

The Pennsylvania State University

The Graduate School

College of Agricultural Sciences

**QUALITY OF LIFE MEASURE FOR PENNSYLVANIA AGRICULTURAL
PRODUCERS WITH A DISABILITY**

A Thesis in

Agricultural and Extension Education

by

Linda M. Fetzer

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Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Master of Science

August 2010

The thesis of Linda M. Fetzer was reviewed and approved* by the following:

Connie D. Baggett
Associate Professor, Agriculture and Extension Education
Thesis Advisor

Rama B. Radhakrishna
Professor, Agricultural and Extension Education

James W. Hilton
Associate Professor, Agricultural Engineering and Education

Tracy S. Hoover
Professor
Head of the Department of Agricultural and Extension Education

*Signatures are on file in the Graduate School

ABSTRACT

Quality of Life Measure for Pennsylvania Agricultural Producers with a Disability

This research study examined the McGill Quality of Life (MQOL) scores for two groups of people that have worked with the AgrAbility Project in Pennsylvania. There is limited information about quality of life and agricultural producers. This study is the first to use intervention and non-participant groups to see if there is a difference between the McGill Quality of Life (MQOL) total score between those that received full AgrAbility services and those that received minimal information. The McGill QOL questionnaire was mailed to all 181 participants utilizing a three-part modified Dillman method with a cover letter, McGill survey and postage-paid return addressed envelope. A response rate of 66.0% or 66 surveys were returned in the intervention group and 33.3% response rate or 27 returned surveys in the non-participant group.

No significant differences were found between the intervention and non-participant groups based upon age and gender. Significant differences were found between the two groups related to farm operation, work status, and primary disability. The MQOL single-item mean score for the non-participant group was 5.79 and the score for the intervention group was 6.38 on the eleven point scale. No significant difference was found ($t = -.960$; $p > .05$) between the groups based upon this statement. Overall MQOL total scores were based upon a single-item physical question and four subscales. No significant difference ($t = .082$; $p > .05$) was found between the groups.

One of the main findings was that the intervention group, which had received AgrAbility services; had a higher rate (95.5%) than the non-participant group (66.6%) in regards to remaining in production agriculture at either full or part time level. A significant difference was

found between the two groups in their ability to operate machinery ($t = -3.24$; $p < .05$) and their ability to change or modify their machinery ($t = -2.64$; $p < .05$). Statements that were approaching significance related to completion of chores and their ability to manage their farm operation. No statistically significance difference between the groups was found regarding accessibility to their workspace and ability to live in their home.

In regards to farm operations, 50 out of the 93 farms represented in this study were dairy farms. The number of dairy farmers in the intervention group was 63.6%, which is double the amount in the non-participant group (29.6%). However, dairy farming represented a much larger majority of the farm operations in the intervention group compared to the non-participant group.

Dairy farming is associated with manual labor and repetitive tasks and income fluctuations due to milk prices. When comparing the MQOL total score for dairy farmers to the non-participant and intervention groups, mean scores for dairy farmers were 5.884 compared to 6.367 for non-participant and 6.248 for intervention. There was no significant difference ($F = .598$; $p < .05$) between the three groups in regards to their overall MQOL total score.

Three primary disabilities that ranked in the top three for the intervention group and the top five for the non-participant group included back injury, joint injury and arthritis. These findings were expected due to the manual labor and repetitive motion tasks associated with production agriculture. In regards to physical symptoms, reoccurring themes were evident in the groups and included back-related injury or pain, general pain, problems sleeping, and tiredness.

Participants were asked whether or not AgrAbility provided them with help through a “yes” or “no” question on the survey. Response rate by the intervention group was 65 out of 66 participants with 97.0% responding that AgrAbility provided them with help and 1.5%

responded negatively. The non-participant group did not receive AgrAbility services and their responses were not included in these findings.

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ACKNOWLEDGEMENTS

Dr. Connie Baggett, committee chair and AgrAbility Project Director, has provided valuable guidance, encouragement, and support throughout my graduate program. I appreciate the strong dedication he has to production agricultural and to the value of extension education. His support in my work and graduate education has helped me grow as a person and increase my professionalism. Without Dr. Baggett's support, guidance, and encouragement to pursue my graduate degree; this study would not have been successful.

My appreciation extends to Dr. Rama Radhakrishna for the skills and support that he provided in both the classroom and as a valuable member of my graduate committee. Dr. Radhakrishna has taught me to always ask questions, pay close attention to details, and to challenge myself. Appreciation is extended to Dr. Jim Hilton for his ongoing insight, patience, and suggestions throughout my research project. Dr. Hilton encouraged me to look beyond my study to critically look at my work and research.

Thanks to Dr. Angela Hisson, OTR/L who has been my mentor throughout my graduate program. She has been a sounding board for ideas and has shared my joys and frustrations. Angie's encouragement and insights have been invaluable as I completed my coursework and thesis. My appreciation extends to Dr. Robert Fetsch and Dr. Robin Cohen for their assistance during my data analysis.

Acknowledgements would not be complete without including my husband, Eric, and son, Austin who have been so patient with my class schedule and study time. Eric has been there for me during the good and bad times of this journey and his love and encouragement enabled me to complete this passage. I must also acknowledge my thanks to my heavenly Father who was there with me every step of the way and enabled me to keep my sanity.

CHAPTER I

INTRODUCTION

Importance of Agriculture

Agriculture is one of the main industries in Pennsylvania, generating \$6.12 billion in cash receipts in 2008 (National Agricultural Statistic Service-NASS). Pennsylvania's agricultural heritage continues to be important in the economy of the state as well as an integral part of the rural culture that is evident across the Commonwealth. Contrary to prior years, the actual number of farms in Pennsylvania is growing and reached a total number of 63,200 farms in 2008 (NASS, 2009). There are more farms in Pennsylvania; however the agricultural income has or is providing a smaller percentage of the overall family income. According to the U.S. Department of Agriculture (USDA, n.d.), between 85-95% of the overall farm household income came from off-the-farm sources. The decrease in income proportion may reflect the economic situation by demonstrating that multiple income sources were necessary for many families in today's economy to meet their financial needs. Producers and their spouse may work off the farm jobs to provide supplemental income or to provide health insurance and other benefits. Multiple jobs may lead farmers and family members to have elevated stress, increased fatigue, and decreased rest that are part of an equation for farm accidents that can result in an injury or death.

Although agriculture in Pennsylvania is diverse, dairy production remained the primary segment of the overall agricultural industry. Nationally, Pennsylvania ranks 4th in total milk production (NASS, 2007). The state's total milk production contributed more than \$7 million to the state's economy and generates 40,000 jobs in Pennsylvania (Center for Dairy Excellence – CDE, 2008). Eighty-five percent of the dairy farmer's income was spent locally that reiterates the impact of agriculture on the local economy (CDE, 2008). In addition to milk production,

Pennsylvania ranked in the top ten nationally in ice cream and frozen desserts, butter, and cheese production (PA Department of Agriculture, 2009). Milk and other dairy products were calculated to be \$1.6 billion in 2007 for Pennsylvania's economy (CDE, n.d.). Dairy farming is also one enterprise that exhibits extreme fluctuations in income due to milk prices. Due to the tasks associated with dairy farming, producers continued to experience back and joint impairments from milking, climbing silos, and working around large animals.

Dairy farming has been the main enterprise for Pennsylvanians, but agriculture continued to diversify and change based upon producer and consumer needs. NASS (2009) reported that Pennsylvania ranked fifth in chicken inventory and in the top ten in turkey and egg production. The total cash value of cattle, hogs, and sheep increased 6% from the previous year to \$2.2 billion dollars. Southern Pennsylvania flourished with orchards of apples, peaches, pears, grapes, cherries and grape vineyards and ranked fourth in the nation in utilized apple production (NASS, 2009). Pennsylvania continued to have traditional farms such as dairy, beef, and crops; however, the fabric of Pennsylvania is changing to meet new consumer needs with Pennsylvania ranking fifth in organic product sales in the United States (NASS, 2009). Many of the organic farms were small, manual operations that used older and smaller tractors and tasks require a significant amount of manual labor. Each commodity raised in the state were associated with different job requirements and related injury risk, such as back injuries for orchard workers, repetitive motion injuries for mushroom growers, and joint impairments for dairy farmers.

The main resource in Pennsylvania agriculture was the farmers and their families who work endless hours under less than ideal conditions to provide food and fiber products to consumers across the state and around the world. Pennsylvania agricultural producers were an independent group of individuals who believe in hard work and self-help. Unfortunately,

farming was not only a highly rewarding career but also one of the most dangerous. According to the National Safety Council, the agricultural industry's 2008 death rate was 29.0 fatalities per 100,000 workers (NSC, 2010). These numbers were national death rates and Pennsylvania farmers were not exempted from incidents resulting in death or injury. The top three incidents resulting in farm fatalities in the state were tractors and machinery related, and falls from structures and on surfaces. According to the Center for Disease Control (CDC), there were approximately 243 loss-work-time injuries daily to agricultural workers with five percent resulting in a permanent disability (NIOSH, 2009). NASS reported that there were an estimated total of 74,824 agricultural work-related injuries in 2001 (NASS, 2004).

Most Pennsylvania farms were family owned and operated, therefore farm injuries were extremely detrimental to farm families' agricultural production, mental health, economy, and family life. Farmers in Pennsylvania continue to use older equipment rather than purchasing equipment with improved safety features. It was and continues to be very common for farmers to use early model tractors that were rarely equipped with a rollover protection structures (ROPS) for the majority of their farming operations. Not only was Pennsylvania farm equipment older, but so are its farmers.

In 2007, the average age of a Pennsylvania farmer was 55.2 years (NASS). Statistics from the National Ag Safety Database (NASD, 2004) showed the risk of injury increased with age for agricultural producers. In addition to age and using older equipment with fewer safety features, these producers tended to be more fatigued with limited mobility, reduced vision, decreased cognition and slower reaction time. When working with equipment and animals, these risk factors can lead to injuries and even death.

A new trend in farm operations was an increasing number of women as the principal operators with the number of women-operated farms increasing by 41% in Pennsylvania (Center for Rural Pennsylvania, 2009). Women have been involved with farm operations in varying capacities in the past, but typically it had been associated with tasks such as calf care, milking, and bookkeeping. One of the areas where women seemed to be increasing their involvement was as principal operator in the area of sustainable agricultural activities such as animal grazing, community supported agriculture, and organic produce. A comprehensive needs assessment should be completed to determine if specialized assistance is needed for this growing population of women agricultural producers.

Pennsylvania has one of the largest rural populations in the country. Rural life can be a very rewarding lifestyle, but it has not been free from problems that can impact the producer's quality of life. Due to the stressful nature of agriculture, reliance upon factors beyond the producer's control and the economic struggles of this occupation, it has been common for agricultural producers to experience mental health issues such as stress, anxiety, and depression. Agricultural producers typically did not seek professional medical help related to mental health issues because resources were not easily accessible without long travel times, lack of insurance coverage, and a perceived stigma associated with receiving mental health services. The rising cost of health insurance, along with limited availability of quality health care in some areas has made it difficult for rural residents to receive necessary health services. In the event of a major injury or illness, rural residents were often required to travel to larger hospitals in major metropolitan areas. Therefore, it was common for rural residents to not access services or complete recommended treatments and procedures.

Formation of AgrAbility

Assistive technology and modifications have become commonplace in many work environments but the agricultural industry was underserved. Agricultural producers with a disability had the desire to remain in farming but the technology was still in a transition phase of being implemented in agricultural worksites. U.S. Legislation was introduced through the 1990 Farm Bill that provided services to the agricultural producer with a disability who wanted to remain in production. The AgrAbility Project was formed through legislative means and mandated by Congress with each state AgrAbility Project as a partnership between the land-grant university Cooperative Extension System and at least one not-for-profit organization that works with individuals with a disability. The first USDA AgrAbility Projects were funded in 1991 (National AgrAbility Website, 2009).

Ingram and Radhakrishna stated that Cooperative Extension needed to change their program delivery system to serve the diversity of families across the country (Ingram & Radhakrishna, 2002). AgrAbility is a unique Cooperative Extension program that served the underserved population of agricultural producers with a disability. AgrAbility services were different than any other Cooperative Extension program and provide a niche service that was not formally addressed in the past. The need to provide services to producers with a disability was identified and Cooperative Extension in partnership with non-profit organizations was implemented to provide a service delivery system. Each state and regional AgrAbility Project works both independently and collectively to provide necessary services to producers. The AgrAbility staff utilizes the experiences of colleagues across the country to identify appropriate services and assistance programs for producers.

Statement of the problem

Agricultural health and safety continues to be a very important topic yet has been difficult to gather data regarding agricultural injuries. Many agricultural related injuries were not incident specific but rather an ongoing accumulation of orthopedic and joint impairments from years of manual labor and physical work. Additionally there was not a system to collect this type of information and it was difficult to obtain accurate information regarding disabilities of agricultural producers. Producers do not always view themselves as having a disability even though they may have a long-term disability such as an arm amputation. The strong work ethic associated with agriculture, paralleled with a sense of independence, autonomy, and pride in their accomplishments may be a good quality but it tends to hamper data collection because many producers view some types of disabilities, milker's knees, as a natural progression of aging and not related to years of physical farm labor.

Need for the Study

Studies have been completed on various aspects of agricultural safety and health. However, minimal information is available regarding agricultural producers with a disability and the difficulties they have while remaining in production agriculture. The National AgrAbility Project has recently focused evaluation efforts on quality of life (QOL) measurements by using two different QOL instruments. The first tool is the SF-36 which has been used by the Delaware – Maryland AgrAbility Project. The second tool is the McGill Quality of Life (MQOL) which has been used by multiple states in a pre and post test format. This research study is the first attempt to examine differences between a non-participant and an intervention group in a study related to farmers with a disability using the MQOL instrument.

Purpose and Objectives

The purpose of this study was to determine the quality of life of the non-participant and intervention groups. Agricultural producers in the non-participant group include those farmers who contacted AgrAbility for information but did not receive services. The intervention group consists of producers who contacted and received AgrAbility services.

