building
1940 Kenny Road
Columbus, OH 43210-1062
Phone (614) 688-4577
Fax (614) 688-0066
www.osu.edu

August 30, 2013

Protocol Number: 2013B0236
Protocol Title: OHIO AGRABILITY QUALITY OF LIFE, Shelly Dee-Jepson, Food, Agricultural and Biological Engineering
Type of Review: Initial Review—Expedited
IRB Staff Contact: Michael Donovan Phone: 614-292-6950 Email: donovan.6@osu.edu

Dear Dr. Jepson,

The Behavioral and Social Sciences IRB APPROVED BY EXPEDITED REVIEW the above referenced research. The Board was able to provide expedited approval under 45 CFR 46.1100(b)(1) because the research meets the applicability criteria and one or more categories of research eligible for expedited review, as indicated below.

Date of IRB Approval: August 13, 2013
Date of IRB Approval Expiration: August 15, 2014
Expedited Review Category: *

In addition, the research was approved for a waiver of documentation of the consent process.

If applicable, informed consent (and HIPAA research authorization) must be obtained from subjects or their legally authorized representatives and documented prior to research involvement. The IRB-approved consent form and process must be used. Changes in the research (e.g., recruitment procedures, advertisements, enrollment numbers, etc.) or informed consent process must be approved by the IRB before they are implemented (except where necessary to eliminate apparent immediate hazards to subjects).

This approval is valid for one year from the date of IRB review when approval is granted or modifications are required. The approval will no longer be in effect on the date listed above as the IRB expiration date. A Continuing Review application must be approved within this interval to avoid expiration of IRB approval and cessation of all research activities. A final report must be provided to the IRB and all records relating to the research (including signed consent forms) must be retained and available for audit for at least 3 years after the research has ended.

It is the responsibility of all investigators and research staff to promptly report to the IRB any serious, unexpected and related adverse events and potential unanticipated problems involving risks to subjects or others.

This approval is issued under The Ohio State University’s OHRP Federally Approved #00005378. All forms and procedures can be found on the OHRP website – www.ohrp.osu.edu. Please feel free to contact the IRB staff contact listed above with any questions or concerns.

Michael Edwards, PhD, Chair
Behavioral and Social Sciences Institutional Review Board
Appendix B: Quality of Life Questionnaire

Survey Farmers’ Quality of Life
Demographics factors

1. Select your age group
   - Under 25
   - 25-34
   - 35-44
   - 45-54
   - 55-64
   - 65-74
   - 75-84
   - 84 and over

2. Select your gender
   - Male
   - Female

3. Select your type of employment status (Select any/all that apply)
   - Full time farm
   - Part time farm/seasonal work
   - Work off farm full time
   - Work off farm part time
   - Work off farm seasonal

4. Select your farm’s size
   - 1 – 69 acres
   - 70 – 179 acres
   - 180 – 499 acres
   - 500 – 999 acres
   - 1,000 – or more acres

5. Location in Ohio
   Indicate your primary county

6. Select your farm commodities (Select any that apply)
   - Livestock product (beef cows, calves, beef production, cattle & calves, hogs and pigs, pork production, milk cows, red meat production, sheep and lambs, wool)
   - Poultry and Poultry product (broilers, chicken, egg production, turkey production)
   - Milk and milk production (milk production, all cheese, Swiss cheese, creamed cottage cheese, ice cream, milk sherbet)
   - Field Crops (corn for grain, corn for silage, hay, oats, potatoes, soybean, tobacco, wheat)
   - Vegetables, Fresh (beets, cabbage, sweet corn, pumpkins, tomatoes, all fresh vegetables)
   - Vegetable, Processing (cucumbers, tomatoes, all processing vegetables)
   - Fruit (apple, grapes, peaches, strawberries)
   - Miscellaneous (honey production, maple syrup)
   - Other: please provide type
7. Select your net cash farm income

- Farm with losses
- Farms with gains of-less that $1000
- $1,000 - $4,999
- $5,000 - $9,999
- $10,000 - $24,999
- $25,000 - $49,999
- $50,000 or more

