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## *School of Occupational Therapy*

Occupational Therapy in Agriculture/Rural Communities:  
Bridging the Gap Between Health Professionals and Farmers/Ranchers

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A capstone project submitted in partial fulfillment for the requirements of the Doctor of Occupational Therapy degree from the University of Indianapolis, School of Occupational Therapy.

Under the direction of the faculty capstone advisor:

Dr. Jim McPherson, PhD, OTR

# A Capstone Project Entitled

Occupational Therapy in Agriculture/Rural Communities:  
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Submitted to the School of Occupational Therapy at University of Indianapolis in partial fulfillment for the requirements of the Doctor of Occupational Therapy degree.

By

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### Abstract

Farming/ranching continuously ranks as one of the most dangerous jobs in the United States, however literature indicates current gaps in care between health professionals and farmers/ranchers. Typically, resulting from limited exposure and understanding of occupational demands on the farm/ranch. It has been suggested that increasing exposure, in educational curriculums for example, can be an effective first step. The purpose of this project is to increase awareness through educational opportunities in the classroom and/or continuing training courses used by health profession programs, individual rehabilitation facilities, or community programs. Based on the needs assessment, an initial presentation was developed and presented to four Indiana occupational therapy programs prior to design of an occupation specific course. Course effectiveness was measured through implementation of a modified lesson during general coursework in an occupational therapy program. Outcomes indicate presentations and curricular design to be effective in increasing feelings of competence of health professionals when working with farmers/ranchers. In turn, reducing gaps in care and promoting stronger therapeutic relationships. Further testing should be conducted to measure effectiveness of the designed course. Discussion will present the relationship between farming/ranching and rehabilitative services, description of the initial presentation, establishment of the *Rehabilitation in Agriculture/Rural Communities Course*, and outcomes, longevity, and limitations of the project.

### Acknowledgement

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### **Introduction**

As evidenced, farming and/or farm work continues to be one of the most dangerous occupations in the United States due to the work environment and related farm tasks (National Safety Council, 2018). Farmers and ranchers are at increased risk for injuries including acute injuries, chronic conditions, and developmental conditions, in conjunction with associated secondary conditions related to age and work tasks affecting one's job performance (Jorge, 2006). Farming/ranching is viewed as more than a job, but rather a livelihood and a way of life typically passed down from generation to generation. As a result, farmers/ranchers value their work and are expected to return to the farm despite possible injuries and/or disabilities (Coles & O'Hare, n.d.). Although farm/ranch work is one of the most dangerous occupations, farmers/ranchers are determined to continue their work despite limitations. It is estimated that the number of farmers, ranchers, or agriculture personnel with a disability ranges from 1.04 million to 2.23 million (Deboy, Jones, Field, Metcalf, & Tormoehlen, 2008). While health care is ever evolving, it remains a goal to provide adequate services meeting the needs of the public. As occupational therapists, it is likely one will treat a farmer, rancher, or agriculture personnel at one point in their professional career demonstrating the role the profession should have within this setting.

### **Problem Statement**

There is a disconnect between the agriculture community and the services provided by health professionals in terms of application to one's occupations, primarily farm related tasks (Cole and O'Hare, n.d.; Jorge, 2006; Waite, 2015). Literature suggests that, "farmers and

ranchers who undergo rehabilitation after injury are dissatisfied with the rehabilitation outcomes because the physical rehabilitative process does not necessarily assist them to return to farm life and agriculture work” (Jorge, 2006, p. 61). In some cases, farmers have expressed that when seeking therapy services following a disability/injury, they felt their input and personal goals were not taken into consideration (Coles & O’Hare, n.d.). Furthermore, there is a need to address rehabilitation services in a culturally competent manner to meet the needs of farmers/ranchers (Jorge, 2006).

As health professionals, this specific population is not typically addressed in coursework impacting professional’s abilities to relate and tailor interventions applicable to farm/ranch related tasks. Occupational therapists strive to meet the needs of clients through occupation based, client centered, and holistic treatments to enhance individual’s quality of life and continued engagement in desired occupations. It is crucial, as providers, to be competent in treating agriculture personnel to bridge the gap between health professionals and agriculture/rural communities.

The purpose of this project is to further advocate for appropriate services of agriculture personnel and the role occupational therapy can serve. Discussion will include the implementation of an educational presentation for occupational therapy programs in Indiana and development of an agriculture/rural communities course, including outcomes, longevity of the project, and relevance to future work.

### **Background Information/Literature Review**

Evidence has shown the disconnect between agriculture/rural communities and adequately receiving services to return to work on the farm (Jorge, 2006; Waite, 2015). This may be associated with health professionals training, interest, and/or ability to relate to the population

(Mills & Millsteed, 2002; Russell, Clark, & Barney, 1996; Smallfield & Anderson, 2008).

Programs have begun addressing the possible root of the concerns, including increased training and education within preexisting educational coursework.

### **Perception of Services**

Coles and O'Hare (n.d.) report, the challenge facing healthcare is how services can be provided in rural settings, including the needs of personnel, most effective methods of implementation, and how health professionals, such as occupational therapists, can provide adequate services. Others have expanded upon this idea, reporting that health professionals typically only pursue employment in rural settings if they have lived in this type of area or due to positive educational and/or fieldwork experiences (Russell et. al., 1996; Strasser, 2005). This supports the idea that educational curriculums, such as occupational therapy, can aid as an avenue to encourage health professionals to serve agriculture/rural communities (Smallfield & Anderson, 2008).