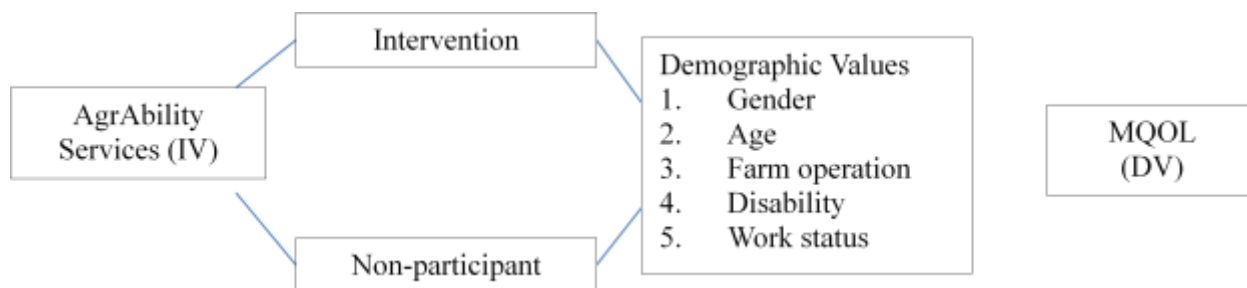
The following research objectives were developed to examine:

1. McGill Quality of Life scores of the two identified groups, those who contacted and received AgrAbility services and those who did not receive AgrAbility services,
2. Whether producers with a disability remain in production agriculture,
3. Differences between the two groups regarding type of farm operation, primary disability and commonly reported troublesome symptoms, and
4. The impact of AgrAbility information and services.

Conceptual Framework

The conceptual framework for this study is shown in Figure 1. As shown in Figure 1, this study involved two groups, intervention and non-participant. The intervention group received full AgrAbility services; while the non-participant group did not receive AgrAbility services. In addition, demographic characteristics of the intervention and non-participant groups are also collected and examined. The dependent variable is the McGill Quality of Life (MQOL) score which includes scores for physical condition, physical symptoms, psychological, existential, and support scores.

Figure 1: Conceptual Framework for the Study



Assumptions about the Study

The main assumption for this study is that the person who completes the MQOL instrument is the intended person. The intended person is that individual to whom the mailing was addressed because they were the producer with a disability who either contacted AgrAbility and received AgrAbility services.

Definition of Terms

To ensure the reader's understanding of terms used in this study, the following definitions are provided.

AgrAbility: Grant projects funded by the United States Department of Agriculture that provides direct services for farmers and ranchers with a disability or long-term health condition that is impacting their ability to complete farm/ranch responsibilities.

Agricultural Producer: A person involved in part-time or full-time employment in the agricultural field.

Assistive Technology: Any type of equipment or modifications that can assist a person with a disability to complete a task.

AgrAbility Client: As defined by the National AgrAbility Project Evaluation Team, is an agricultural producer with a disability that has contacted AgrAbility staff and has received an on-site farm assessment as part of their services.

AgrAbility Contact: As defined by the National AgrAbility Project (NAP) Evaluation Team is an agricultural producer with a disability that has contacted AgrAbility staff but only received information via email, phone, or mail and has not received an on-site farm assessment.

Disability: In AgrAbility, a disability is classified as a permanent disability or long-term health condition that impacts the agricultural producer's ability to complete necessary tasks on the farm operation.

Existentialism: A person is responsible for giving their life meaning (Wikipedia, 2010). Existential is one of the subscales of the MQOL instrument. Wikipedia is an edited source without a stable definition. "Use a chiefly 20th century philosophical movement embracing diverse doctrines but centering upon analysis of individual existence in an unfathomable universe and the plight of the individual who must assume ultimate responsibility for acts of free will without any certain knowledge of what is right or wrong or good or bad" (Merriam-Webster Dictionary).

National AgrAbility Project (NAP): NAP is a partnership between Purdue University, Goodwill Industries, and Arthritis Foundation (Indiana Chapter) that provides educational activities and support to the state and regional AgrAbility Projects to enhance the services provided to AgrAbility clients.

Quality of Life (QOL): The general well-being of an individual (Wikipedia). In public health and in medicine, the concept of health-related quality of life refers to a person or group's perceived physical and mental health over time (CDC).

Secondary Injury: An injury that results in the person missing three or more days from work/exercise and this injury occurs within one year of the previous injury (Grisso, Perumpral, and Ballin, 2008).

CHAPTER II

REVIEW OF LITERATURE

Purpose of Study

AgrAbility is a program designed to provide direct services to farmers and ranchers with a disability that is impacting their ability to complete farm chores. Past research has focused upon the cause of agricultural injuries with little data about farmers with a disability and the disabilities' impact upon their ability to complete farm responsibilities. The only peer reviewed study concerning an evaluation of AgrAbility clients, was completed by the University of Wisconsin while they served as the National AgrAbility Project. Meyer and Fetsch (2006) evaluated the impact of AgrAbility on farmers and ranchers who received services through state and regional AgrAbility projects (SRAPS). A mailed survey tool using the Dillman method was sent to farmers and ranchers who received services by SRAPS between project years 1998 through 2002. One of the main findings was that 88% of the farmers with a disability remained in production agriculture at either a full or part time capacity. One purpose of the study was to evaluate the impact of AgrAbility services upon the producer. However, questions used by the researchers did not yield predicted results due to required recall of specific information on additional impact questions. Overall the farmers in the study were optimistic in regards to their future. However, this study did not address outside factors that may also affect that optimism. Since this study was the first to examine the relationship on AgrAbility and its impact on producers with a disability, it was a good attempt to gather initial data but changes could be made to the study to increase rigor and provide more accurate data. This study only focused on producers who received AgrAbility so a non-participant group was not included. A non-

participant group for a service type project is difficult to obtain because it is difficult to prolong access to services for individuals.

This study will examine the McGill Quality of Life (MQOL) scores for those producers with a disability who received services from the AgrAbility Project in Pennsylvania and those producers who contacted AgrAbility but did not receive full services. The purpose of AgrAbility is to provide services to producers with a disability or long-term health condition that is impacting their ability to be involved in production agriculture either in a full or part time status. AgrAbility for Pennsylvanians has provided direct services to producers with a disability for 15 years. Penn State Cooperative Extension has been the lead partner in Pennsylvania since the inception of the project with subcontract partners including Easter Seals Central Pennsylvania and the Pennsylvania Assistive Technology Foundation.

The review of literature outlines quality of life, risks of production agriculture, common health conditions associated with farmers, and other factors that impact life on the farm.

Quality of Life

Quality of Life (QOL) is a person's sense of well being. QOL has been measured in various ways but the McGill Quality of Life (MQOL) survey is one measurement tool that includes physical, psychological, existential, and support subscales to provide a more rounded measure of a person's QOL (Cohen, 1997). An agricultural producer's life is filled with a high risk of injury or death and stress due to their work environment; however, it is still an occupation and lifestyle that has been chosen by many families across the country. Farming is typically referred to as a family occupation because it includes multiple generations where home and work responsibilities are intertwined. Current research concerning QOL and agricultural producers

was still in the early stages. In regards to the MQOL, most of the QOL research has been conducted in regards to palliative medicine.

Fetsch presented results of a study using the MQOL scores and AgrAbility clients at the 2009 National AgrAbility Training Workshop in Grand Rapids, Michigan. This particular study was based upon preliminary data collected in a pre-post test design from AgrAbility projects in Colorado, Kansas, Virginia, and Wisconsin. The instrument used during the pre and post test survey was the McGill QOL plus demographic information and questions approved by the National AgrAbility Evaluation Standing Committee that addressed independent living and farm operation questions as well as AgrAbility services. There were 37 participants in the pilot study with ages ranging from 20 to 85 with 73% of the participants males. Participants completed the survey instrument prior to receiving AgrAbility services and after AgrAbility services were completed. There was an increase in participants MQOL score from the pre-test to post test in all areas including the single item scale (SIS), physical well being, physical symptoms, support, existential well-being, psychological well-being, and total MQOL scores. In regards to significance, the psychological well-being scale scored statistically significant at $p = .003$ and increased to $p = .000$ at the post survey time. The support subscale scored statistically lower than the population but increased to the 'within the normal range' category with the post-test. Fetsch did not present the statistical significance of all sub-scales (Fetsch, 2009). As a pilot study, the data collected by Fetsch and participating AgrAbility projects did provide initial MQOL data for agricultural producers with a disability. The purpose of the pilot test was to determine the usefulness of the MQOL and whether or not it was an instrument that could be used with agricultural producers.

General Agricultural Safety

A review of literature was completed to examine the knowledge base concerning disabilities and health related issues among agricultural producers. Information concerning agricultural related deaths was available but even those statistics may not be completely accurate because of how deaths are coded and information collected. There is not one specific cause of agricultural injuries and fatalities, but rather various factors because production agriculture is multifaceted in tasks, equipment, and labor sources. According to the data collected by Penn State Agricultural Safety and Health staff, there were 44 agricultural related fatalities in 2008 in Pennsylvania (Murphy, 2008). These fatalities cover a broad range of agricultural related incidents but not those related to the manual labor of farming. Murphy (2008) stated in the publication titled *Pennsylvania Farm Fatalities during 2000-2004* that the top three sources of these fatalities were incidents related to plant and industrial powered vehicles; agricultural and garden machinery; and falls.

Farm related deaths have been tracked for several years to examine trends and identify the need for specific safety education interventions. Agricultural health and safety professionals have identified various types of injuries and health conditions associated with production agriculture. However, it has not been feasible to track agricultural related injuries because of the large number of minor and serious injuries that occurred in farm operations on a regular basis and the complexity of the tracking system. Frank, McKnight, Kirkhor, and Gunderson (2004) stated in their review of agricultural safety and health issues that farm related fatalities and injuries continue to be difficult to track because there is a lack of a uniform national agricultural injury surveillance system and that farm-related statistics were underreported. In addition to a system that records farm-related fatalities and injuries, there should also be a tracking system in

place for agricultural related illnesses or conditions such as arthritis, orthopedic impairments, back injuries, and stress. The Ohio Commission on the Prevention of Injury (2003) stated that “agriculture contributed twice as much to the cost of national occupational injuries as it did to the natural economic output” (p. 5). Work injuries are expensive but agricultural injuries are costly in multiple ways because many farm operations are family owned and operated. When a producer is injured, it is typical for other family members or neighbors to do tasks that they may or may not have the appropriate training and experience to complete. Deboy, Jones, Field, Metcalf and Tormoehlen (2008) used existing data sources and a review of literature to estimate the prevalence of disability in production agriculture. Based upon these sources, the authors stated that a range of 14 to 19.4% disability prevalence exists in the agricultural population. Using these percentages, their estimate was that the disability prevalence in U.S. agriculture would be 1.04 million to 1.61 million people.

The Older Farmer

Older agricultural producers continue to be at a higher risk for work related injuries and death due to the general aging process including reduced reaction time, decreased mobility and changes in cognition levels; which impacts the type of work that they complete in the farm operation. According to NIOSH, older workers were at a disadvantage when it comes to work related injuries, because they were not only more susceptible to injuries but they typically had a longer recuperation period after an injury has occurred (NIOSH, 2009). An older generation of workers was very common in production agriculture, but not in the majority of other industries. Because many farm operations were family owned and operated, the farm workforce included workers of all ages. Younger children and seniors worked in various aspects of the farm

operation. Agricultural safety and health educators continue to emphasize age appropriate tasks for all workers on farm operations, however, this became challenging to enforce when the work force is essentially family members.

The average age of the Pennsylvania farmer in 2007 was 55.2 years old, yet it was not uncommon to have farmers in their 70s and 80s actively involved in production agriculture (2007 Census of Agriculture). According to the Monthly Labor Review (Meyer, 2005) a farmer aged 55 or older was more than 10 times more likely to be involved in a fatal injury that involved tractors, equipment and animals. Amshoff and Reed (2005) explored the health and safety issues of farmers over the age of 50 and concurred that these workers were a large proportion of producers who experienced farm-related injuries and typically the severity of these injuries were more pronounced when compared to younger workers. Their study surveyed 725 farmers from Kentucky and South Carolina to examine demographics, health conditions, and mental health indicators. One of their main findings was that 70% of the respondents indicated that they received personal satisfaction from doing farm work. This type of finding showed that production agriculture was not just an occupation for these individuals but it was also a way of life and their culture. The older producers identified themselves and their accomplishments through their identity with continuing in farming. However, this job satisfaction may be detrimental to their health if they were doing tasks that placed them at a higher risk for injury or death.

Gender Roles

McCoy, Carruth and Reed (2002) completed a literature review of previous studies addressing gender roles in agriculture. An interesting finding was that the average age of a female farmer in 1997 was 58 compared to the average age of a male farmer which was 54 years

old. The role of women in farm operations depends upon the type of farm, size of the farm and commodities. According to the authors, women tended to be more involved in specialized commodity farms such as vegetables and fruit. However, they were also involved in traditional agriculture with jobs such as milking and calf care.

The authors discussed the physical differences between males and females and how these differences can impact their susceptibility of an injury. These differences in height, muscle mass, and strength were all factors. There were two studies cited by the authors that contradicted the idea that physiology was a factor in farm related injuries. In addition to physiological factors, a typical farm woman was involved on the farm while maintaining household responsibilities and possibly juggling an off-the-farm job. This combination led to a higher stress level and likeliness to have depression. The authors examined the literature concerning women's knowledge about farming and agricultural safety. In general, females did not receive the same education about agriculture than their male counterparts. The authors addressed the topic of beliefs about safety to determine whether differences existed regarding their concern about safety.

Muscular Skeletal Injuries

According to the National Safety Council (2010), agriculture was one of the most dangerous occupations. However producer disabilities were not only caused by agricultural incidents but also because of the manual labor involved in the farming occupation. The physical strain and fatigue placed upon the farmer's body are occupational hazards of this industry. Producers were involved daily with tasks that involve repetitive lifting, climbing on and off tractors, lifting excessive amounts, climbing up and down silos, as well as repetitive motion

activities such as bending and squatting during the task of milking. According to the annual demographic data maintained by AgrAbility for Pennsylvanians, primary disabilities in project year 2009-2010 were more related to manual and repetitive labor and included back injuries, joint impairments, arthritis, and orthopedic impairments rather than being incident specific. These types of disabilities accounted for 64% of all primary disabilities of Pennsylvania AgrAbility clients during that project year.