8. In your busiest season of the year, how many hours comprise your typical work day (consider both hours worked on and off the farm in your response)

- 3-4 hours or less
- 5-7 hours
- 8 hours
- 9-11 hours
- 12-14 hours
- 15-17 hours or more
- 18 and above
- I don't know

9. How many months comprise your busy season[s]?

- Less than 30 days
- 1 month
- 2 months
- 3 months
- 4 months
- 5 months
- 6 months
- 7 months
- 8 months
- 9 months
- 10 months
- 11 months
- 12 months
- I don't know

10. How would you classify your outlook on life this past year?

- Positive outlook most of the time (52% or greater)
- Positive outlook 51% of the time (49% of the time)
- Negative outlook 51% of the time (and positive 49%)
- Negative outlook most of the time (52% or greater)

In the next section, questions will ask you about various factors that have been known to affect a person’s quality of life. As you think about your answers, please reflect on your experiences for the past 12 months. By asking you to reflect on an entire year, your answers will take into consideration all of the farming seasons you experience.
Environmental Factors

How much do the factors listed below affect your quality of life during the last year? Rate each factor on a scale from “Negative affect” (High, Medium, Low), “No affect” to “Positive affect” (High, Medium, Low). Select one option for each question.

<table>
<thead>
<tr>
<th>Questions</th>
<th>Negative Affect</th>
<th>No Affect</th>
<th>Positive Affect</th>
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</thead>
<tbody>
<tr>
<td>11. How did weather during the seasonal period affect your quality of life?</td>
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<td>12. How did machinery breakdowns affect your quality of life?</td>
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<td>13. How did diseases (animal and plant) affect your quality of life?</td>
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<td>14. How did market prices for agricultural products affect your quality of life?</td>
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<td>15. How did costs for agricultural equipment affect your quality of life?</td>
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<td>16. How did input costs affect your quality of life?</td>
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<td>17. How did time management skills affect your quality of life?</td>
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<td>18. How did financial pressure affect your quality of life?</td>
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<td>19. How did government regulations affect your quality of life?</td>
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<td>20. How did eligibility for government programs affect your quality of life?</td>
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<td>21. How did OSHA regulation affect your quality of life?</td>
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<td>22. How did Environmental Protection Agency regulation affect your quality of life?</td>
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<td>23. How did Ohio Department of Agriculture regulation affect your quality of life?</td>
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Health-Work-Leisure Factors

24. Have you had disabilities or any health problem during the last year?
   - [ ] No
   - [ ] Yes

If yes, indicate please what kind health problem have you had during the last year. [Select any that apply]

- Arthritis
- Head injury
- Spinal cord injury
- Amputation (hand, arm, leg, foot)
- Paralysis
- Back pain
- Back injury
- Heart problem
- Stroke
- High blood pressure
- Diabetes
- Cancer
- Visual
- Hearing impairment
- Respiratory problem
- Cerebral palsy
- Parkinson's disease
- Alzheimer's disease
- Repetitive motion injuries
- Autism
- Depression
- Anxiety
- Breathing problem
- Alcohol
- Drug abuse (legal and illegal)
- Epilepsy
- Intellectual disability
- Other (please provide type__________________________)

25. How often did you experience stress in your life during on an average week?
   - [ ] 1-2 days a week
   - [ ] 3-4 days a week
   - [ ] 5-6 days a week
   - [ ] All days a week
   - [ ] I don't know
How much do the factors listed below affect your satisfaction regarding your quality of life during the last year? Rate each factor on a scale from “Completely satisfied”, “Very satisfied”, “Somewhat satisfied”, “Not satisfied”, “Not at all satisfied”.