There continues to be reluctance of health professionals becoming involved in agriculture/rural communities despite positive experiences. Much of this reluctance stems from the limited opportunities and/or experiences of students during their educational curriculum. Due to this, practitioners do not feel adequately prepared to treat agriculture personnel, which has been noticed by the said population (Russell et al., 1996). Farmers have stated that services provided by health professionals are only effective if one truly understands the challenges and daily tasks farmers face (Coles & O'Hare, n.d.). As health professionals, it is critical to understand how to form therapeutic relationships with clients to assist in providing services that can be translated to work on the farm/ranch. A few rehabilitation programs have begun

incorporating agriculture concepts into their curriculums to enhance student understanding and skills in treating agriculture personnel.

### **Occupational Therapy Curriculums**

Millstead's 1997 work, highlights the crucial aspect of education and training covering rural areas related to the occupational therapy profession. Including mandating in curriculum work to better prepare therapists for competence when working with rural personnel.

Researchers, health professionals, and educators through the years have identified the importance of serving agriculture/rural communities, yet few efforts have been made to incorporate this practice area into degree curriculums and standards. As the occupational therapy profession continues to expand, discussion of agriculture should be addressed as a specialized area of practice. While no standards currently exist for continuing competency in agriculture, training can be embedded into occupational therapy curriculums.

The School of Physical Therapy at Langston University saw the importance of addressing rural rehabilitation concerns. This resulted in a partnership with the Oklahoma AgrAbility Project to implement an educational component into their degree curriculum for additional occupational exposure (Jorge, 2006). Students in this program took part in a formal seminar about the culture of agriculture, common agricultural tasks, equipment, and the environment. Following the seminar, students participated in an on-site assessment discussing ideas such as accommodations. Students became more culturally competent in agricultural work and developed an understanding of the occupational demands on farmers and ranchers. Results also indicated expansion of student knowledge in application of intervention techniques that were relevant and meaningful to the population (Jorge, 2006). A more in depth, and expansive approach was taken by the University of South Dakota Occupational Therapy program



(Smallfield & Anderson, 2008). A rural issues module was implemented throughout the entire curriculum in conjunction with other coursework. Students participate in numerous learning opportunities, each building off the next. This module begins with an introduction to agriculture lecture, including essential related topics tying to other coursework. Students then research and conduct presentations on various safety topics (such as equipment, chemicals, and livestock handling) and commonly used farm equipment/tools. To enhance understanding, students participate in farm and vendor visits as well as implement an on-site farm assessment. A three-hour mental health in agriculture seminar is held. Advanced requirements include completion of one 12-week fieldwork rotation in a rural community and completion of a case study during the doctoral capstone experience. In turn students within the University of South Dakota Occupational Therapy program receive 30 plus hours of didactic coursework covering rural settings. It is noted that these opportunities have the potential to encourage more occupational therapists to practice in rural areas and demonstrate increased competency levels (Smallfield & Anderson, 2008).

Agriculture personnel often express dissatisfaction in the services received from health professionals, in turn creating a gap in care. The hope is that increasing exposure to the relationship of occupational therapy within agriculture/rural communities will assist in providing more meaningful care and enhance a farmer/rancher's longevity in their desired occupation.

### **Screening and Evaluation**

#### **Occupational Therapy's Relationship to Agriculture**

Little has been done to enhance the development and knowledge of health care professionals, like occupational therapists. Literature has shown that exposing occupational therapy students to various areas of practice or providing diverse educational opportunities

influences one's career choices. Exposing students to rural settings can help individuals make more informed decisions in their career and interest in pursuing various practice settings (Brockwell, Wielandt, & Clark, 2009). According to Brockwell et al. (2009), "undergraduate programs have the opportunity to mitigate challenges; however, there is minimal literature available regarding the adequacy of undergraduate education and its role in preparing occupational therapy graduates for practice" (pg. 4). It is important that such settings be further discussed within graduate curriculums to adequately prepare students for more informed decisions, based on personal characteristics and interests. Occupational therapists practicing in rural settings reported that having a rural fieldwork placement ultimately influenced them to pursue this type of work and increased their comfort in this setting. (Brockwell et. al., 2009). Exposure to rural settings within the curriculum, may assist in changing the current perspective to one where occupational therapists view work in this area as challenging yet rewarding (Mills & Millstead, 2002). Support in various settings, including rural settings, has been an indicator for retention rate while considering opportunities for networking, participation and communication in professional associations, attendance of local and regional meeting, and opportunities for continuing education (Stagnitti, 2008).

Occupational therapy has a unique role in serving the agricultural population. Educational opportunities and training prepares practitioners and students to analyze activities, identify possible limitations, and further recommend modifications or adaptive techniques that meet the needs of clients and their occupational demands (Jorge, 2006; Smallfield & Anderson, 2008). While the profession of occupational therapy continues to promote holistic care, it continues to demonstrate limitations in meeting the needs of agricultural personnel. Many of the root issues stem from lack of exposure or experience during graduate curriculum work (Brockwell et. al.,

2009; Russell et. al., 1996; Smallfield & Anderson, 2008). Health professionals should be able to provide interventions that go beyond the typical approaches and relate directly back to one's occupation on the farm. Agriculture/rural communities view their work on the farm as their livelihood they are constantly emerged in and must return to despite injuries or limitations. This is compared to their counterparts who are able to separate work and personal obligations more easily. Teaching occupational therapy students early on the cultural differences and specific occupational demands, can enhance the relationship between health professionals and farmers/ranchers. Brittany Cowgill best summarizes the variance in approaches to rural settings compared to common areas of occupational therapy practice, by stating,

One of the main themes from my research is that medical professionals didn't understand where farmers were coming from. They said you need to give up on farming. Just understanding that this is the person's identity can give occupational therapists a big edge. The key is to use therapeutic use of self and be aware that farming is more than a job (Waite, 2015, p. 15).