Fathallah, Miller and Miles (2008) examined the incidents of lower back disorders for individuals involved in production agriculture. They found that lower back injuries were common among agricultural producers due to the manual labor associated with farming. Farmers typically lift and move hay bales and feed bags, maneuver animals and endure excessive standing, kneeling and bending related to milking cows. The authors completed a literature review of studies that addressed lower back pain related to agricultural tasks. Their findings associated lower back pain with tasks that include sustained or repetitive stooping, poor posture, poor ergonomics, and general physical labor. In a study completed by Rosecrance, Rodgers, and Merlino (2006), questionnaires were sent to 499 active producers in Kansas to explore the prevalence of lower back pain and musculoskeletal disorders. With a response rate of 64%, their findings showed the average age of the producer to be 57.7 years old, 97.7 percent males, and they were involved in agriculture an average of 35.7 years. Approximately a quarter of the respondents had gone to the emergency room in the past five years due to a farm related incident. In the 12 months prior to the study, producers indicated that they had experienced pain in their back, shoulder, or neck. However, only about a quarter of the producers sought medical attention for their back pain or changed their work habits. It was noted in the study that having back pain may lead to additional musculoskeletal pain due to overcompensating for the low back

pain. Similarly, the CDC published a report titled '*Back Pain Among Persons Working on Small or Family Farms – Eight Colorado Counties, 1993-1996*', that stated dairy farmers were substantially more likely to be effected by back pain compared to producers in other types of farming operations. AgrAbility for Pennsylvanians' demographic information showed the majority of agricultural producers served were dairy farmers with back and orthopedic impairments being the most problematic primary disability. The prevalence of back injury among dairy farmers was supported by Schuler during a presentation at the 2005 ASAE Annual International Meeting for the American Society of Agricultural and Engineers (ASAE). Schuler reviewed data from state and regional AgrAbility projects from project years 2001 through 2004 and concluded that back injury ranked highest among dairy producers. Dairy farming was associated with excessive standing, bending, and squatting to complete the milking process; in addition to fieldwork, climbing silos, and the strains of manual feeding systems.

Diabetes

Amshoff and Reed's (2005) study collected information on the types of chronic conditions affecting the older farmers and found that the main conditions were arthritis, hypertension, hearing impairment, back problems, vision impairments, and diabetes mellitus. Diabetes continues to be a growing problem for the general population. Even though diabetes may not have been a primary health condition for agricultural producers, diabetes mellitus had serious implication for producers as a secondary disability. Since agricultural producers do not work normal hours in a typical work environment, it seems to be more difficult for them to monitor blood glucose levels and maintain appropriate dietary needs. Neil's (2000) article titled *Farmers with Diabetes* discussed the impact of diabetes for agricultural producers and the risk

that they had for injuries and amputations. Due to the farmer's work environment which includes confined spaces, working with unpredictable livestock, operating multiple types of machinery, standing water and chemicals, these risk potentials posed a greater threat to producers for an injury. In addition to the volatile work conditions in agriculture, producers with diabetes tended to have a slower healing process because of vascular problems and circulatory system medications that placed them at a higher risk for lower extremity amputations. With the high threat of lower extremity amputations, it was imperative that agricultural producers with diabetes were aware of their risk factors, watch for the development of foot ulcers, wear proper footwear and seek medical attention.

Mental Health Issues

Secondary injuries varied depending upon the person's primary disability. However, one secondary injury that probably goes uncharted was depression. Grisso, Perumpral, and Ballin's (2009) article titled *'Preventing Secondary Injuries in Agricultural Workplace'* discussed various types of secondary injuries but emphasize that mental illness should be considered as a secondary injury. If the primary injury decreased the producer's ability to complete tasks, limited their involvement in the farm operation, and decreased their perception of what they can contribute to the business, it was not uncommon for stress, anxiety, and depression to occur.

Accurate data was not available on the incidents of stress and depression among agricultural producers. However, in the current economic conditions and stress related to the work environment in a farm operation; stress, anxiety and depression occurred among agricultural producers. The general population does not understand production agriculture and the rural culture which is very different from the urban way of life. Farming and hard work for

many generations of farm families has been their heritage. Farmers are plagued by extreme income fluctuations based upon commodity prices, weather patterns and the impact of government regulations (Fraser, Smith, Judd, Humphreys, Fragar, & Henderson, 2005). In the same study, the researchers acknowledged the role of farming as both the location of home and work and how this proximity and overlapping of roles impacted a producer's mental health. Many people think of farms as an idealistic and calming way of life; however, they are not aware of the stressors involved in agriculture beyond the farm operation. Most farm operations are family owned and operated; therefore, conflicts can arise among the different generations on methods, roles, and finances. It is the experience of Pennsylvania AgrAbility staff that farmers do not have an adequate labor force on the farm; therefore, many farmers do not get the necessary corrective surgery until their pain level had reached a critical point that placed stress on the producer and other family members.

The web of injury causes seemed to be intertwined. Grisso, Perumpral and Ballin (2009) article stated that stress and other mental health illnesses can be classified as a secondary injury. However, Fetsch (2005) stated in his fact sheet titled *'Farming, Ranching: Health Hazard or Opportunity'* that "stress was a personal response to a perceived threat" and that stress can lead to costly injuries or death. Therefore farm related injuries can cause stress and stress may also cause injury or death. One of the main problems with addressing stress and depression issues was the perceived stigma associated with seeking mental health services in rural areas. Mental health services may not be readily available in the rural areas or covered by insurance that inhibits needed access for agricultural producers.

Health Insurance and Services in the Rural Areas

One aspect of farm injuries and health conditions that should be mentioned was the lack of affordable health insurance coverage and limited availability of medical services. Farmers typically fall into one of three categories when it came to health insurance. They either did not have health insurance, or a producer or spouse worked at an off-the-farm job to provide health insurance, or they private pay for insurance costs at typically high premiums. Inwood, Sharp, Smith and Clark (2009) explored the dilemma of health care costs in the rural-urban interface. Their study stated that farmers pay a significantly higher amount in health insurance premiums and the policies often have disincentives for preventative care. Farmers seem to delay seeking medical attention until their condition was critical for several reasons. One reason was that producers may or may not have health insurance that adequately cover appointments and recommended treatments. Secondly, daylight and weather influences the farmer's daily activities and they tended to view fieldwork and chore as more important than taking the time to go to medical appointments. Thirdly, the limited number of medical facilities in the rural areas may require agricultural producers to drive long distances for testing, diagnosis, and treatment.

Many agricultural families lived in the rural areas where access to health care was problematic. Due to their independent nature, health insurance woes and busy schedules, farmers seem to only seek medical advice when their physical need reached a critical stage. The Economic Research Service of the U.S. Department of Agriculture (2009) released a report that focused upon the health status and access to health services for farm and rural populations. The authors stated that farming had a high fatality rate for workers and children, but that agricultural producers were also at a higher "risk for work-related diseases, noise-induced hearing loss, skin diseases, and certain cancers associated with chemical use and prolonged sun exposure" (ERS,

2009). However, this report did not address any of the orthopedic impairments related to farming.

Another aspect of health services in the rural areas was the cultural competency of health care professionals. Some health professionals did not understand the type of work and stress that was associated with production agriculture therefore they could not effectively help the producer with an effective treatment plan. A physical therapist, Jorge (2006) stated that there was a need to address physical rehabilitation and the need for health professionals to be culturally competent for them to be effective in providing treatment to agricultural workers. Agricultural producers were extremely busy workers with tasks that needed to be completed in a timely manner. Agricultural producers need to understand the importance of completing a recommended treatment program; but, it is also important for them to know that their health professional understands their circumstances and adapt their rehabilitation plan to meet their unique needs. Health professionals need to understand the rural culture and the producer's work environment to be able to effectively adapt the farmer's treatment plan to their environment and needs.

Summary

The literature depicted the life of the agricultural producer as a rewarding lifestyle that was also associated with a high risk of injury due to farm tasks and manual labor job responsibilities. According to the literature review, an association may exist between the risk of injury and presence of stress and other mental health issues. Agricultural producers and rural residents were at a health care disadvantage due to the lack of health services and adequate insurance. Production agriculture faces considerable problems related to reliance upon weather, fluctuating commodity prices, and difficulties maintain an adequate number of workers. All of these factors played a role in a person's quality of life.

CHAPTER III

RESEARCH METHODOLOGY

This research study takes a new approach in examining the impact of receiving AgrAbility services and quality of life scores for an agricultural producer with a disability. Limited information was available regarding agricultural producers with a disability and the impact that their disability had on their ability to farm. This study examined the McGill Quality of Life (MQOL) total, single-item items, and subscale scores for two groups of people involved with the AgrAbility for Pennsylvanians project and surveyed both an intervention and a non-participant group regarding AgrAbility services.

Purpose and Objectives

The purpose of this study was to determine the quality of life of the non-participant and intervention groups. Agricultural producers in the non-participant group included those farmers who contacted AgrAbility for information but did not receive services. The intervention group consisted of producers who contacted and received AgrAbility services.

The following research objectives were developed to examine:

1. McGill Quality of Life scores of the two identified groups, those who contacted and received AgrAbility services and those who did not receive AgrAbility services,
2. Whether producers with a disability remain in production agriculture,
3. Differences between the two groups regarding type of farm operation, primary disability and commonly reported troublesome symptoms, and
4. The impact of AgrAbility information and services.

Population and Sample Description

The population for this study included two groups of people involved with the AgrAbility Project in Pennsylvania. The intervention group consisted of agricultural producers who received services and whose cases were closed during the period of January 1, 2000 through December 31, 2007. Of the 100 people in the intervention group, five individuals were deceased and 66 returned their questionnaires resulting in a return rate of 66%. The wait list or non-participant group consisted of agricultural producers that contacted AgrAbility concerning services during the same period of time but did not follow through with receiving full AgrAbility services for various reasons. This group consisted of 81 individuals and completed questionnaires were returned by 27 out of 81 for a 33.3% response rate. All participants were included in the study because the population was small. Since the sample is a convenience sample without the use of random selection and random assignment, the information cannot be generalized back to all AgrAbility clients. Data and results apply to only those individuals who completed and returned their questionnaires. All of the participants were adults and participants from all ethnic backgrounds were included.

Study Design

Due to the nature of this project and the need to provide services in a timely manner, it was not feasible to have an actual control group to complete a true experiment. Contact information had been collected on those individuals receiving AgrAbility services and those farmers with a disability that contacted AgrAbility for information but elected not to go through the on-site farm assessment and case management services offered by AgrAbility. The agricultural producers who did not participate in on-site comprehensive AgrAbility services were

considered as the non-participant or “wait list” group for the study and those farmers receiving direct services were classified as the intervention group. Both groups consisted of farmers with a disability but the difference was whether or not they participated in direct services provided by AgrAbility for Pennsylvanians.

The study design (Figure 2) used a pre-experimental design classified as a static-group comparison and was chosen because there is no random assignment or selection. However, the addition of a non-participant group increases the rigor of the research. Due to the type of program and the length of time to close cases, it was not feasible to do a pre- and post-test study; therefore, a post-test method only was appropriate. The intervention group was comprised of those individuals who received services from the AgrAbility Project in Pennsylvania and the non-participant group included those individuals who did not receive full AgrAbility services. Basic AgrAbility data was collected for the two identified groups.

The application was submitted to the Pennsylvania State University’s internal review board and approval was received to complete the research project (See Appendix D). Posttest McGill Quality of Life survey tools (See Appendix B) were mailed to all 181 participants utilizing a three-part modified Dillman Method with a cover letter (See Appendix A), McGill survey tool and postage-paid return envelope. All of the instruments had an identification number in order to track non-respondents and all data were kept be anonymous and only aggregate data was compiled. A contact log was maintained to track returned questionnaires (See Appendix C).

Figure 2: Static-Group Comparison

	<i>AgrAbility Services</i>	<i>Posttest</i>
G ₁ - Intervention (n=100)	X ₁	O ₁

G ₂ – Control (non-participant) (n=81)		O ₂

Variables

O₁ and O₂: Dependent variable – Quality of life score based upon the McGill QOL questionnaire.

X₁: Independent variable – AgrAbility services

G₁: Intervention group with AgrAbility services

G₂: Non-participant group or clients with no AgrAbility services

Moderating variables – Gender, type of farm operation, elapsed time since treatment, and economic market

Instrumentation

The McGill Quality of Life (MQOL) instrument was developed by Cohen, Mount et al (1997) to meet the need for a QOL measurement tool that evaluates the general domains of QOL that applies to all people, equally represents all aspects of QOL, include existential concerns, and balances both positive and negative influences Cohen, Mount, et al (1997). The MQOL instrument includes physical, psychological, existential, and support subscales in their evaluation of an overall QOL total score to provide a more comprehensive result that is not weighted on just

the physical side of the person but tries to provide a more comprehensive score. According to Cohen et al (1997) it is important to include existential concerns for those individuals who may have a life-threatening illness. Their attempt to provide a balanced QOL score includes the use of both positive and negative influences that may affect the person.

The MQOL is an instrument that has been tested in a small group setting and revised to better meet the objectives of an overall QOL score. Since there is no standard method of measuring QOL, the MQOL was designed to use both single item scale (SIS) and overall scores in the areas of physical, psychological, existential and support. According to Cohen et al (1997), the construct validity was based upon the use of the MQOL compared to the Spitzer Quality of Life Index (SA-QLI). Based upon the same study, where both tools were used, the following results were obtained for the validity of MQOL:

1. The total scores for the MQOL were positively correlated with the SIS of the SA-QLI scores,
2. The scores for physical measure on the MQOL correlated with items on the SA-QLI,
3. The psychological scores for the MQOL had a high correlation with the SA-QLI health and outlook items,
4. Existential subscale did not have a strong correlation with any particular item on the SA-QLI but slightly higher on outlook, and
5. MQOL and SA-QLI support items were highly correlated (Cohen et al, 1997).

Instrument Validity

Instrument validity refers to the systemic error in measurement. The McGill Quality of Life (MQOL) instrument was chosen for this study because it is a tested QOL tool that has been used in previous studies involving palliative care but more importantly because it is being used by state and regional AgrAbility projects in Colorado, Kansas, Wisconsin, and Virginia to gather aggregate data on the program impact. Cohen et al (1997) found that the “calculations of the Cronbach’s alpha indicates that the internal reliability of the MQOL subscale and the complete 16-item questionnaire is good ($\alpha > 0.70$) with the exception of the physical subscale with an alpha equal to 0.62” (p. 11). In the same study, the individual reliability of the overall QOL score and four subscales is as follows:

1. Physical symptoms (3 items) – Cronbach Alpha = 0.62,
2. Psychological symptoms (4 items) – Cronbach Alpha = 0.81,
3. Existential well-being (6 items) – Cronbach Alpha = 0.79, and
4. Support (2 items) – Cronbach Alpha = 0.74.