<table>
<thead>
<tr>
<th>Questions</th>
<th>Completely Satisfied</th>
<th>Very Satisfied</th>
<th>Somewhat Satisfied</th>
<th>Not Satisfied</th>
<th>Not at all satisfied</th>
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<tr>
<td>26. How satisfied are you with your overall health?</td>
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<tr>
<td>27. How satisfied are you with your farm work in your busiest season of year?</td>
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<td>28. How satisfied are you with your work hours in your busiest season of year?</td>
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<tr>
<td>29. How satisfied are you with your hours of sleep during the busiest season of year?</td>
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<tr>
<td>30. How satisfied are you managing both farm work and family life in your busiest time?</td>
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<tr>
<td>31. How satisfied are you with your received time for vacation or days off during the last year?</td>
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<tr>
<td>32. How satisfied are you with your social activities?</td>
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<tr>
<td>33. How satisfied are you with your emotional support from others?</td>
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<tr>
<td>34. How satisfied are you with your overall quality of life?</td>
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</table>

Thank you for your participation in the Farmers’ Quality of Life Research!
Dear Ms. Pat Petzel

We in the Agricultural Safety and Health Program at the Ohio State University are conducting a Quality of Life survey. The Ohio Farm Bureau is highly recognized among our farmers and agricultural organizations. We will very appreciate if the Ohio Farm Bureau will help to reach the Ohio farmers and help us to disseminate our questionnaire.

Quality of Life is considered more of an emotional contentment with the world, including satisfaction and support farmer receive in their occupation. Quality of Life can be linked to emotional well-being, stress, as well as other health and medical related conditions. Quality of Life affects how a person feels and reacts to various life events. Quality of Life is different for every person. A person’s perspective can range from positive to negative, happy or sad in many different situations. This perspective can also change within the same person from one day to the next.

Our questionnaire asks how a farmer feels about various aspects that have been known to influence quality of life. The created questionnaire consists of three constructs. There are Social-Demographic, Environmental and Health-Work-Leisure factors. All of the answers
anonymous in that there is no place for person to identify his/her name. All information will be grouped with other farmers, analyzed and reported as aggregated data. This questionnaire will take about 5-7 minutes to complete.

We would very much appreciate if the Ohio Farm Bureau would help us to reach out to farmers in Ohio to conduct our survey. Is it be possible to use the annual meeting in early December to distribute and collect survey as a one-time event? We are currently planning to collect surveys during certain 2014 group rating insurance programs that we will be speaking. Having the Farm Bureau Annual Conference as another collection site would help us reach our target participants.

I would be happy to talk with you about our survey and any other questions you might have. Please feel free to call me or my adviser, Dr. Dee Jepsen at the numbers below.

Thank you for your consideration. Of course we would be happy to provide results from our entire survey once we have completed the study.

Sincerely,

Program Director - Dr. Dee Jepsen  
Phone: 614-292-6008  
Email: Jepsen.4@osu.edu

Master Student -Suzanna Windon  
Phone: 614-271-7442  
Email: Windon.9@osu.edu
CONSENT and RECRUITMENT LETTER
(Target Group #1 – Farmers who were enrolled in the OAP)

Date:

Dear {Mr./Ms.} [LAST NAME]

We in the Agricultural Safety and Health Program at Ohio State University request your reply. Our program has been commissioned by the National AgrAbility Program to carry out a study of farmers’ quality of life. There are seven other states involved in this National AgrAbility Survey. The Ohio AgrAbility Program promotes independent living for people who continue to farm after an injury or any other health related or disabling condition.

*Quality of Life* is considered more of an emotional contentment with the world, including satisfaction and support you receive in your occupation, and in this case with farming. *Quality of Life* can be linked to emotional well-being, stress, as well as other health and medical related conditions. *Quality of Life* affects how a person feels and reacts to various life events. *Quality of Life* is different for every person. A person’s perspective can range from positive to negative, happy or sad in many different situations. This perspective can also change within the same person from one day to the next.

The Ohio AgrAbility Program is conducting a *Quality of Life* survey specifically for farmers in Ohio. AgrAbility clients are receiving a combination of the survey questions that will address the National survey questions, as well as the Ohio farmer survey questions. To our knowledge, a survey of this nature has not been done before (at least in the last 20 years).
Having an understanding about our Ohio farmers quality of life supports one of the main goals of Healthy People 2010 which is: “increasing quality and years of healthy life.”