### **Theoretical Framework Guiding Project**

Research and personal communications identified that an effective first step for addressing gaps in care was to educate and expose students to rural settings during curriculum work. The use of the models PRECEDE-PROCEED and Person, Environment, Occupation, and Performance (PEOP), served as guiding foundation during the screening and evaluation phase. The use of such models allows one to discover the major limitations faced by this population, gather relevant research, implement a program, and then evaluate the impact of the program. The stated models allow one to focus on holistic care with consideration of the specific occupation of farming in relation to the individual's overall performance (Reed, 2004; Cole, 2008).

To make the gathered data more attainable, the Goal Attainment Scale was utilized. Refer to appendix A for use of this assessment tool relative to the project implementation.

## **Implementation of Project**

### **Project Planning/Overview**

Little research has discussed the implementation of agriculture/rural practice in graduate rehabilitation curriculums, especially in the occupational therapy profession (Smallfield and Anderson, 2008). The construction of this project is designed to provide occupational therapy programs with a sample curricular design discussing the role of occupational therapy within agriculture/rural communities for specialized clinical skills of students. Construction of the course is based on previous research, current curricular designs, discussions with occupational therapists practicing in agriculture/rural communities, and suggestions from select Indiana occupational therapy students.

The project seeks to increase awareness and education of agriculture/rural communities for current occupational therapy students to assist in increasing meaningful, relevant, and holistic care between health professionals and agriculture/rural communities. The ideal outcome is that based on the information, the profession will have a greater understanding of agriculture/rural communities to reduce the rehabilitative gaps in care. By increasing student exposure to this practice area, more students may seek employment in agriculture/rural communities and/or become more competent when treating agriculture personnel.

### **Project Objectives/Methods**

Specific objectives have been formulated to guide the implementation of the project. Objectives include: development of an initial educational presentation, creation and implementation of a presentation evaluation tool, conduction of interviews with occupational

therapists serving rural communities, review of the evaluation tool, and development of a course intended to be used by health professional programs, rehabilitation facilities, and/or community programs such as the National AgrAbility Project.

Based on research and discussions with the National AgrAbility Project team members, an initial presentation was developed entitled, “Occupational Therapy in Agriculture: Bridging the Gap Between Health Professionals and the Agriculture Community.” The presentation discussed the relationship and relevance of occupational therapy services in agriculture/rural communities to eliminate the current gaps in services (refer to appendix B for initial presentation). The presentation was also intended to identify possible areas of expansion within the profession to better serve agriculture/rural communities. Five Indiana accredited occupational therapy programs were contacted and responded to have the presentation held during general coursework or a Student Occupational Therapy Association meeting. Information discussed included: the background of agriculture, Indiana specific agriculture, common injuries/conditions and risk factors, cultural philosophy, the National AgrAbility Project, and the relevance of occupational therapy services to agriculture communities (such as mental health, prevention of secondary conditions, and assistive technology/modifications). Additional resources were provided to students following the presentation (refer to appendix C).

Approximately 169 students of various degrees (OTD, MOT, OTA) and years in the program (primarily first and second year students) participated in the presentations. A pre- and post-survey was provided to all participating individuals on a volunteer basis for understanding of the student’s current exposure to the topic area and competence level after the presentation. Recommendations from the surveys were utilized in developing the established course.

Interviews were conducted with four occupational therapists associated with various state AgrAbility Projects serving agriculture/rural communities and two occupational therapy professors incorporating rural issues into their coursework. The purpose of the interviews was to gain specific examples on what is seen while working with the designated population and what may be important to include in a specialized course for health professionals. Interviews also allowed greater understanding as to what is currently being taught in the classroom on the topic.

A course was developed incorporating the feedback provided by therapists and students. The designed course was established to be implemented and modified to fit various program needs as well as serve as a basis for continuing competency and outreach efforts.

### **Course Development.**

The structure of the course serves as an example guide for health profession programs by allowing for modification of concepts which are best fit for one's current curriculum (refer to appendix D and E for the course outline and related materials). Individual programs may take specific lesson ideas and/or assignments to implement into a desired course or use as a guide to begin an elective course or online training program. Included in the course outline are specific readings, assignments, and webinars for various modes of conveying the lesson topic depending on program needs or individual learning styles. Also listed, are specific occupational therapy courses that a lesson may be implemented in if unable to incorporate the course on a larger scale.

Based on student feedback from the pre- and post-surveys of the initial presentation, all survey participants reported preferring some type of hands on experience to convey the information. Participants indicated the most effective methods for conveying the topic and increasing competence levels was to participate in a farm visit (42.9%), interactive

lectures/presentations (19%), and case studies (14.3%). Feedback from the students assisted in designing the course that would meet educational and competency needs.

Further course development was based on the principles incorporated by occupational therapy program professors in their current coursework. For example, one Indiana professor incorporated farm specific assistive technology in the course she taught relative to modifications and adaptive devices. She also discussed musculoskeletal injuries/conditions related to agriculture work in another course (L. Jackson, personal communication, January 18, 2018). As part of the partnership with her state AgrAbility project, a Tennessee professor educated occupational therapy and physical therapy students on the role of AgrAbility and working with agriculture/rural communities in a community practicum course (C. Dennis, personal communication, January, 31, 2018). Other occupational therapists associated with academic work, have focused their efforts on portraying the information through research (C. Wilhite, personal communication, February 12, 2018). Course development was also guided by the report of Smallfield and Anderson (2008), with reference to the University of South Dakota's past and current rural issues curricular thread (A. Naber, personal communication, March 13, 2018).

Therapists and students agree that not enough training is provided in curricular programs, leading to decreased feelings of competence and interest in seeking employment in this area of practice (personal communications). The use of the course outline allows health profession programs to begin implementing and advocating for a greater presence of working within agriculture/rural communities. The course is intended to provide ideas to programs as to how they can play a part in further educating students to increase competence when working with various client demographics.