Data Collection Procedures

The McGill QOL questionnaires and cover letters were sent to both the non-participant and intervention group using a three-part modified Dillman method. The responses on the returned surveys were coded based upon the McGill QOL code book developed by Fetsch in his evaluation of the AgrAbility MQOL data from Colorado, Kansas, Virginia, and Wisconsin. All questionnaire responses were manually entered into Microsoft Excel and imported into SPSS for data analysis. Secondary data was provided by the AgrAbility Project in Pennsylvania.

Plan for Data Analysis

Microsoft Excel was used to enter the data and SPSS was used to complete the data analysis. Due to the design of the McGill tool, specific questions were grouped to obtain a score for specific categories including physical well-being, physical symptoms, support, existential well being, and psychological. The results were also calculated as single item scale (SIS) and overall total scores. The SIS rating scale was from 0 – 10 and constructed to measure overall quality of life (Cohen et al. 1997). Nominal data and interval/ratio data were collected and used for analysis.

Reverse Coding

Reverse coding was used in calculating the physical symptoms and items in the psychological subscales, half of the chronic pain/overall questions, and all of the questions regarding abilities on the farm. The seven questions that form these two subscales were reverse coded in SPSS before the subscale scores were tabulated. The scale for the McGill QOL questions was a Likert scale of 0 to 10. Statements with scales from 0 (best) to 10 (worst) rankings were reverse coded for a better comparison.

Internal and External Validity

Table 1 outlines the internal and external threats to validity in this study and how each threat was addressed. The main threats to internal validity were history because of the recall period and events that were beyond of the control of this study.

Table 1: Threats to Internal and External Validity

Type of Threat	Was it a threat in this study?	Comments
<i>Internal Validity</i>		
History	Yes	Various factors may happen to impact quality of life unrelated to AgrAbility services. Few controls available.
Maturation	Maybe	Randomization not feasible due to sample size. All participants are adults but of varied ages. The effects of the aging process may affect responses by participants.
Testing	No	One time questionnaire – no pretest.
Instrumentation	No	Used tested and validated questionnaire with an overall good Cronbach alpha estimates.
Statistical Regression	No	Extreme scores were checked
Selection Bias	No	No control used – Group too small to do a random sample.
Mortality	Maybe	Modified Dillman method. Updated mailing address to retain accurate addresses. Small percentage of participants in intervention group died.
External Validity		
Interaction of Testing	No	No pretest.
Interaction of Selection	Yes	Groups could be biased towards researcher because of services received or not received.
Reactive Arrangements	No	No multiple interventions

Limitations of the Study

This study provided a MQOL score for agricultural producers in both the intervention and non-participant group. However, there may always be circumstances beyond the control of the study and AgrAbility that can impact the producer's MQOL score. Additional factors were not measured with this study, but examples of factors that may impact a person's MQOL score include economic status, progression of health condition, and family dynamics. Economics may have played a role in MQOL scores because of the income fluctuations encountered by farmers relative to milk production or changes in field crop prices. Health conditions and the time lapse between when the producer worked with AgrAbility may have had an effect because their health condition may have worsened. Family dynamics continues to change for farm families because some producers or spouses were seeking off-the-farm jobs to help with expenses that changes farm job responsibilities which may increase stress for the person or the family.

CHAPTER IV

FINDINGS

Purpose and Objectives

The purpose of this study was to determine the quality of life of the non-participant and intervention groups. Agricultural producers in the non-participant group included those farmers who contacted AgrAbility for information but did not receive services. The intervention group consisted of producers who contacted and received AgrAbility services.

The following research objectives were developed to examine:

1. McGill Quality of Life scores of the two identified groups, those who contacted and received AgrAbility services and those who did not receive AgrAbility services,
2. Whether producers with a disability remain in production agriculture,
3. Differences between the two groups regarding type of farm operation, primary disability and commonly reported troublesome symptoms, and
4. The impact of AgrAbility information and services.

Instrument Reliability

Table 2 outlines the Cronbach's alpha score comparison between Cohen, et al (1997), calculations and this study based upon the individual reliability of the four subscales. The numbers in parenthesis indicate the number of items used to calculate each of the subscales.

Table 2: Cronbach's Alpha

Subscale	McGill QOL Reliability n=143	Fetzer Reliability N=93
Physical symptoms (3 items)	0.62	0.772
Psychological (4 items)	0.81	0.803
Existential well-being (6 items)	0.79	0.894
Support (2 items)	0.74	0.837

Demographic Profile of Respondents

The demographic data were compiled to compare non-participant and intervention group. Basic demographics included gender, work status, age category, farm operation and primary disability. Table 3 shows that males and females are represented in a similar manner in both groups. The age categories showed similar findings with 62.9% and 69.7% respectively of the non-participant and intervention group aged 55 years old and older. There was a significant difference ($X^2=.001$) between the groups in regards to work status.

Table 3: Demographic Data

Category	Intervention Group N=66	Non-participant Group N=27	Chi Square Sig
Gender			
Male	92.4%	92.6%	.978
Female	7.6%	7.4%	
Work Status			
Fulltime	75.8%	40.7%	.001
Part-time	19.7%	25.9%	
Occasional	1.5%	18.5%	
No longer farming	3.0%	14.8%	
Age Category			
18 – 19 years old	0%	0%	.662
20 – 24 years old	1.5%	0%	
25 – 34 years old	0%	3.7%	
35 – 44 years old	9.1%	11.1%	
45 – 54 years old	19.7%	22.2%	
55 – 64 years old	36.4%	29.6%	
65 years and older	33.3%	33.3%	

Demographic data were compiled to examine the type of farm operations that were most prevalent in both groups. These are listed in Table 4 with dairy, livestock, and field/grain crops as the main farming operations in both the non-participant and intervention groups. However, dairy farming represented a majority of farm operations in the intervention group compared to the non-participant group. There was a significant difference ($X^2=.023$) between the groups based upon the type of farm operation.

Table 4: Type of Farm Operation

Farm operation	Intervention N = 66	Non-participant N = 27
Agribusiness	1.5%	0%
Field/grain crops	7.6%	18.5%
Orchard	1.5%	0%
Vegetable	1.5%	3.7%
Fruit	0%	3.7%
Hay	4.5%	7.4%
Dairy	63.6%	29.6%
Livestock	18.2%	14.8%
Poultry	0%	3.7%
Other Animals	0%	3.7%
Other	1.5%	7.4%
No longer has farm	0%	7.4%

Primary Disability

Table 5 outlines the primary disabilities for the participants in both groups. Information was obtained from the questionnaires with AgrAbility demographic data used as a secondary data source. The two most common disabilities in the non-participant group were joint injury and arthritis while back and joint injuries topped the list for the intervention group. There was a significant difference ($X^2-.009$) between the groups related to the primary disability.

Table 5: Primary Disability

Disability/Health Condition	Intervention N = 66	Non-participant N = 27
Hand amputation	3.0%	3.7%
Above the knee amputation	4.5%	0%
Below the knee amputation	3.0%	0%
Back injury	19.7%	11.1%
Joint injury	31.8%	18.5%
Orthopedic injury	7.6%	0%
Spinal paraplegia	0%	11.1%
Spinal quadriplegia	0%	3.7%
Polio	1.5%	0%
Other neurological	0%	7.4%
Stroke	3.0%	3.7%
Heart disease	4.5%	0%
Cancer	0%	3.7%
COPD	3.0%	11.1%
Arthritis	13.6%	18.5%
Diabetes	0%	3.7%
Other disease	4.5%	3.7%

Of the 93 farms represented by the participants, 50 of the farm operations were dairy operations. Traditional dairy farming is multifaceted because it involves animal care and crop production; therefore, it is associated with disabilities related to manual labor and repetitive motion. The most common disabilities amongst dairy farmers in this study were back injury, joint injury, and arthritis. Table 6 outlines the disability and health condition affecting the participants classified as dairy farmers.

Table 6: Disability Breakdown for Dairy Farmers

Disability or Health Condition	Percentage of Dairy Farmers N=50
Joint injury	36.0%
Back injury	20.0%
Arthritis	12.0%
Orthopedic injury	8.0%
Hand amputation	4.0%
Heart Disease	4.0%
Other Disease	4.0%
Above the knee amputation	2.0%
Below the knee amputation	2.0%
Spinal paraplegia	2.0%
Polio	2.0%
Cancer	2.0%
COPD	2.0%

Physical Symptoms

Participants provided answers to open ended questions regarding physically bothersome symptoms and to rank them on a 0 (no problem) to 10 (tremendous problem) scale. The following table outlines the primary (See Table 7), secondary (See Table 8), and tertiary (See Table 9) physical symptoms reported by the non-participant and intervention group. After reviewing the full list of symptoms, they were organized into naturally consolidated categories. Participants could list no more than three physical symptoms on the survey instrument.

Table 7: Primary Physical Symptoms

Physical Symptom	Non-participant N=27	Intervention N=66
None	14.8%	15.2%
Back injury	14.8%	6.1%
Joint injury	3.7%	15.2%
Orthopedic injury	0%	1.5%
COPD/shortness of breath/asthma	3.7%	4.5%
Pain	7.4%	22.7%
Problems sleeping	7.4%	6.1%
Tiredness	0%	3.0%
Mobility/immobility	11.1%	3.0%
Shoulder-related problems	3.7%	6.1%
Foot-related problems	0%	1.5%
Arm, hand or finger problems	7.4%	1.5%
Other	25.9%	13.6%

Table 8: Secondary Physical Symptoms

Physical Symptom	Non-participant N=27	Intervention N=66
None	40.7%	27.3%
Back injury	7.4%	6.1%
Joint injury	3.7%	4.5%
Other neurological	3.7%	0%
Cancer	0%	1.5%
COPD/shortness of breath/asthma	3.7%	9.2%
Arthritis	0%	1.5%
Diabetes	3.7%	1.5%
Pain	7.4%	3.0%
Problems sleeping	11.1%	3.0%
Tiredness	0%	9.1%
Mobility/immobility	3.7%	3.0%
Shoulder-related problems	3.7%	3.0%
Foot-related problems	3.7%	6.1%
Arm, hand or finger problems	0%	1.5%
Other	7.4%	19.7%

Table 9: Tertiary Physical Symptoms

Physical Symptom	Non-participant N=27	Intervention N=66
None	51.9%	59.3%
Hand amputation	0%	1.5%
Back injury	3.7%	1.5%
Joint injury	3.7%	3.0%
COPD/shortness of breath/asthma	3.7%	1.5%
Arthritis	0%	3.0%
Pain	0%	1.5%
Problems sleeping	7.4%	4.5%
Tiredness	7.4%	6.1%
Mobility/immobility	3.7%	1.5%
Shoulder-related problems	3.7%	1.5%
Foot-related problems	0%	3.0%
Arm, hand or finger problems	0%	1.5%
Other	14.8%	10.6%

Summary of Physical Symptoms

Table 10 summarized the most commonly reported physical symptoms by the two groups to identify recurring symptoms. The most commonly reported symptoms between the groups were back pain or injury, pain, problems sleeping, and tiredness.

Table 10: Commonalities among Physical Symptoms

	Non-participant	Intervention
Primary Physical Symptom	Back Injury/Pain (14.8%) Mobility/Immobility (11.1%) Pain (7.4%) Problems sleeping (7.4%) Arm, hand or finger (7.4%)	Pain (22.7%) Joint Injury (15.2%) Back Injury (6.1%) Problems sleeping (6.1%) Shoulder-related (6.1%)
Secondary Physical Symptom	Problems sleeping (11.1%) Back injury (7.4%) Pain (7.4%)	COPD/shortness of breath/asthma (9.1%) Tiredness (9.1%) Back Injury (6.1%) Foot-related (6.1%) Joint Injury (4.5%)
Tertiary Physical Symptom	Problems sleeping (7.4%) Tiredness (7.4%)	Tiredness (6.1%) Problems sleeping (4.5%) Joint injury (3.0%) Foot-related problems (3.0%)

McGill Quality of Life

The McGill quality of life single-item scale (MQOLSIS) scores represent a QOL single item question. Cohen et al (1997) stated that the MQOLSIS can be used to compare self-reported QOL to the overall MQOL score but it is not included in the subscales. The MQOLSIS is the first question on the instrument (See Appendix B, p. 75) and is a self-reported QOL score by the participants. The scale used on all of the questions in the McGill QOL instrument was from 0 (worst scenario) to 10 (best scenario). Table 11 provides information to show that there was no significant difference ($t = -.960$; $p > .05$) between the two groups on this single-item question.

Table 11: McGill Quality of Life Single-item Scale

	N	Mean ¹	Standard Deviation	Range		t-value*
				Low	High	
Non-participant	24	5.792	2.934	.00	10.00	-.960
Intervention	65	6.385	2.448	1.00	10.00	

¹ $p > .05$ *(Mean is computed on a scale of 0 (worse) to 10 (best))

Physical Symptoms Subscale

The first subscale was based upon the three questions regarding the problematic physical symptoms or problems sustained by the participant in the past two days (See Appendix B, p. 76). Based upon the McGill QOL instrument guidelines, the numeric responses were reverse coded in order to tabulate the subscale value. Table 12 shows no significant difference ($t = .336$; $p > .05$) between the two groups.

Table 12: Mean and Standard Deviation for Physical Symptoms Subscale

	N	Mean ¹	Standard Deviation	Range		t-value*
				Low	High	
Non-participant	27	5.679	3.113	0.0	10.00	.336
Intervention	66	5.455	2.850	0.0	10.00	

¹ $p > .05$ *(Mean is computed on a scale of 0 (worse) to 10 (best))

Psychological Subscale

The psychological subscale was based upon the answers to four questions related to the participant's level of depression, feelings of being nervous or worried, feelings of sadness, and their thoughts about the future (See Appendix B, p. 77). Similarly to the physical symptom subscale, the participant's answers were reverse coded prior to tabulating the subscale score. A t-test was used to calculate the subscale scores and single-item questions. No significant difference ($t = .546$; $p > .05$) was found between the two groups. Data in Table 13 shows the psychological subscale score for both groups followed by the single-item scale for the four questions.