The enclosed survey will ask how you feel about various aspects that have been known to influence a person’s quality of life. All of your answers will remain confidential with our project. You will see there is no place for you to identify your name with the answers you provide. All information will be grouped with other farmers and reported as aggregated data. Keep in mind there are no right or wrong answers. Please answer every question as honestly as you can. This questionnaire will take about 30 minutes to complete.

Please return the completed survey in the enclosed postage-paid envelope by [MONTH/DAY/YEAR].

If you have questions about the research, or feel you have been harmed by taking part in the research, feel free to contact The Ohio State University:

- Project Director Dr. Dee Jepsen
- 590 Woody Hayes Drive Columbus, OH 43210
- Phone: 614-292-6008
- Email: jepsen.4@osu.edu

For questions about your rights as a research participant, or to speak with someone who is not a member of the research team, you may contact Ms. Sandra Meadows in the Office of Responsible Research Practices at 1-800-678-6251.

Thank you for helping us to better understand and serve Ohio farmers.

Sincerely,
Dr. Dee Jepsen
Program Director of Agricultural Safety and Health
The Ohio State University
Appendix E: Consent and recruitment script for Ohio farmers who were not enrolled in the OAP

CONSENT and RECRUITMENT SCRIPT for QUESTIONNAIRE
(Target Group #2 - Farmers who were not enrolled in the OAP)

We in the Agricultural Safety and Health Program at Ohio State University request your reply as we set out to answer the question: “What factors determine the quality of life for Ohio farmers.”

Quality of Life is considered more of an emotional contentment with the world, including satisfaction and support you receive in your occupation, and in this case with farming. Quality of Life can be linked to emotional well-being, stress, as well as other health and medical related conditions. Quality of Life affects how a person feels and reacts to various life events. Quality of Life is different for every person. A person’s perspective can range from positive to negative, happy or sad in many different situations. This perspective can also change within the same person from one day to the next.

The Ohio AgrAbility Program is conducting a Quality of Life survey specifically for farmers in Ohio. To our knowledge, a survey of this nature has not been done before (at least in the last 20 years). Having an understanding about our Ohio farmers quality of life supports one of the main goals of Healthy People 2010 which is: “increasing quality and years of healthy life.”
The survey will ask how you feel about various aspects that have been known to influence a person’s quality of life. It is completely voluntary. You can stop at any time or refuse to participate without penalty or loss of benefits you would normally have. All of your answers will remain anonymous and confidential with our project. You will see there is no place for you to include your name with the answers you provide. All information will be grouped with other farmer responses and reported as aggregated data. The only perceived risk you may have is that you could feel uncomfortable sharing personal information about your feelings; however we remind you that your name will not be associated with your responses and you can skip questions you do not wish to answer. Also keep in mind there are no right or wrong answers. Please answer every question as honestly as you can. This questionnaire will take about 7 minutes to complete. Once finished with the survey, please place it in the blank manila envelope in the back of the room.

If you have questions about the research, or feel you have been harmed by taking part in the research, feel free to contact The Ohio State University:

   Project Director Dr. Dee Jepsen
   590 Woody Hayes Drive    Columbus, OH 43210
   Phone: 614-292-6008
   Email: jepsen.4@osu.edu

For questions about your rights as a research participant, or to speak with someone who is not a member of the research team, you may contact Ms. Sandra Meadows in the Office of Responsible Research Practices at 1-800-678-6251.

Thank you for helping us to better understand and serve Ohio farmers.

Sincerely,

Dr. Dee Jepsen
Program Director of Agricultural Safety and Health
The Ohio State University
Appendix F: Consent and recruitment letter for farmers who were enrolled in the Missouri AgrAbility program

Dear Missouri Farmer,

We in the Agricultural Safety and Health Program at Ohio State University are reaching out to farmers in other states and request your reply. The Ohio AgrAbility Program is conducting a *Quality of Life* survey specifically for farmers. As a client of the Missouri AgrAbility Program we are asking for your help to test our questionnaire.