**Development of Leadership Skills Through Project and Staff Development**

Participation in the doctoral capstone experience has allowed for increased professional development in terms of management and program development. Due to the nature and structure of the National AgrAbility Project, it has solely been the responsibility to complete designated tasks of the site in conjunction with academic requirements with little to no direction or assistance. This has promoted overall independence and freedom in completion of the doctoral project. Being of a different demographic and academic background, National AgrAbility staff members seek further opinions and input to verify holistic treatment is being applied to meet the needs of clients. Leadership skills have developed through being considered the “expert” in terms of health care and rehabilitation. It has been beneficial to participate in activities beyond those that directly correlate with personal interests or project intentions, but opportunities where professional development can be expanded upon. This has included participation in various agriculture specific events, presentations, and meetings. Further leadership was demonstrated by establishing and conducting an occupational therapy panel at the National Training Workshop and organizing a National AgrAbility presence at the American Occupational Therapy Association Conference.

Each member of the National AgrAbility Project team has a specific and unique skill set requiring constant collaboration of the team where each member is viewed equally, regardless of experience or job title. The structure of the site has promoted confidence and allowed further practice serving as a leader, which will be translated to future professional engagement and leadership positions throughout one’s career.

Staff development has been a crucial aspect of successful implementation and longevity of the indicated project. Staff were initially educated on the role of occupational therapy and the



unique role the profession can have to the program. This also included educating staff members on the services and the specific areas of the program that would benefit from having an occupational therapist perspective.

Upon implementation of the indicated project, staff members were educated on how a training program for health professionals (occupational therapists, physical therapists, nursing, case management, etc.) may be modified from the discussed course. National AgrAbility staff members were provided with the outlined course and related materials, which could be used to create a general training program or for outreach efforts. Staff members of state AgrAbility projects were educated on ways to modify the course, based on demographic needs of health professionals, through a webinar posted on the National AgrAbility Project website. The webinar discussed the role of occupational therapy and how to participate in educational opportunities/outreach efforts.

### **Discontinuation and Outcome of Project**

#### **Project Outcomes**

Through extensive literature review and personal communications (with students, professors, and occupational therapists), it was found that there is typically no exposure to the occupations of farming/ranching embedded in current health profession curriculums. However, it is highlighted to be an important component of health professional's competence and professional development. Therefore, it is crucial to meet holistic and quality care for all clients treated to focus on enabling and enhancing participation in daily occupations (American Occupational Therapy Association, 2014).

An initial presentation was given to Indiana occupational therapy programs to expose students to agriculture/rural community's occupations, contributing to the development of the

indicated course. A pre- and post-survey was provided to students on a volunteer basis for additional information. The purpose of the pre-survey was to gain a greater understanding of the current level of exposure to agriculture/rural occupations prior to the initial presentation; the post-survey was aimed to gather student perspective on the most effective ways to present agriculture/rural occupations topics during course development. Pre-survey results indicated that 83.5% (111/133 responses) of survey participants reported their educational curriculum does not currently provide exposure to agriculture/rural communities. For the remaining 16.5% of responses, survey participants expressed that the topic was presented in the form of case studies, student presentations, guest lectures (third parties working with the specific population), and/or previous fieldwork experiences. Each initial presentation was structured the same, however slightly altered to reflect the agriculture demographics of the area, degree program objectives, and current level of exposure to the setting.

Following the initial presentation, students were then presented with a volunteer post-survey, where 75.6% of respondents indicated feeling more adequately prepared to treat agriculture/rural community personnel as a result of the presentation. Survey participants reported heightened awareness of possible gaps in care, however expressed gaps can be reduced with increased exposure to this specific occupation and way of life. One survey participant stated, “I think understanding the farming way of life is vital in delivering effective care” (Anonymous). Responses further addressed increasing health professional’s exposure to the occupation through educational opportunities in the classroom or through continuing education courses, such as an educational module. The most valuable information reported was further understanding the occupational demands of farming/ranching as well as the exposure to available resources, including AgrAbility services. Subsequent presentations were enhanced each time

based on post-survey feedback by including specific client stories, intervention techniques, and how an occupational therapist can incorporate the occupation of farming/ranching into the clinic.

### **Course Outcomes**

Upon completion of all initial presentations, the course outline was established. Course effectiveness was measured through implementation of a modified lesson which was presented to one accredited Indiana occupational therapy program during general coursework. Due to the limited time allotted, lesson 7 (Assistive Technology/Mobility Devices) was modified and implemented. Students were educated on various assistive technologies and mobility devices relative to farming/ranching (refer to appendix F and G). Lesson material was further reinforced by providing students the opportunity to design an assistive technology device based on a provided case study. Further course effectiveness was measured using a pre- and post-survey with results indicating increased scores of general assistive technology information from pre- to post-survey evaluation. Students also indicated a 4/5 score on the post-survey Likert scale of relevance to practice and increased competence for treating farmers/ranchers. No course or lesson suggestions were provided at the time.

### **Quality Improvement and Impact on Society**

Literature and personal communications have indicated gaps in care due to the absence of exposure to farming/ranching occupations for health professionals (Jorge, 2006; Smallfield & Anderson, 2008; Waite, 2015). Researchers indicate farmers/ranchers are not adequately receiving the services they desire. Although health professionals are addressing rehabilitative needs, many are not addressing the relationship between the treatments and the translation to the farm/ranch occupation (Jorge, 2006; Smallfield & Anderson, 2008; Waite, 2015). Those returning home following rehabilitative stays, oftentimes, do not continue to seek outpatient

services if they did not have a positive experience previously or did not see the benefit of rehabilitative services prior to returning to the farm/ranch. Some view their work on the farm/ranch to be more rehabilitative than actually receiving services (Coles & O'Hare, n.d.; E. Freudenburg, personal communication, February 6, 2018). To promote a more effective therapeutic relationship and stress the benefit of rehabilitative services, it is essential that health professionals be educated and competent on how to relate therapy to the farmer/ranchers desired outcomes and transition back to the farm.