Table 13: Means and Standard Deviation for Psychological Subscale

	N	Mean ¹	Standard Deviation	Range		t-value*
				Low	High	
Overall Psychological Subscale						
Non-participant	27	6.907	2.669	1.0	10.00	.546
Intervention	66	6.585	2.516	0.0	10.00	
Depression SIS						
Non-participant	27	3.037	2.835	0.0	9.00	-.219
Intervention	62	3.177	2.755	0.0	10.00	
Worried SIS						
Non-participant	27	3.444	3.080	0.0	9.00	-.631
Intervention	63	3.857	2.741	0.0	10.00	
Sadness SIS						
Non-participant	27	2.556	2.778	0.0	9.00	-.735
Intervention	63	3.048	2.964	0.0	10.00	
Future SIS						
Non-participant	27	3.333	3.234	0.0	9.00	-.349
Intervention	63	3.587	3.130	0.0	10.00	

¹ $p > .05$ *(Mean is computed on a scale of 0 (worse) to 10 (best))

Existential Subscale

The existential subscale was based upon the responses for the questions related to life, goal achievement, life worth, control over the person's life, feelings of goodness, and view of life being a gift or a burden (See Appendix B, p. 77). The subscale score was the mean of the scores on the six questions. There was no significant differences ($t = .353$; $p > .05$) between the two groups on the existential subscale. Data in Table 14 shows the subscale scores followed by the six individual single-item scores included in the existential scale.

Table 14: Mean and Standard Deviations for Existential Subscale

	N	Mean ¹	Standard Deviation	Range		t-value*
				Low	High	
Overall Existential Subscale						
Non-participant	25	7.073	2.088	1.0	9.50	.353
Intervention	62	6.895	2.149	1.0	10.00	
Purpose SIS						
Non-participant	27	6.704	2.959	1.0	9.50	-.266
Intervention	63	6.873	2.679	1.0	10.00	
Goals SIS						
Non-participant	26	6.462	2.044	1.0	10.00	.073
Intervention	64	6.422	2.461	0.0	10.00	
Worth SIS						
Non-participant	26	7.346	2.545	1.0	10.00	.127
Intervention	63	7.270	2.585	0.0	10.00	
Control SIS						
Non-participant	27	6.482	2.709	0.0	10.00	.455
Intervention	63	6.206	2.591	0.0	10.00	
Good SIS						
Non-participant	27	7.852	2.397	1.0	10.00	.811
Intervention	64	7.391	2.511	0.0	10.00	
Gift SIS						
Non-participant	27	7.296	2.643	1.0	10.00	-.042
Intervention	62	7.323	2.774	0.0	10.00	

¹p>.05 *(Mean is computed on a scale of 0 (worse) to 10 (best))

Support Subscale

The support subscale was the mean scores for two questions which evaluated the person's outlook on the world and their feeling of support (See Appendix B, p. 77). No statistically significant difference ($t = .321$; $p > .05$) between the groups based upon support subscale was found. Table 15 outlines the subscale mean score followed by the two individual single-item scale items included in the subscale.

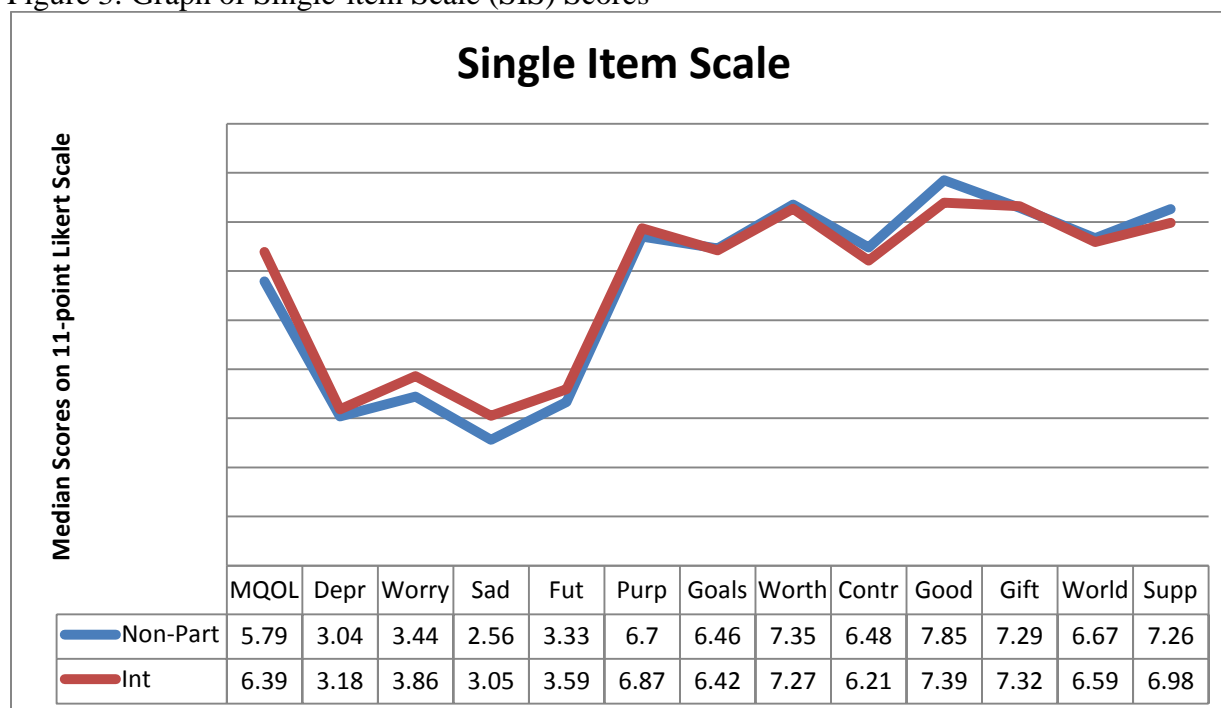
Table 15: Mean and Standard Deviation for Support Subscale

	N	Mean ¹	Standard Deviation	Range		t-value*
				Low	High	
Overall Support Subscale						
Non-participant	27	6.963	2.664	0.0	10.00	.321
Intervention	63	6.786	2.281	0.5	10.00	
World SIS						
Non-participant	27	6.667	2.760	0.0	10.00	.138
Intervention	63	6.587	2.380	0.0	10.00	
Support SIS						
Non-participant	27	7.259	2.768	0.0	10.00	.466
Intervention	63	6.984	2.479	1.0	10.00	

¹ $p > .05$ *(Mean is computed on a scale of 0 (worse) to 10 (best))

Figure 3 outlines the mean scores for the 13 single-item scale questions on the McGill questionnaire. Responses were based upon an 11-point Likert scale ranging from 0 (worse) to 10 (best) scenario. This visual illustrates the similarities between the intervention and non-participant groups.

Figure 3: Graph of Single-item Scale (SIS) Scores



Overall McGill Quality of Life Total Score

Individual MQOL total scores were tabulated by calculating the physical single-item question and four subscale scores for each participant. The mean of the individual scores for the participants in the non-participant and intervention groups was calculated as the overall MQOL total score for each group. The subscales included physical symptom score plus physical, psychological, existential well-being, and support subscale scores. Table 16 indicates the mean MQOL total scores for both groups. No significant difference ($t = .082$; $p > .05$) was found between the groups.

Table 16: Overall McGill Quality of Life Total Score

	N	Mean ¹	Standard Deviation	Range		t-value*
				Low	High	
Non-participant	21	6.514	2.172	1.00	9.60	.082
Intervention	49	6.359	1.835	2.27	9.68	

¹ $p > .05$ *(Mean is computed on a scale of 0 (worse) to 10 (best))

Since dairy farms were the primary type of farm operation, the subscales and MQOL total scores were compared between the non-participant group, intervention group, and dairy farmers. An ANOVA calculation was completed to determine significance. There was no significant difference ($F=.598$; $p>.05$) between the MQOL total scores between the non-participant and intervention groups. Table 17 outlines the MQOL total mean scores for the non-participant group, intervention group, and dairy farmers.

Table 17: Overall MQOL Total – Comparison with Dairy Farmers

	N	Mean ¹	Standard Deviation	Range		F*
				Low	High	
Non-participant	15	6.248	1.953	1.20	9.20	.598
Intervention	19	6.367	1.732	2.27	9.30	
Dairy	36	5.884	1.621	2.78	9.48	

¹ $p > .05$ *(Mean is computed on a scale of 0 (worse) to 10 (best))

Computed Means

Table 18 provides the mean scores for the four subscales. Mean scores for the psychological and existential subscales are well above the theoretical midpoint. Physical and support subscale scores approach the midpoint.

Table 18: Summated Mean Score for Subscales

Subscale	N	Summated Mean Score	Theoretical Midpoint	Standard Deviation	Mean Statement Score	Mean Statement SD
Physical (3)*						
Non-participant	27	17.037	15.0	9.338	5.679	3.113
Intervention	66	16.363	15.0	8.550	5.455	2.850
Psychological (4)*						
Non-participant	27	27.629	20.0	10.678	6.907	2.669
Intervention	62	26.339	20.0	10.065	6.585	2.516
Existential (6)*						
Non-participant	25	42.440	30.0	12.530	7.073	2.088
Intervention	62	41.371	30.0	12.893	6.895	2.148
Support (2)*						
Non-participant	27	13.926	10.0	5.327	6.963	2.664
Intervention	63	13.571	10.0	4.563	6.786	2.282

* Figure in parenthesis indicates the number of statement in each subscale.

Chronic and Overall Questions: A Six Month Recall Period

In addition to the two day recall period for the questions that were used to calculate the subscales and MQOL total score, the participants were asked to rate their chronic pain, and their overall stress, anger, depression, esteem, and financial situation in a six month recall period. The questions were based upon an eleven point Likert scale and calculated as individual questions.

Table 19 provides the mean scores and t-values for each statement. Based upon these statements, there were no significant differences between the intervention and non-participant group.

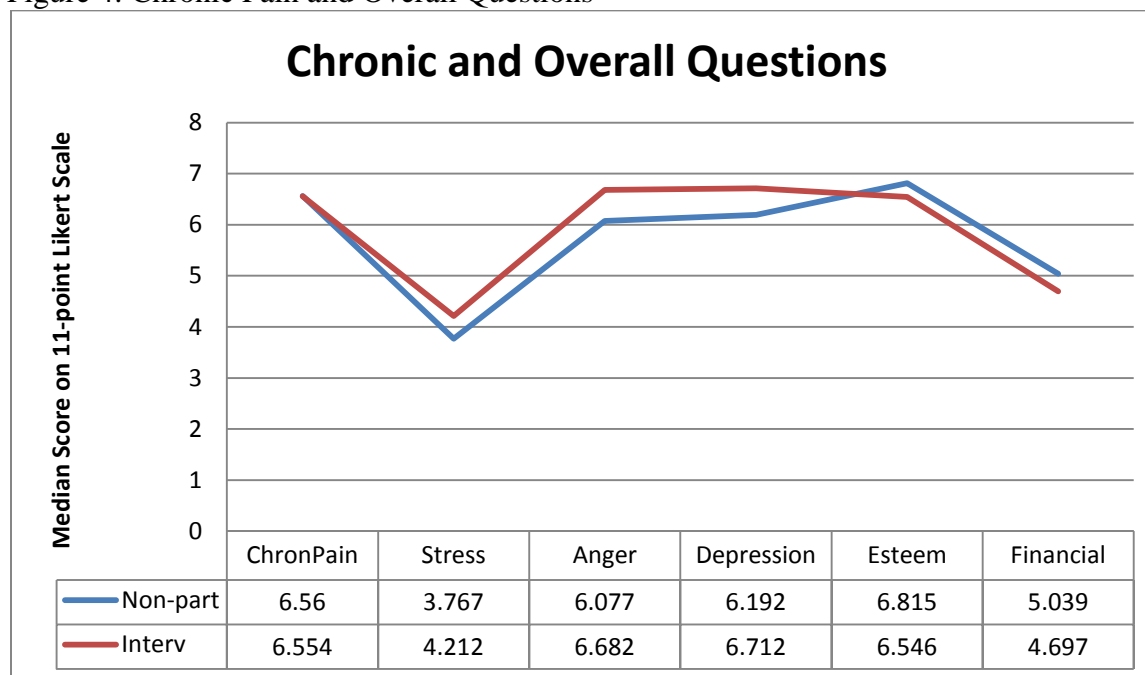
Table 19: Mean and Standard Deviation for Chronic Pain and Overall Statements

	N	Mean ¹	Standard Deviation	Range		t-value*
				Low	High	
Chronic Pain						
Non-participant	25	6.560	2.293	2.00	10.00	.012
Intervention	65	6.554	2.194	0.0	10.00	
Stress						
Non-participant	26	3.769	3.050	0.0	10.00	-.684
Intervention	66	4.212	2.692	0.0	10.00	
Anger						
Non-participant	26	6.077	3.174	0.0	10.00	-.937
Intervention	66	6.682	2.626	0.0	10.00	
Depression						
Non-participant	26	6.192	3.287	0.0	10.00	-.773
Intervention	66	6.712	2.744	0.0	9.00	
Esteem						
Non-participant	27	6.815	2.466	1.0	10.00	.505
Intervention	66	6.546	2.282	1.0	10.00	
Financial						
Non-participant	26	5.039	3.130	0.0	10.00	.533
Intervention	66	4.697	2.613	0.0	9.00	

¹ p > .05 *(Mean is computed on a scale of 0 (worst) to 10 (best))

Figure 4 illustrates the mean scores for the questions regarding chronic pain, and the participants rating of their overall stress, anger, depression, esteem, and financial outlook. As shown in the mean scores and visually, the responses are similar on all questions.

Figure 4: Chronic Pain and Overall Questions



Information and Recommendations

A set of questions asked the participants to check those areas of information, services, or recommendations provided by AgrAbility that they used in their farm operation. These areas included remaining in production agriculture, working or living on the farm, and taking up another occupation. Table 20 shows the responses ratings between the two groups. Note that the intervention group received full AgrAbility services and the non-participant group did not receive services. The intervention group responses were higher than the non-participants group indicating they are able to do their farm work and continue the farm operation better since working with AgrAbility.

Table 20: Information Provided by AgrAbility

AgrAbility provided me with information/recommendations that I use(d) to:	Intervention Group N=66	Non-participant Group N=27
Do my farm/ranch work better than before working with AgrAbility	69.7%	11.1%
Do my farm/ranch work more easily than before working with AgrAbility	87.9%	14.8%
Continue my farming/ranching operation in part or whole	75.8%	14.8%
Continue to live in my home independently	45.5%	14.8%
Continue to live on the farm/ranch	59.1%	18.5%
Successfully take up another occupation	1.5%	0%

Farm Responsibilities

In addition to the McGill Quality of Life questionnaire and demographic information, participants were asked to complete sections regarding accommodations on their farm operation, and the type of information and services received from AgrAbility. Table 21 summarizes the statements on the survey tool. Responses ranged from 1 (not at all) to 4 (almost all of the time) scale as well as does not apply option (0). A significant difference was evident between the groups in their ability to operate machinery ($t = -3.237$; $p < .05$) and ability to change/modify their machinery ($t = -2.644$; $p < .05$). Two statements approach significance included ability to complete chores ($t = -1.932$; $p > .05$) and ability to manage farm ($t = -1.973$; $p > .05$). No significant difference between the groups related to their ability to access workspaces ($t = -1.577$; $p > .05$) and ability to live on the farm ($t = -.964$; $p > .05$).