*Quality of Life* is considered more of an emotional contentment with the world, including satisfaction and support you receive in your occupation, and in this case with farming. *Quality of Life* can be linked to emotional well-being, stress, as well as other health and medical related conditions. *Quality of Life* affects how a person feels and reacts to various life events. *Quality of Life* is different for every person. A person’s perspective can range from positive to negative, happy or sad in many different situations. This perspective can also change within the same person from one day to the next.

The enclosed survey will ask how you feel about various aspects that have been known to influence a person’s quality of life. All of your answers will remain confidential with our AgrAbility Project. As you will see there is no place for you to identify your name with the answers you provide. All information will be grouped with other farmers, analyzed and reported as aggregated data. Keep in mind there are no right or wrong answers. Please answer every question as honestly as you can. This questionnaire will take about 10 minutes to complete.

Please return the completed survey in the self enclosed postage-paid envelope by September 27, 2013. If you have questions about our research, you can contact us directly or Karen Funkenbusch, Director, Missouri AgrAbility Project. Your role in our AgrAbility project is to simply test our questionnaire. We do not expect any adverse affects from your participation, but if you feel you have been harmed by taking part in the research, feel free to contact:

<table>
<thead>
<tr>
<th>Dr. Dee Jepsen</th>
<th>Dr. Karen Funkenbusch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director, Ohio AgrAbility Program</td>
<td>Director, Missouri AgrAbility Program</td>
</tr>
</tbody>
</table>

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Thank you for your collaboration, for helping us to better understand the Quality of Life of farmers.

Sincerely,

Dr. Dee Jepsen
Program Director, Agricultural Safety and Health
The Ohio State University
Appendix G: Letter for asking about external validity test

From: Suzanna Windon  
Sent: Saturday, June 15, 2013 3:38 PM  
To:  
Subject: External Validity Test (Ohio AgrAbility Project)

Dear our Colleagues

We in the Agricultural Safety and Health Program at Ohio State University conducting farmers’ Quality of Life research. The Ohio AgrAbility Program promotes independent living for people who continue to farm after an injury or any other health related or disabling conditions.

Quality of Life is a central concern for individuals and policy makers, which makes it important to measure outcomes. The multiple meanings and difficult concept examined objective and subjective indicators in previous studies that influence on farmers’ quality of life. According to our understanding Quality of Life is considered as a subjective category and more of an emotional contentment with the world, including satisfaction and support farmers receive through their farming occupation and life on the farm. We created a questionnaire that consisted of three constructs. They are Demographic, Environmental and Health-Work-Leisure.

Funding from this study will help us better understand what kind of factors influence Quality of Life of Ohio farmers who are enrolled in the Ohio AgrAbility Program and Ohio farmers who are not enrolled in the Ohio AgrAbility Program. The results of this study also will help us enhance our educational and supportive services to our clients.

As an expert familiar with AgrAbility farmers/clients we would like to ask for your review of our newly created questionnaire. Please, make your honest notes and suggestions regarding our survey questions. Also, we will ask you to bring your notes to the ISASH conference and devote to us one hour of your time after Monday dinner to help us validate our instruments. The participation in an external validity test is voluntary. However, we will be very appreciative if you will help us in our research process.

Thank you for playing an important role in OSU Agricultural Safety and Health Program’s mission to better understand farmers and help them meet their goals.

Summarizing:

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1. Please read the attachment (Quality of Life Questionnaire) and make comments.
2. Please bring notes of your comments to the ISASH Conference

Thank you.
Sincerely,
Suzanna Windon & Dee Jepsen

Suzanna Windon
Graduate Research Associate
Department of Food, Ag & Biological Engineering.
The Ohio State University

Dee Jepsen
Assistant Professor
Director of Agricultural Safety and Health Program. Department of Food, Ag & Biological Engineering.
The Ohio State University