By establishing an educational course, various societal needs are met. Increased education and advocacy are initial steps in reducing gaps in care and meeting the population specific needs. Through educational opportunities, such as the established course discussed, health professionals may have a greater impact on agriculture/rural communities creating a cohesive bond between services available and their effectiveness.

While the course outline is meant to serve as a guide, it is important to keep in mind individuals societal and demographic needs. This project was conducted with midwestern agricultural methods and demands in mind which may not translate to all regions or programs. A convenience sample was utilized when determining locations for initial presentations. Due to the limited time frame to complete the project, additional trials would be required to adequately measure the effectiveness of the course in meeting competence standards. It is expected that quality improvement will occur through further implementation of the course outline and will be based on needs and/or desires of the organization or program using the outline as a guide.

### **Reflection of Doctoral Capstone Experience**

#### **Relevance to Future Practice**

This project serves to expand upon current literature limitations, to provide increased educational opportunities and options for current and future health professionals when working with agriculture/rural communities. The course discussed serves as a guide for additional training and/or continuing competency options that can be easily implemented. The course also serves as a resource in providing a basic overview of the occupational demands and requirements associated with farming/ranching. The University of Iowa's Department of Occupational and Environmental Health offers more extensive training and coursework for health professionals interested in agriculture personnel's health and wellbeing (The University of Iowa, 2018).

As leading rehabilitation professionals, it is our duty to ensure we are reaching clients of all demographics, ethnicities, cultures, age, and physical/psychosocial limitations to ensure adequate services are being delivered. Health professionals and students should feel competent in tailoring intervention plans that will enhance agriculture personnel's return to their "livelihood," and reinforce the benefits of rehabilitative services. Occupational therapists have a distinct role in advocating and educating colleagues, communities, and clients, in efforts to meet the profession's unique philosophy of enhancing independence for improved quality of life (American Occupational Therapy Association, 2018). One farmer suggested that, farmers are a "unique kind" in which they can collaborate with health professionals to achieve effective adaptations and equipment recommendations useful to one's occupation since they have a more thorough understanding of farming/ranching (Cole and O'Hare, n.d.).

Future work should continue to explore the relationship and role rehabilitation specialists, specifically occupational therapists, have within farming/ranching occupations. This may include

focusing on availability to receive services, occupation specific intervention techniques, and/or continuing competence options.

### **Overall Learning**

Upon completion of the doctoral capstone experience several learning goals were met, directly correlated to the designed project and professional development. Specific project achievements are highlighted in appendix H. Overall, all initial project objectives were successfully completed and exceeded expectations. During the development of the designated project, numerous electronic and direct contacts were made with students, program faculty, occupational therapists, and AgrAbility staff members. These contacts required effective communication in expressing the needs of working with farmers/ranchers and the importance of occupational therapists better serving the population.

Additional self-directed learning was required for curriculum development during formation of the course. Consideration was also given to project longevity. Although not able to fully develop the course into a training program to be left with the National AgrAbility program, staff were educated on how the course could be used to establish this program. It is the hope that the course will serve as a guide for various health profession programs, rehabilitative facilities, and AgrAbility projects to assist in creation of continual competence for health professionals. The outline is intended to be modified for various settings and presentation structures to create longevity of the established work.

Further refinement of skills occurred during the doctoral capstone experience including implementation of theory/program development in specialized settings, leadership, advocacy,

and education. All skills developed and/or further refined will set the foundation for future practice and work as an occupational therapist.

### **Conclusion**

There are several possible reasons as to why there is mention of gaps in services for farmers/ranchers. With continual support and resources, efforts can be made to assist in creating a wholesome rehabilitative experience for farmers/ranchers. Providing additional resources and training, such as the developed course, serves to advance health professionals competence and feelings of confidence when providing services to farmers/ranchers. The goal is to encourage more individuals to pursue this practice setting to meet societal needs.

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**Appendix A**  
**Goal Attainment Scale Based on Doctoral Capstone Project at AgrAbility**

<b>Success</b>	<b>Goal</b>	<b>Goal</b>	<b>Goal</b>	<b>Goal</b>
<b>Level of Predicted Attainment</b>	<i>Number of Indiana Occupational Therapy Programs Reached to Give Presentation Regarding Occupational Therapy in Agriculture</i>	<i>Number of AgrAbility/Rural Community Occupational Therapists Reached to Provide Information Relative to Course Design</i>	<i>Effectiveness of Presentations Given to Occupational Therapy Schools Through Use of Pre/Post Surveys</i>	<i>Resources Provided to Students, Occupational Therapists, and AgrAbility</i>
<b>Much Less Than Expected -2</b>	Presentation will be given to 1/6 Indiana Occupational Therapy Programs.	Contact will be made with 1 Occupational Therapist practicing in a rural setting to complete interview questions that will be used in developing a course.	Thirty percent of all students reached will complete the pre- and post-survey while indicating advanced learning and knowledge following the presentation.	A course was not designed. No additional resources provided to upon discontinuation of doctoral experience.
<b>Somewhat Less Than Expected -1</b>	Presentation will be given to 2/6 Indiana Occupational Therapy Programs	Contact will be made with 2 Occupational Therapist practicing in a rural setting to complete interview questions that will be used in developing a course.	Forty percent of all students reached will complete the pre- and post-survey while indicating advanced learning and knowledge following the presentation.	A course will be outlined, however not fully developed to be shared Doctoral Paper Written Summary.
<b>Expected 0</b>	Presentation will be given to 3/6 Indiana Occupational Therapy Programs	Contact will be made with 3 Occupational Therapist practicing in a rural setting to complete interview questions that will be used in developing a course.	Fifty percent of all students reached will complete the pre- and post-survey while indicating advanced learning and knowledge following the presentation.	A course will be designed including related activities to be shared in the Doctoral Paper Written Summary.
<b>Somewhat More Than Expected +1</b>	Presentation will be given to 4/6 Indiana Occupational Therapy Programs	Contact will be made with 4 Occupational Therapist practicing in a rural setting to complete interview questions that will be used in developing a course.	Sixty percent of all students reached will complete the pre- and post-survey while indicating advanced learning and knowledge following the presentation.	A course will be designed including related activities to be shared in the Doctoral Paper Written Summary in conjunction with creation of a handout.
<b>Much More Than Expected +2</b>	Presentation will be given to 5/6 Indiana Occupational Therapy Programs	Contact will be made with 5 Occupational Therapist practicing in a rural setting to complete interview questions that will be used in developing a course.	Seventy percent or higher of all students reached will complete the pre- and post-survey while indicating advanced learning and knowledge following the presentation.	A course will be designed including related activities to be shared in the Doctoral Paper Written Summary in conjunction with the creation of a handout and webinar.