Table 21: Farm Activities and Responsibilities

	Intervention Group Mean Score	Non-participant Group Mean Score	t-value*
I am able to complete chores on my farm or ranch.	3.233	2.750	-1.932
I am able to operate machinery.	3.581	2.792	-3.237
I am able to manage my farm or ranch.	3.696	3.292	-1.973
I am able to access workspaces on my farm or ranch.	3.226	2.826	-1.577
I am able to change or modify my machinery in order to accommodate my needs.	2.815	2.095	-2.644
I am able to live in my home on the farm or ranch.	3.950	3.833	-.964

p<.05 *(Mean is computed on a scale of 1 (not at all) to 4 (almost all of the time))

AgrAbility Services and Recommendations

Additional questions asked participants about their disagreement or agreement level concerning the usefulness of the assistance or information they received from the AgrAbility. The scale was a six point scale from strongly disagree (0) to strongly agree (5). Participants were given a “does not apply” option that was used by three participants. The non-participant group received initial or specific information but did not receive the full AgrAbility services therefore the following tables provided results only from the intervention group. Table 22 shows the mean score for each statement.

Table 22: AgrAbility Services and Recommendations

Statement	N	Mean Score	Range	
			Low	High
I have received assistance or information that was useful in my farm operation.	61	4.279	0.0	5.00
I was able to follow through on the recommendations made by AgrAbility.	61	4.164	0.0	5.00

AgrAbility Impact

Participants were asked whether they thought they would still be involved in farming/ranching today without the help from AgrAbility. In the intervention group, 57 out of 66 participants answered the question with 53.0% answering yes and 33.3% answering no. The wording on this particular question may have caused the large number of missing responses.

The second question was slightly more direct and asked the participants a “yes” or “no” question on whether AgrAbility provided them help. The response rate by the intervention group was 65 out of 66 participants. Of the 65 participants, 97.0% participants responded that AgrAbility provided them with help and 1.5% responded negatively that AgrAbility had not provided help.

CHAPTER V

CONCLUSION, RECOMMENDATIONS, AND SUMMARY

Purpose and Objectives

The purpose of this study was to determine the quality of life of the non-participant and intervention groups. Agricultural producers in the non-participant group include those farmers who contacted AgrAbility for information but did not receive services. The intervention group consisted of producers who contacted and received AgrAbility services.

The following research objectives were developed to examine:

1. McGill Quality of Life scores of the two identified groups, those who contacted and received AgrAbility services and those who did not receive AgrAbility services,
2. Whether producers with a disability remain in production agriculture,
3. Differences between the two groups regarding type of farm operation, primary disability and commonly reported troublesome symptoms, and
4. The impact of AgrAbility information and services.

Summary of Procedures

The study was approved by the Pennsylvania State University's Institutional Review Board. The study design used a static-group comparison because no random assignment or selection was used. Basic AgrAbility data had been collected for the two groups of people. The first group was the intervention group that included agricultural producers with a disability who received full AgrAbility services and cases were closed during the period of January 1, 2000 and December 31, 2007. The non-participant group consisted of agricultural producers with a

disability who contacted AgrAbility during the same time frame but did not receive full AgrAbility services and no on-site farm assessment was completed. The non-participant group consisted of 81 participants and the intervention group consisted of 100 participants. All of the participants were adults and participants from all ethnic backgrounds were included. Since the population was small, all participants were included in the study.

The McGill quality of life survey questionnaire was used in the study because it was a standardized instrument that had been utilized by other AgrAbility Projects. This instrument used a Likert type scale and participants chose their responses based upon a continuous scale from zero to ten. The McGill survey questionnaire was mailed to all 181 participants utilizing a three-part modified Dillman Method with a cover letter, McGill survey questionnaire and postage-paid return addressed envelope. All of the questionnaires had an identification number to facilitate tracking non-respondents. There was a 66% response rate for the intervention group and 33.3% for the non-participant group.

Demographic Findings

Similar findings were evident in the demographic categories of gender and age. The majority of the producers were male at a rate of 92.4% and 92.6% respectively in the intervention and non-participant group. No significant difference between the two groups was found based upon gender ($X^2 = .978$). As stated in the review of literature, the average age of the agricultural producers was 55.2 years old and that many producers remain in farming for years after the traditional retirement age. Similar findings were evident in this study with 62.9% of the producers in the non-participant group age and 69.7% of the producers in the intervention group were 55 years old and older. There was no significant difference between the groups in

regards to age. Significant differences existed between the non-participant and intervention group based upon work status ($X^2 = .001$), disability ($X^2 = .009$), and farm operation ($X^2 = .023$). However, there were some Chi square cells with less than 5 individuals that nullified any statistical significance.

Summary of Major Findings

The main purpose of this study was to examine the McGill Quality of Life (MQOL) scores for the non-participant and intervention groups through descriptive research. In addition to MQOL scores, the non-participant and intervention groups were compared on multiple levels including demographics, subscales, single-item scales, and additional questions regarding AgrAbility services.

Objective One: McGill Quality of Life scores of the two identified groups, those who contacted and received AgrAbility services and those who did not receive AgrAbility services.

There are two different MQOL scores in the McGill survey instrument. The first MQOL is a self-rated single-item question score by the participants. This is the first question on the questionnaire and was not used in the calculation of subscales or overall McGill Quality of Life (MQOL) total score. Cohen et al (1997) stated that this question was purposely placed in the beginning of the questionnaire so that it would not taint answers to additional questions. The MQOLSIS mean score for the non-participant group was 5.792 and the score for the intervention group was 6.385. No significant difference was found ($t = -.960$; $p > .05$) between the groups based upon this single-item statement.

Individual MQOL total scores were tabulated by calculating the physical single-item question and four subscale scores for each participant. The mean score for each of the participants in the non-participant and intervention groups was calculated as the overall MQOL total score for the two groups. The subscales included physical single-item plus physical, psychological, existential well-being, and support subscale scores. The mean score for the non-participant group was 6.514 and 6.359 for the participant group. No significant difference ($t = .082$; $p > .05$) was found between the two groups.

Due to the high percentage of dairy farmers in both groups, the MQOL score for dairy farmers was compared to the scores for both the non-participant and intervention groups. Mean scores for dairy farmers were 5.884 compared to 6.367 for non-participant and 6.248 for the overall intervention group. There was no significant difference ($F = .598$; $p < .05$) between the groups in regards to their overall MQOL score.

Objective Two: Whether producers with a disability remain in production agriculture.

One of the primary goals of AgrAbility is to help farmers with a disability remain in production agriculture. Remaining in farming was not measured with the MQOL questionnaire so additional questions were asked on the instrument to determine the participants work status. The first question was a demographic question to collect work status information. As shown in Table 2, 66.6% of the non-participant group and 95.5% of the intervention group were working at either a full-time or part-time level at the farm operation. Additionally, 14.8% of the non-participant group and 3.0% of the intervention group are no longer farming. There are probably multiple reasons including disability progression, economy, family support, type of farm operation, and finances that may have affected their decision to remain in farming. However, the

percentage of respondents in the intervention group who have remained in production agriculture was 28.9% higher than the non-participant group.

Participants were asked whether they thought they would still be involved in farming or ranching today without the help from AgrAbility. For the intervention group, 57 out of 66 participants answered the question with 53.0% answering “yes” and 33.3% answering “no.” The wording on this particular question may have caused missing responses. Results are not relative for the non-participant group since they did not receive AgrAbility services.

Objective Three: Differences between the two groups regarding type of farm operation, primary disability, and commonly reported troublesome symptoms.

There was a significant difference ($X^2 = .023$) between the two groups in regards to the type of farm operations. However, there were some Chi square cells with less than 5 individuals that nullified any statistical significance. Table 3 shows that dairy, livestock, and field/grain crops were the main types of production agriculture in both the non-participant and intervention groups. The number of dairy farmers in the intervention group was 63.6%, which is double the amount in the non-participant group at a rate of 29.6%. However, dairy farming represented a majority of the farm operations in the intervention group compared to the non-participant group.

The intervention group at a rate of 95.5% was working full or part time on their farms. An inference could be made from the questions about work status and those questions regarding information and assistance provided by AgrAbility that AgrAbility has made a difference in the intervention group’s ability to farm and stay in production agriculture.

As stated in the literature review, production agriculture was associated with various types of disabilities because of the type of manual labor associated with this occupation. Dairy

farming, especially those without pit parlors, requires constant standing, bending, reaching, and lifting to complete the milking process. When comparing the two groups, there were three primary disabilities that ranked in the top three for the intervention group and the top five for the non-participant group. Those disabilities are back injury, joint injury and arthritis. This finding was not surprising because this was similar to other AgrAbility demographic data and these types of disabilities were typically associated with manual labor involved in production agriculture.

Of the 93 farms represented by the participants, 50 of these operations were dairy farms. Traditional dairy farming is multifaceted because it involves animal care and crop production; therefore, it is associated with disabilities related to manual labor and repetitive motion activities. The most common disabilities amongst dairy farmers in this study were back injury, arthritis, and joint injury.

The first section of the McGill questionnaire asked the participants to answer open ended questions regarding physically bothersome symptoms and to rank them on a 0 (no problem) to 10 (tremendous problem) scale. Physical symptoms were coded based upon a similar coding system used by the AgrAbility projects. Additional codes were developed to group symptoms into naturally fitting categories and to identify themes. Participants could list no more than three physical symptoms on the survey instrument. Table 10 outlined the top five physical symptoms reported by both group but does not include the 'other' or 'none' category.

When examining the higher rated physical symptoms, there were definitely reoccurring themes such as back injury or pain, general pain, problems sleeping, and tiredness. Back injury and general pain were not surprisingly bothersome symptoms and can be associated with the manual labor tasks involved in production agriculture. The symptoms of tiredness and problems sleeping were unexpected symptoms and may be associated with additional various areas such as

depression, anxiety, poor sleeping conditions, and working long hours. Additional research could be completed to examine these symptoms and to explore their root cause.

Objective Four: The impact of AgrAbility information and services.

Participants were asked about areas of information, services, or recommendations provided by AgrAbility that they used in their farm operation. These areas included remaining in production agriculture, working or living on the farm, and taking up another occupation. As shown in Table 20, a significant difference was found between the two groups in their ability to operate machinery ($t = -3.24$; $p < .05$) and change/modify their machinery ($t = -2.64$; $p < .05$). Statements that were approaching significance related to completing chores and the ability to manage the farm operation. No statistical significance between the groups was found regarding accessibility of their workspace and ability to live in their home.

AgrAbility for Pennsylvanians focuses on modifications for agricultural tasks and these findings show that the farm modifications have been addressed. AgrAbility may not be the only reason that these farmers have stayed in production agriculture or indicate the ability to complete tasks, but according to these questions, AgrAbility has played a positive role in retaining farmers because of the information, recommendations, or services. Other factor that may have helped in the retention process is family support, improved technology, and changes in their farm operation.

A question was asked on the questionnaire for the participants to simply check “yes” or “no” as to whether AgrAbility provided them with help. The response rate by the intervention group was 65 out of 66 participants. Of the 65 participants, 97.0% responded that AgrAbility provided them with help and 1.5% responded negatively that AgrAbility had not provided help.

The non-participant group did not receive AgrAbility services and therefore not included in the findings. Participants were asked about the information and recommendations that were provided to them and 87.9% of the intervention group compared to 14.8% of the non-participant group responded that they were able to do their farm work more easily than before working with AgrAbility. Similarly, 75.8% of the intervention group and 14.8% of the non-participant group responded that they were able to continue their farm operation in part or in whole.

Summary

The MQOL total scores in this study were compared to scores by Fetsch and Cohen. The Fetsch (2009) study was a pilot project that examined initial data collected by four AgrAbility projects in a pre-post test design using the MQOL instrument. The population size for the pilot study was 16 and participants were located in four different states. In the pilot study, the pre-test mean scores were 6.2 and post-test scores were approximately 7.4. The post test mean score is higher than the mean scores for both groups in this study. Some of the differences between the populations include gender, time lapsed or history, and age. Fetsch's study had a slightly higher percentage of female producers (27%) compared to this study (7.4-7.6%). This study had a longer recall period because participants were from January 1, 2000 to December 31, 2007. The participants in the Fetsch study received the pre-test prior to services and the post-test when the participant's case was closed. The average age of participants in the Fetsch study was 54.09. Age categories were used in this study but 69.7% of the non-participant and 62.9% of the intervention group were over 55 years old. With increased age comes the potential for progressive health conditions that may affect MQOL scores.

When the MQOL total scores from this study were compared to the participants in Cohen's (1997) study, the results showed somewhat higher MQOL total scores in this study but not to the level presented by Fetsch. The mean MQOL total score in Cohen's study was 6.1 with a standard deviation of 1.4 whereas the mean score for this study was 6.514 for the non-participant group and 6.359 for the intervention group. The mean age for Cohen study was 65 years which more closely reflects this study than Fetsch's study. Cohen's population was split between 61% female and 39% male participants which are very different gender breakdowns than this and the Fetsch study. Another difference is the location of the population because the setting for the Cohen study was 96% urban and the other studies focused on rural participants. A major difference between this study and Cohen's is that type of primary disabilities. Because Cohen's study was designed for palliative care, 82% of his participants were diagnosed with a form of cancer compared to this study which had high reporting of back injury, joint injury and arthritis.

Demographic data was expected and reflected Pennsylvania agriculture in areas such as gender, age, and farm operation. The MQOL instrument provided information regarding the person's quality of life, troublesome symptoms, and questions regarding chronic pain and overall feelings, but the additional AgrAbility and specific agricultural related questions at the end of the questionnaire provided a picture of the impact of AgrAbility. One of the main findings is that the intervention groups, which received AgrAbility services, had a higher rate (95.5%) than the non-participant group (66.6%) group who has remained in production agriculture at either full or part time level. In comparison to the Meyer and Fetsch (2006) study, 88% of the respondents remained in production agriculture at the full or part time status. This rate is lower than reported in this study. Some of the differences between the two studies include a higher percentage of

field/row crops and cattle operations in the Meyer and Fetsch results compared to the higher number of dairy farmers in this study. In the same study, the authors reported a lower number of males (85.2%) and lower average age of 53.3 years old compared to this study. Meyer and Fetsch report that the primary disabilities in their study were arthritis, spinal cord injury, amputation, and back injury. All of the differences between the two studies related to gender, disability, farm operation and age may be factors that contribute to the different rates of producers remaining in agricultural production.