## Appendix B

Initial PowerPoint presented to Indiana Occupational Therapy programs







### Mental Health in Agriculture

- According to the CDC, mental health is "the state of mind that affects how we think, feel, and act. It also affects how we relate to others and how we handle stress and adversity." (CDC, 2019)
- There are many factors that can affect mental health, including genetics, environment, and life experiences.
- Stress is a natural part of life, but when it becomes chronic, it can lead to mental health problems.
- Many people in agriculture experience stress due to financial pressures, weather, and the physical demands of the job.
- It's important to seek help when you're struggling. There are many resources available to help you.

"In agriculture, the work is often very hard and the pay is often low. This can lead to stress and mental health problems. It's important to seek help when you're struggling. There are many resources available to help you." (CDC, 2019)

### Mental Health in Agriculture

- Living with and coping with mental health issues is a daily struggle for many people in agriculture.
- Stress is a natural part of life, but when it becomes chronic, it can lead to mental health problems.
- Many people in agriculture experience stress due to financial pressures, weather, and the physical demands of the job.
- It's important to seek help when you're struggling. There are many resources available to help you.



"In agriculture, the work is often very hard and the pay is often low. This can lead to stress and mental health problems. It's important to seek help when you're struggling. There are many resources available to help you." (CDC, 2019)

### Agrability Model vs. PCOP Model



The Agrability Model and the PCOP Model are two frameworks used to assess and support individuals in agriculture. The Agrability Model focuses on the individual's ability to perform agricultural tasks, while the PCOP Model focuses on the individual's overall well-being and quality of life.

### Hope for the Agriculture Industry!



- There is a lot of hope for the agriculture industry! With the right support and resources, farmers can thrive and make a positive impact on the world.
- There are many ways to get involved in agriculture, including volunteering, internships, and employment.
- It's important to seek help when you're struggling. There are many resources available to help you.

"There is a lot of hope for the agriculture industry! With the right support and resources, farmers can thrive and make a positive impact on the world." (CDC, 2019)

### Additional Resources for Occupational Therapy in Agriculture

- There are many resources available to help you learn more about occupational therapy in agriculture.
- Check out the following websites for more information:
- Occupational Therapy in Agriculture: A Guide for Farmers and Ranchers (CDC, 2019)
- Occupational Therapy in Agriculture: A Guide for Farmers and Ranchers (CDC, 2019)

### References

Centers for Disease Control and Prevention. (2019). Mental health in agriculture. <https://www.cdc.gov/mentalhealth/strategies/mental-health-in-agriculture/>

Occupational Therapy in Agriculture: A Guide for Farmers and Ranchers. (CDC, 2019). <https://www.cdc.gov/mentalhealth/strategies/mental-health-in-agriculture/>

Occupational Therapy in Agriculture: A Guide for Farmers and Ranchers. (CDC, 2019). <https://www.cdc.gov/mentalhealth/strategies/mental-health-in-agriculture/>



Appendix C  
Resources provided in conjunction with initial presentation

- Arkansas AgrAbility. Increasing physical activity as we age: Exercises for low back injury prevention. Retrieved from [www.agrability.org/wp-content/uploads/2015/11/FSFCS38-Low-Back-Injury-Prevention.pdf](http://www.agrability.org/wp-content/uploads/2015/11/FSFCS38-Low-Back-Injury-Prevention.pdf)
- Clingan, D. (2018). Agricultural interventions/modifications. Retrieved from <https://create.piktochart.com/output/27785480-new-piktochart>
- Indiana AgrAbility Project. Cultivating independence for farmers and other rural residents with disabilities. Retrieved from [https://engineering.purdue.edu/~bng/downloads/IN\\_AgrAbility\\_web.pdf](https://engineering.purdue.edu/~bng/downloads/IN_AgrAbility_web.pdf)
- National AgrAbility Project. Arthritis and agriculture: A guide to understanding and living with arthritis. Retrieved from [www.agrability.org/wp-content/uploads/2015/11/Arthritis\\_and\\_Ag.pdf](http://www.agrability.org/wp-content/uploads/2015/11/Arthritis_and_Ag.pdf)
- National AgrAbility Project. Arthritis and gardening: A guide for home gardeners and small scale producers. Retrieved from [http://www.agrability.org/wpcontent/uploads/2016/04/Arthritis\\_Gardening\\_Web\\_sm.pdf](http://www.agrability.org/wpcontent/uploads/2016/04/Arthritis_Gardening_Web_sm.pdf)
- National AgrAbility Project. Back on the farm, back in the saddle: a guide to back health in agriculture. Retrieved from [www.agrability.org/wp-content/uploads/2015/11/Back\\_health\\_final.pdf](http://www.agrability.org/wp-content/uploads/2015/11/Back_health_final.pdf)
- National AgrAbility Project. Could arthritis be what is causing my pain. Retrieved from [www.agrability.org/wp-content/uploads/2015/11/AgrAbility\\_Novela\\_En.pdf](http://www.agrability.org/wp-content/uploads/2015/11/AgrAbility_Novela_En.pdf)
- National AgrAbility Project. Cultivating assessable agriculture. Retrieved from [www.agrability.org/wp-content/uploads/2016/01/AgrAbility\\_brochure\\_accessible\\_PDF.pdf](http://www.agrability.org/wp-content/uploads/2016/01/AgrAbility_brochure_accessible_PDF.pdf)
- National AgrAbility Project. Evaluating agricultural workplace assistive technology for secondary injury hazards. Retrieved from [www.agrability.org/wp-content/uploads/2015/11/SecInjryAssmtTool.pdf](http://www.agrability.org/wp-content/uploads/2015/11/SecInjryAssmtTool.pdf)
- National AgrAbility Project. (2016). The Next Mission: Breaking down barriers for veterans in agriculture. [YouTube Video]. Retrieved from <https://www.youtube.com/watch?v=vkqdhYMwDb0>
- PUExtension. (2011). AgrAbility: It's about hope. [YouTube Video]. Retrieved from <https://www.youtube.com/watch?v=sI3vChVHdoc&t=4s>

## Appendix D

### Rehabilitation in Agriculture/Rural Communities Course: Outline



Developed by: Danyele Clingan, OTD

### ***Rehabilitation in Agriculture/Rural Communities Course***

*\*Disclaimer: This course outline is intended to be modified and implemented in whole or part based on desired needs. It can be used when designing an elective course, additional training/seminar, and/or integrated into current coursework relative to health professionals, predominately rehabilitation. The course is also designed to be used as an educational tool, which may be modified to educate health professionals in the field for increased competence. The outline is displayed and discussed as if implementing in entirety for Occupational Therapists including correlated coursework.*

#### **Course Overview**

##### Aims

- This unit aims to provide health professionals/students/occupational therapists with advanced knowledge and training when working with agriculture/rural community personnel, including the unique role in enhancing the populations overall quality of life and independence to reduce gaps in rehabilitative services.

##### Learning Objectives

- Health professionals/students will be able to provide relevant and meaningful care to this specific population through application of general principles (evaluations and interventions), activity analysis, prevention/rehabilitation principles (ergonomics, body mechanics, and general farm safety), assistive technology including mobility devices, and additional hands on experience. Individuals will be able to:
  - Articulate specific farm/ranch principles including cultural views of agriculture/rural community personnel, risk factors of farming/ranching, farm safety and machinery, and prevention of injuries.
  - Demonstrate ability to perform evaluations/assessments using standardized or non-standardized tools.
  - Identify and execute client centered, holistic interventions translated to occupational demands/tasks on the farm/ranch.
  - Employ overall learning to the rehabilitation process when treating agriculture/rural community personnel.

#### **Lesson Topics**

- Lesson 1: Introduction to Occupational Therapy related to Agriculture/Rural Communities
- Lesson 2: Acute/Secondary Injuries Associated with Farming/Ranching Tasks
- Lesson 3: Safety and Equipment
- Lesson 4: Injury Prevention (Body Mechanics/Ergonomics)
- Lesson 5: Farmers/Ranchers with Disabilities
- Lesson 6: Occupational Therapy Interventions for Farmers/Ranchers
- Lesson 7: Assistive Technology/Mobility Devices
- Lesson 8: Mental Health
- Lesson 9: Activity Day/On-site Assessment
- Lesson 10: Implementation of Intervention Plan



- Lesson 11: Outreach to Health Professionals

### Course Materials

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#### Readings

- Online Articles/Resources
  - Allen, P. B., Frick, M. J., & Field, W. E. (1995). The safety education training needs of farmers and ranchers with physical disabilities. *Journal of Agricultural Education*, 36(3), 50-56.
  - Breaking New Ground, Purdue University. (2008). Conducting agricultural worksite assessments: A users guide for professional assisting farmers & ranchers with physical disabilities. Retrieved from <http://www.agrability.org/wp-content/uploads/2015/11/WSA.pdf>
  - Coles, J. and O'Hare, M. *The role of occupational therapy in rural healthcare: A case study on farmers with disabilities*.
  - Grisso, R., Perumpral, J., Ohanehi, D., & Ballin, K. (2014). Assistive technologies in agriculture. Virginia Cooperative Extension, Publication 442-084.
  - Grisso, R., Perumpral, J., Ohanehi, D., & Ballin, K. (2014). Preventing secondary injuries in agricultural workplaces. Virginia Cooperative Extension, Publication 442-085.
  - Health and Safety Authority. (2017). Code of practice for preventing injury and occupational ill health in agriculture.
  - Hissong, A. N. & Wilhite, C. S. (2009). Occupational therapy's role with farmers and ranchers with disabilities: Two perspectives. *OT Practice*, 14 (4), 7-8.
  - National AgrAbility Project. (2010). Evaluating agricultural workplace assistive technology for secondary injury hazards: An assessment tool for professionals who assist farmers and ranchers with disabilities. Purdue University.
  - Roy, P., Tremblay, G., Oliffe, J. L., Jbilou, J., & Robertson, S. (2013). Male farmers with mental health disorders: A scoping review. *The Australian Journal of Rural Health*, 21, 3-7.
  - Waite, A. (2015). A growing opportunity: OT's role helping farmers and ranchers. *OT Practice*, 12-16.
- Textbooks
  - Donham, K. J. & Thelin, A. (2016). *Agricultural medicine: Occupational and environmental health for the health professions* (2<sup>nd</sup> ed.). Hoboken, New Jersey: John Wiley & Sons, Inc.
  - Optional:
    - Warren, J. C. & Smalley, K. B. (2014). *Rural public health: Best practices and preventive models*. New York, New York: Springer Publishing Company, LLC.
    - Willkomm, T. (2013). *Assistive technology solutions in minutes: Ordinary items extraordinary solutions* (2<sup>nd</sup> ed.). Durham, New Hampshire: The Institute on Disability at the University of New Hampshire.