Three primary disabilities that ranked in the top three for the intervention group and the top five for the non-participant group and included back injury, joint injury and arthritis. These findings were expected due to the manual labor and repetitive motion tasks associated with production agriculture. In regards to physical symptoms, reoccurring themes were evident in the groups and included back injury and pain, general pain, problems sleeping, and tiredness.

AgrAbility for Pennsylvanians focuses its efforts on working with the producer on increasing their abilities to complete necessary farm tasks or direct services. The questions that addressed these types of tasks showed that there was a significant difference between the groups in their ability to operate machinery and ability to modify or change their machinery. Since this is a goal of AgrAbility for Pennsylvanians and the intervention group reported a higher mean score, it can be inferred that AgrAbility for Pennsylvanians services may have been instrumental in their increased abilities.

When participants were specifically asked whether or not AgrAbility for Pennsylvanians provided them with help through a “yes” or “no” question on the survey, the response rate by the intervention group was 65 out of 66 participants with 97.0% responding that AgrAbility for Pennsylvanians provided them with help and 1.5% responded negatively. Based upon the

responses from the intervention group, AgrAbility for Pennsylvanians provided them with information and recommendations that have enabled them to do their farm work better and more easily than before working with AgrAbility for Pennsylvanians and continue their farming operation.

In summary, even though there is no significant difference in MQOL scores and other scores based upon the McGill instrument, there were positive differences reported by the intervention group regarding their abilities to complete farm responsibilities and the usefulness of AgrAbility for Pennsylvanians information.

Recommendations

Based upon findings and conclusions of this study, the following recommendations are offered for programming and for further research:

- Quality of Life

The question remains as to whether or not a quality of life measurement provides the best information to determine the effectiveness of AgrAbility services. MQOL scores provided a measurement between the two groups but the additional questions at the end of the questionnaire provided richer data concerning AgrAbility impacts. It is recommended that the National AgrAbility Project design and field test a survey tool specifically to measure AgrAbility impact rather than relying on standardized instruments.

- Pre-Post Testing

Since AgrAbility and similar programs are service based, it is difficult to have a non-participant and intervention group. One of the main threats of this study was history because of the time that lapsed between the clients and contacts in the earlier time frame of 2000 compared to those who received services later in the time frame. The recall about AgrAbility services may not be accurate. This study reported quality of life scores between two different groups, however, it cannot be determined that AgrAbility did or did not impact a producer's quality of life with any degree of certainty. Additional research should be conducted that involves a pre and post test study to better determine if a difference exists between AgrAbility and quality of life. Another recommendation is to use a standardize tool or developed a tested instrument specifically for agricultural producers. In addition to a standardize instrument, the instrument should include well-worded agriculture-related questions that have been pilot tested with strong validity and reliability.

- Non-respondents in this Study

The next step for a study of this nature would be to survey a percentage of the non-respondents in both the intervention and non-participant group. By including these non-responders in the data group, the findings can be generalized back to the study's population rather than just to those participants who completed the questionnaire during the response time frame.

- Women in Agriculture

As stated in the literature review, there is a growing trend of females as primary operators of farm operations. A comprehensive needs assessment should be completed to determine the specific needs, if any, related to women in agriculture.

- Common Physical Symptoms

This study showed that the most commonly reported troublesome symptoms for the producers in this study were back pain, pain, trouble sleeping, and tiredness. Back injury/pain and general pain was expected but sleeping problems and tiredness were surprisingly reoccurring between both groups. Further research should be conducted to examine the root causes for these two issues.

- Examine Results Based upon Disability

Complete a factorial ANOVA is needed to examine the responses on specific questions based upon the producer's disability to see if there is a difference in response to the questions. .

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APPENDIX A
CORRESPONDENCE



Department of Agricultural and
Extension Education
College of Agricultural Sciences
Cooperative Extension

116 Ferguson Bldg.
The Pennsylvania State University
University Park, PA 16802

814-863-7490
814-863-4753 FAX
lmf8@psu.edu

February 5, 2010

Dear Agricultural Producer:

I am a graduate student at Penn State University working on my Master of Education degree in Agricultural and Extension Education. The focus of my research is agricultural safety and health. You have been chosen to participate in this research project because you are an agricultural producer with a disability who has either contacted AgrAbility or worked with AgrAbility between the January 1, 2001 and December 31, 2007.

Please find enclosed a short questionnaire for you to complete and return in the enclosed postage paid and return addressed envelope. The enclosed questionnaire includes statements on a variety of subjects such as your disability/health condition, farm operation, and quality of life. However, your participation is voluntary. Please note that you can stop at any time when completing the questionnaire or you may choose to not answer certain questions. This questionnaire is only for participants that are 18 years old and older.

The questionnaire is completely anonymous and I will not be able to link your answers back to your name. The information you provide will be summarized in group format and no information will be linked to your name.

Thank you in advance for your participation in this research study. Please return the completed survey within two weeks. If you have any questions, please contact Linda Fetzer (814) 863-7490 or lmf8@psu.edu. If you would like to speak to my academic advisor, please contact Dr. Baggett at (814) 863-7415 or bbc@psu.edu. Your completion of this questionnaire implies your consent to be part of the study.

Sincerely,

Sincerely,

Linda M. Fetzer
M.S. Graduate Student

Connie D. Baggett
Associate Professor and Supervisor

PENNSSTATE



Department of Agricultural and
Extension Education
College of Agricultural Sciences
Cooperative Extension

116 Ferguson Bldg.
The Pennsylvania State University
University Park, PA 16802

814-863-7490
814-863-4753 FAX
lmf8@psu.edu

SECOND REQUEST LETTER

March 1, 2010

Dear Agricultural Producer:

As a graduate student at Penn State University working on my Master of Education degree in Agricultural and Extension Education, I value your input. My research focus is agricultural safety and health which is a very important topic to me. You have been chosen to participate in this research project because you are an agricultural producer with a disability who has either contacted AgrAbility or worked with AgrAbility between the January 1, 2001 and December 31, 2007.

Please find enclosed a short questionnaire for you to complete and return in the enclosed postage paid and return addressed envelope. The enclosed questionnaire includes statements on a variety of subjects such as your disability/health condition, farm operation, and quality of life. However, your participation is voluntary.

Please note that you can stop at any time when completing the questionnaire or you may choose to not answer certain questions. This questionnaire is only for participants that are 18 years old and older.

The questionnaire is completely anonymous and I will not be able to link your answers back to your name. The information you provide will be summarized in group format and no information will be linked to your name.

Please take the time to complete the enclosed questionnaire and return the completed survey within two weeks. If you have any questions, please contact Linda Fetzer (814) 863-7490 or lmf8@psu.edu. If you would like to speak to my academic advisor, please contact Dr. Baggett at (814) 863-7415 or bbc@psu.edu. Your completion of this questionnaire implies your consent to be part of the study.

Sincerely,

Linda M. Fetzer
M.S. Graduate Student

Sincerely,

Connie D. Baggett
Associate Professor and Supervisor

POSTCARD

(Front-Side)

Linda Fetzer
Pennsylvania State University
Dept. of Agricultural & Extension Education
116 Ferguson Building
University Park, PA 16802

(Back-Side)

Dear Agricultural Producer:

In the past month, you have received two copies of a questionnaire concerning quality of life for farmers with a disability. I have not received your completed questionnaire. Please take a few minutes to complete the questionnaire and return it to me in the envelope that was provided for your convenience. Agricultural safety and health is very important and this information will help me not only complete my research project but it will also help to increase awareness about health and safety issues. Remember that the information you provide will be kept in strict confidence and that only group data will be published.

Should you have any questions or need an additional copy of the questionnaire, please contact me at (814) 863-7490. Thank you for your time.

Sincerely,

Linda M. Fetzer
MS Graduate Student

APPENDIX B

McGILL QUALITY OF LIFE QUESTIONNAIRE

SECTION 1: Your Health and Well-Being¹

Instructions: The items in Section 1 begin with a statement followed by two opposite answers. Numbers extend from one extreme answer to its opposite. Please circle the number between 0 and 10 which is most true for you.

*There are no right or wrong answers.
Completely honest answers will be most helpful.*

EXAMPLE

I am hungry

not at all 0 1 2 3 4 5 6 7 8 9 10 **extremely**

- If you are not even a little bit hungry, you would circle 0.
- If you are a little hungry (you just finished a meal but still have room for dessert), you might circle a 1, 2, or 3.
- If you are feeling moderately hungry (because mealtime is approaching), you might circle a 4, 5, or 6.
- If you are very hungry (because you haven't eaten all day), you might circle a 7, 8, or 9.
- If you are extremely hungry, you would circle 10.

BEGIN HERE:

PART A

1) Considering all parts of my life—physical, emotional, social, spiritual, and financial—
over the past two (2) days the quality of my life has been:

very bad 0 1 2 3 4 5 6 7 8 9 10 **excellent**

¹ Part A is a single-item scale (SIS) as recommended by Gill, T. M., & Feinstein, A. R. (1994). A critical appraisal of quality-of-life measurements. *J Am Med Ass*, 272, 619-631. Parts B & C are the McGill Quality of Life Questionnaire by Cohen, S. R., Mount, B. M., Bruera, E., Provost, M., Rowe, J., & Tong, K. (1997). Validity of the McGill Quality of Life questionnaire in the palliative care setting: A multi-centre Canadian study demonstrating the importance of the existential domain. *Palliative Medicine*, 11, 3-20. Dr. Robin Cohen gave permission for AgrAbility Projects to use the McGill Quality of Life Survey on February 23, 2007. AAMcGillQOLPostKPereira.doc (Rev. 9.0907)

PART B

- For the question in Part B, first please list the **PHYSICAL SYMPTOMS OR PROBLEMS**, which have been the biggest problem for you over the past **two (2) days**. (Some examples are: pain, tiredness, weakness, nausea, vomiting, constipation, diarrhea, trouble sleeping, shortness of breath, lack of appetite, sweating, and immobility. Feel free to refer to others if necessary).
- Second, circle the number which best shows how big a problem each one has been for you **OVER THE PAST TWO (2) DAYS**.
- Third, if, over the past two (2) days, you had **NO** physical symptoms or problems, or only one or two, answer for each of the ones you have had and write "none" for the extra items. Then continue with Part C.

1) Over the past two (2) days,
one troublesome symptom has been: _____.
(print symptom)

no 0 1 2 3 4 5 6 7 8 9 10 **tremendous problem**
problem

2) Over the past two (2) days,
another troublesome symptom has been: _____.
(print symptom)

no 0 1 2 3 4 5 6 7 8 9 10 **tremendous problem**
problem

3) Over the past two (2) days,
a third troublesome symptom has been: _____.
(print symptom)

no 0 1 2 3 4 5 6 7 8 9 10 **tremendous problem**
problem

4) Over the past two (2) days I have felt:

physically 0 1 2 3 4 5 6 7 8 9 10 **physically well**
terrible

PART C

For the following items, please choose the number which best describes your feelings and thoughts
OVER THE PAST TWO (2) DAYS.

- 1) Over the past two (2) days, I have been depressed:
not at all 0 1 2 3 4 5 6 7 8 9 10 **extremely**
- 2) Over the past two (2) days, I have been nervous or worried:
not at all 0 1 2 3 4 5 6 7 8 9 10 **extremely**
- 3) Over the past two (2) days, how much of the time did you feel sad?
never 0 1 2 3 4 5 6 7 8 9 10 **always**
- 4) Over the past two (2) days, when I thought of the future, I was:
not afraid 0 1 2 3 4 5 6 7 8 9 10 **terrified**
- 5) Over the past two (2) days, my life has been:
utterly meaningless and without purpose 0 1 2 3 4 5 6 7 8 9 10 **very purposeful and meaningful**
- 6) Over the past two (2) days, when I thought about my whole life, I felt that in achieving life goals I have:
made no progress whatsoever 0 1 2 3 4 5 6 7 8 9 10 **progressed to complete fulfillment**
- 7) Over the past two (2) days, when I thought about my life, I felt that my life to this point has been:
completely worthless 0 1 2 3 4 5 6 7 8 9 10 **very worthwhile**
- 8) Over the past two (2) days, I have felt that I have:
no control over my life 0 1 2 3 4 5 6 7 8 9 10 **complete control over my life**
- 9) Over the past two (2) days, I felt good about myself as a person.
completely disagree 0 1 2 3 4 5 6 7 8 9 10 **completely agree**
- 10) To me, the past two (2) days were:
a burden 0 1 2 3 4 5 6 7 8 9 10 **a gift**
- 11) Over the past two (2) days, the world has been:
an impersonal unfeeling place 0 1 2 3 4 5 6 7 8 9 10 **caring and responsive to my needs**
- 12) Over the past two (2) days, I have felt supported:
not at all 0 1 2 3 4 5 6 7 8 9 10 **completely**

PART D

For the next 6 items, please choose the number which best describes your feelings and thoughts
OVER THE PAST MONTH.

1) During the past month, if you experienced chronic pain, how well did you manage it most days?

not well 0 1 2 3 4 5 6 7 8 9 10 **very well**

2) During the past month, how would you rate your overall stress level?

very low 0 1 2 3 4 5 6 7 8 9 10 **very high**

3) During the past month, how would you rate your overall anger level?

very low 0 1 2 3 4 5 6 7 8 9 10 **very high**

4) How would you rate your overall depression level during the past month?

very low 0 1 2 3 4 5 6 7 8 9 10 **very high**

5) During the past month, how would you rate your overall self-esteem level?

very low 0 1 2 3 4 5 6 7 8 9 10 **very high**

6) As you think about your overall financial situation, how does it look to you?

very bad 0 1 2 3 4 5 6 7 8 9 10 **very good**

SECTION 2: Your Farm/Ranch Work

1) AgrAbility provided me with information/recommendations that I use(d) to:

Check all that apply.

- do my farm/ranch work better than before working with AgrAbility.
- do my farm/ranch work more easily than before working with AgrAbility.
- continue my farming/ranching operation in part or whole.
- continue to live in my home independently.
- continue to live on the farm/ranch.
- successfully take up another occupation.

2) I probably would not be in farming/ranching today without help from AgrAbility.

Yes No

3) AgrAbility provided me with help. Yes no

Please tell us why _____

4) Age (Check the category that best describes your age)

- 18 – 19 years old
- 20-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- 55-64 years old
- 65 years and older

5) Farm Operation (Check one that best describes your primary farm operation)

- | | | | | |
|---------------------------------------|--|--|--|---|
| <input type="checkbox"/> Dairy | <input type="checkbox"/> Livestock | <input type="checkbox"/> Hay | <input type="checkbox"/> Poultry | <input type="checkbox"/> Field/Grain Crop |
| <input type="checkbox"/> Agribusiness | <input type="checkbox"/> Nursery Crops | <input type="checkbox"/> Orchard Crops | <input type="checkbox"/> Vegetable Crops | |
| <input type="checkbox"/> Fruit Crops | <input type="checkbox"/> Other Animals | <input type="checkbox"/> Specialized Crops | <input type="checkbox"/> Other | |

Please list your primary disability or health condition that most impacts your work on the farm operation:

6) Gender (Check one category)

Male Female

7) Work Status on the Farm (Check the one that best describes your work):

Fulltime Part-time Occasional No longer in farming

8) Listed below are statements relative to your ability to perform certain farm activities/responsibilities in your farm operations. Please indicate your level of ability in performing these activities. Use the following scale for your response: Almost all of the time (1) to Not at all (4).

<i>Statements</i>	Almost all of the time 1	Most of the time 2	Some of the time 3	Not at all 4	Does not apply to me 0
1) I am able to complete chores on my farm/ranch.	1	2	3	4	0
2) I am able to operate machinery.	1	2	3	4	0
3) I am able to manage my farm/ranch.	1	2	3	4	0
4) I am able to access workspaces on my farm/ranch.	1	2	3	4	0
5) I am able to live in my home on the farm/ranch.	1	2	3	4	0
6) I am able to change or modify my machinery in order to accommodate my needs.	1	2	3	4	0

9) Listed below are statements relative to services that you may have received from AgrAbility in regards to your ability to perform certain farm activities/responsibilities in your farm operations. Please indicate your level of agreement or disagreement with the following statements. Use the following scale for your response: Strongly agree (1) to Strongly disagree (5).

<i>Statements</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Does not apply to me
8) I have received assistance/information that was useful in my farming operation.	1	2	3	4	5	0
9) I was able to follow through on the recommendations made by AgrAbility.	1	2	3	4	5	0

Thank you for completing this questionnaire!

APPENDIX C
CONTACT LOG
(SAMPLE)

Department of Agricultural and Extension Education
Contact Log: McGill Quality of Life

First Mailing Sent: February 5, 2010
First Mailing Due Date: February 26, 2010

Second Mailing Sent: March 1, 2010
Second Mailing Due Date: March 22, 2010

Postcard Mailing Sent: March 26, 2010

Name	Code 1 st Mailing	Date Recd	Code 2 nd Mailing	Date Recd.	Post Card	Date Recd.	Comments
Non-Part	-----	-----	-----	-----	-----	-----	-----
	1001	-----	B1001				
	1002	2/11/10					
	1003	-----	B1003	3/9/10			
	1004	-----	B1004	3/9/10			
	1005	-----	B1005	-----	-----	-----	
	1006	-----	B1006				
	1007	-----	B1007	3/11/10			
	1008	-----	B1008				
	1009	2/11/10					
	1010	-----	B1010				
	1011	-----	B1011				
	1012	-----	B1012				
	1013	2/11/10					
	1014	-----	B1014				
	1015	-----	B1015	-----	-----	-----	
	1016	-----	-----	-----	-----	-----	
	1017	-----	B1017	3/16/10	-----	-----	
	1018	-----	B1018	-----	-----	-----	
	1019	-----	B1019				
	1020	-----	B1020	3/9/10			
	1021	-----	-----	-----	-----	-----	Bad Address
	1022	-----	B1022				
	1023	-----	B1023				
	1024	-----	B1024				
	1025	-----	B1025				
	1026	-----	B1026				
	1027	-----	B1027				
	1028	2/11/10					
	1029	3/2/10	B1029				
	1030	-----	B1030				
	1031	-----	B1031				

	1032	2/23/10					
	1033	2/11/10					
	1034	-----	B1034			3/30/10	
	1035	-----	B1035				
	1036	-----	-----	-----	-----	-----	
	1037	-----	B1037	3/18/10			
	1038	2/16/10					
	1039	2/11/10					
	1040	-----	B1040				
	1041	-----	B1040				
	1042	2/24/10					
	1043	-----	B1043	3/18/10			
	1044	-----	B1044				
	1045	2/17/10					Deceased
	1046	-----	B1046				
	1047	-----	B1047				
	1048	-----	B1048				
	1049	-----	B1049	3/18/10			
	1050	2/23/10					
	1051		B1051				
	1052		B1052				
	1053		B1053				
	1054		B1054				
	1055		B1055	3/10/10			
	1056		B1056				
	1057		B1057				
	1058		B1058				
	1059	-----	-----	-----	-----	-----	
	1060	-----	-----	-----	-----	-----	
	1061	2/26/10					
	1062	-----	B1062				
	1063	-----	B1063				
	1064	-----	B1064				
	1065	3/2/10	B1065				
	1066	-----	B1066				Deceased
	1067	-----	B1067				
	1068	-----	B1068				
	1069	2/19/10					
	1070		B1070	3/12/10			
	1071		B1071	3/9/10			Deceased
	1072		B1072				
	1073		B1073				
	1074		B1074				
	1075	-----	-----	-----	-----	-----	
	1076	2/12/10					

	1077	-----	B1077				
	1078	-----	B1078			4/5/10	
	1079	2/19/10					
	1080	-----	B1080				
	1081	-----	B1081	3/23/10			
Interv.							
	2001	-----	-----	-----	-----	-----	Deceased
	2002	2/16/10					
	2003	-----	B2003				
	2004	-----	B2004				
	2005	2/16/10					
	2006	2/23/10					
	2007	2/23/10					
	2008	-----	B2008				
	2009	2/16/10					
	2010	-----	B2010			4/5/10	
	2011	-----	B2011				
	2012	2/11/10					
	2013	-----	B2013			4/26/10	
	2014	-----	B2014				
	2015	2/11/10					
	2016	-----	B2016	3/17/10			
	2017	2/23/10					
	2018	-----	B2018				
	2019	2/16/10					
	2020	-----	B2020				
	2021	2/16/10					
	2022	-----	B2022				
	2023	-----	B2023			4/5/10	
	2024	2/11/10					
	2025	2/16/10					
	2026	-----	B2026				
	2027	-----	B2027	3/18/10			
	2028	2/11/10					
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	2030	2/11/10					
	2031	2/16/10					
	2032	2/11/10					
	2033	-----	B2033	3/30/10			
	2034	-----	B2034				
	2035	-----	B2035			4/2/10	
	2036	-----	-----	-----	-----	-----	Deceased
	2037	2/23/10					
	2038	-----	B2038				

	2039	-----	B2039	3/18/10			
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	2041	-----	B2041				
	2042	-----	B2042				
	2043	-----	B2043				
	2044	-----	B2044			4/5/10	
	2045	-----	B2045			4/5/10	
	2046	3/9/10	B2046				
	2047	-----	B2047				
	2048	2/11/10					
	2049	-----	B2049				
	2050	2/11/10					
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	2052	2/11/10					
	2053	-----	B2053			4/23/10	
	2054	-----	B2054	3/11/10			
	2055	2/11/10					
	2056	2/11/10					
	2057	2/11/10					
	2058	2/19/10					
	2059	-----	B2059			4/15/10	
	2060	-----	B2060				Deceased
	2061	-----	-----	-----	-----	-----	Deceased
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	2067	2/23/10					
	2068	-----	B2068				
	2069	2/19/10					
	2070	-----	B2070	3/9/10			
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	2072	-----	B2072				
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	2074	2/11/10					
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	2078	-----	B2078				
	2079	2/17/10					
	2080	2/16/10					
	2081	2/11/10					
	2082	-----	B2082				
	2083	2/11/10					

	2084	2/26/10					
	2085	-----	B2085	3/12/10			
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	2087	2/11/10					
	2088	2/23/10					
	2089	2/19/10					
	2090	-----	B2090				
	2091	2/24/10					
	2092	-----	B2092	3/9/10			
	2093	2/16/10					
	2094	-----	B2094				
	2095	-----	B2095	3/9/10			
	2096	2/11/10					
	2097	-----	B2097		3/30/10		
	2098	2/23/10					
	2099	-----	B2099				
	2100	-----	B2100				

APPENDIX D
IRB APPROVAL

From: Hartman, Sara [sjh246@psu.edu]
Sent: Wednesday, January 20, 2010 11:42 AM
To: Linda Fetzer
Cc: Connie Baggett
Subject: IRB#32815-Quality of Life Measure for Agricultural Producers with a Disability

Hi Linda-

The Office for Research Protections (ORP) has reviewed the eSubmission application for your research involving human participants and determined it to be exempt from IRB review. You may begin your research. This study qualifies under the following category(ies):

Category 2: Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observations of public behavior unless: (i) information obtained is recorded in such a manner that human participants can be identified, directly or through identifiers linked to the participants; and (ii) any disclosure of the human participants' responses outside the research could reasonably place the participants at risk of criminal or civil liability or be damaging to the participants' financial standing, employability, or reputation. [45 CFR 46.101(b)(2)]

COMMENT: THE CONSENT FORM YOU ARE EXPECTED TO USE, DOCUMENT 1001 IN BOTH THE RECRUITMENT AND INFORMED CONSENT FOLDERS OF PRAMS, HAS BEEN UPDATED TO REPLACE THE WORD "ANONYMOUS" AND TO REFLECT THE CORRECT IMPLIED CONSENT STATEMENT.

PLEASE NOTE THE FOLLOWING:

- The principal investigator is responsible for determining and adhering to additional requirements established by any outside sponsors/funding sources.
- **Record Keeping**
 - The principal investigator is expected to maintain the original signed informed consent forms, if applicable, along with the research records for at least three (3) years after termination of the study.
 - This correspondence will also be available to you in PRAMS at www.prams.psu.edu.
- **Consent Document(s)**
 - The exempt consent form(s) will no longer be stamped with the approval/expiration dates.
 - The consent form in PRAMS that matches the date of this determination (01/20/10) is the one that you are expected to use.
- **Follow-Up**
 - The Office for Research Protections will contact you in three (3) years to inquire if this study will be on-going.
 - If the study is completed within the three year period, the principal investigator may complete and submit a **Project Close-Out Report**: <http://www.research.psu.edu/orp/areas/humans/applications/index.asp#other>
- **Revisions/Modifications**
 - Any changes or modifications to the study must be submitted through the eSubmission application for this protocol in PRAMS (www.prams.psu.edu).

Please do not hesitate to contact me if you have any questions or concerns.

Thank you,

Sara Hartman
 Research Compliance Coordinator II
 Office for Research Protections
 The Pennsylvania State University
 The 330 Building, Suite 205, University Park, PA 16802
 Telephone: 814-865-3696

VITA

Linda M. Fetzer

lmf8@psu.eduEducation

- | | |
|-------------|---|
| August 2010 | <i>Pennsylvania State University</i>
Masters of Science – Agricultural and Extension Education |
| May 1992 | <i>Messiah College</i>
Bachelors of Art – Sociology |

Professional Positions*AgrAbility Project Coordinator*

The Pennsylvania State University – Department of Agricultural & Extension Education
May 2001 – Present

- Responsibilities include on-site farm assessments, technical information on modifying machinery and assistive technology, maintain project statistics, website updates, participation in outreach activities, and overall project coordination.

AgrAbility Case Manager

Easter Seals Central Pennsylvania
August 1996 – April 2001

- Responsibilities included on-site assessments, information & referral services, coordination of services, peer/caregiver support network, therapy network, educational activities, and project logistics.

Research & Development Coordinator

American Trauma Society, Pennsylvania Division
November 1993 – August 1996

- Coordinated the Bike Smart Club that promotes bicycle safety through Bike Derbies and the promotion of helmet usage. Assisted organizations and businesses in planning bicycle safety programs. Organized the First Annual Cumberland County Farm Safety Day Camp to teach farm safety to youth.

Internship Experience*Research Assistant*

American Trauma Society, PA Division - Mechanicsburg, PA
January 1992 – April 1992

- Developed a graphical reference manual concerning bicycle accidents in Pennsylvania and completed a survey study focused on alcohol usage on college campuses.

Training and Other Experiences

- National AgrAbility Project Workshop – Annual Training – 1996 through 2009
- Peer Support: Train-the-Trainer Workshop – Kansas - 2005
- Advanced Concepts in Ergonomics: Theory, Practice and Litigation – July 2003
- Extension Education in Amish and Anabaptist Communities – 1998, 2004 and 2006
- Progressive Farmer Farm Safety Day Camp training – February 1996 – Annapolis, MD

Papers, Presentations, and Posters

Baggett, C.D., Radhakrishna, R.B., & Fetzer, L.M. (2006, September). AgrAbility Program: Saving lives and helping farmers to continue farming. Poster presented at the North Central Agricultural Education Research Conference, Ames, Iowa. (Outstanding Poster)

Hissong, A.N, Fetzer, L.M. & Smithmyer, C.M. (2008) Ergonomics, Tools & Technology to Help You Farm with Physical Limitations. Presentation presented at PA Association for Sustainable Agriculture 17th Annual Farming for the Future Conference, State College, PA.

Radhakrishna, R.B., Baggett, C.D., Fetzer, L.M. (2006). Assessing Outcomes of AgrAbility for Pennsylvanians Program. Paper presented at the National Priester Conference, Lexington, KY.

Radhakrishna, R.B., Baggett, C.D., & Fetzer, L.M. (2005, November). Documenting proximal and distal outcomes of AgrAbility for Pennsylvanians program: Challenges and opportunities. Poster presented at the American Evaluation Association Conference, Toronto, Canada.

Radhakrishna, R.B., Baggett, C.D., & Fetzer, L.M. (2003, November). A framework to track and document outcomes of AgrAbility for Pennsylvanians program. Poster presented at the American Evaluation Association Conference, Reno, NV. (Outstanding Poster)

Awards

Breaking New Ground Achievement Award presented at the National AgrAbility Training Workshop – Grand Rapids, Michigan – October 2009.