#### Online Webinars/Videos

- Ability Tools. (2015). Ergonomics for farming and gardening. [YouTube Video]. Retrieved from <https://www.youtube.com/watch?v=iO5dlexlNwg&t=2602s>
- Attitude. (2016). Depression on the farm. [YouTube Video]. Retrieved from <https://www.youtube.com/watch?v=VjfeXcukBRM&t=40s>
- CompelMedia. (2011). SAIF "Tractor Safety Elements. [YouTube Video]. Retrieved from <https://www.youtube.com/watch?v=hZWmgC8t6Zc>

- Hendrix, T. (2015). Farming and gardening with occupational therapy. [YouTube Video]. Retrieved from <https://www.youtube.com/watch?v=J20clqOGDM>
- HSA. (2011). Farm safe-Machinery. [YouTube Video] Retrieved from <https://www.youtube.com/watch?v=6HUCq5a1ZpM>
- National AgrAbility. (2015). Carpal Tunnel Syndrome and Arthritis: Overworking the #1 Tool in a Farmer's Toolbox. [YouTube Video]. Retrieved from <https://www.youtube.com/watch?v=Kiex5GCGJCQ&feature=youtu.be>
- National AgrAbility. (2016). Rural assistive technology. [YouTube Video]. Retrieved from <https://www.youtube.com/watch?v=d5a4xalwiOc&feature=youtu.be>
- National AgrAbility. (2015). Secondary injury: A conversation with farmer Ed Bell. [YouTube Video]. Retrieved from <https://www.youtube.com/watch?v=vvsp6m-GS7w&feature=youtu.be>
- National AgrAbility. (2015). Selecting a wheelchair for agricultural use. [YouTube Video]. Retrieved from <https://www.youtube.com/watch?v=YvA-eYcZGXU&feature=youtu.be>

#### Additional Resources

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- Agriculture of Life. (n.d.). *Health promotion and successful farming and ranching for ag families: A planning guide and workbook*. Retrieved from [https://www.ok.gov/ag4life/Publications/Guidance\\_Document/index.html](https://www.ok.gov/ag4life/Publications/Guidance_Document/index.html)
- AgrAbility. (n.d.). 25 years, 25 stories. Retrieved from [www.agrability.org/wp-content/uploads/2016/05/25\\_Year\\_Summary\\_accessible\\_web.pdf](http://www.agrability.org/wp-content/uploads/2016/05/25_Year_Summary_accessible_web.pdf)
- National AgrAbility Project  
225 University St., West Lafayette, IN 47907  
1-800-825-4264  
[www.agrability.org](http://www.agrability.org)

#### Course Outline

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##### Classroom/Online Education

Lesson 1: Introduction to Occupational Therapy related to Agriculture/Rural Communities

*\*Correlated course: Community Practice/Emerging Areas of Practice/Special Topics, Diseases/Conditions, Doctoral Capstone/Residency Planning, Doctoral Capstone/Residency Development*

- Readings/Activities Before Class:
  - *Online Articles/Resources*-Waite, A. (2015). A growing opportunity: OT's role helping farmers and ranchers. *OT Practice*, 12-16.
  - *Book*- Donham, K. J. & Thelin, A. (2016). Introduction and overview. *Agricultural medicine: Occupational and environmental health for the health professions* (1-25). Hoboken, New Jersey: John Wiley & Sons, Inc.
- In Class Activities: PowerPoint
- Assignment: Research Occupational Therapy's role in Agriculture  
*Explore resources highlighting the relationship and role of Occupational Therapy working within agriculture/rural communities. May include farmer/rancher testimony of the services provided by Occupational Therapy or Occupational Therapists description of their services provided when working with farmers/ranchers.*

## Rehabilitation in Agriculture/Rural Communities Course

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- Online webinar/video: National AgrAbility. Occupational Therapy in Agriculture/Rural Communities. (*Scheduled webinar for 4/26/18*)

## Lesson 2: Acute/Secondary Injuries Associated with Farming/Ranching Tasks

\*Correlated course: Biomechanics/Physical Disabilities, Rehabilitation/Disability and Participation

- Readings/Activities Before Class:
  - *Online Articles/Resources*- Grisso, R., Perumpral, J., Ohanehi, D., & Ballin, K. (2014). Preventing secondary injuries in agricultural workplaces. Virginia Cooperative Extension, Publication 442-085.
  - *Book*- Donham, K. J. & Thelin, A. (2016). Acute injuries in agriculture. *Agricultural medicine: Occupational and environmental health for the health professions* (379-394). Hoboken, New Jersey: John Wiley & Sons, Inc.
- In Class Activities: PowerPoint
- Assignment: Farmer injury case studies  
*Complete various case studies discussing secondary injuries experienced on the farm/ranch. Consider principles of restoring, modifying, preventing, and educating.*
- Online webinar/video:
  - National AgrAbility. (2017). Assistive technology to prevent secondary injury in aging farmers. [YouTube Video]. Retrieved from <https://www.youtube.com/watch?v=aN9xGuMFw38&t=2991s>
  - National AgrAbility. (2015). Carpal Tunnel Syndrome and Arthritis: Overworking the #1 Tool in a Farmer's Toolbox. [YouTube Video]. Retrieved from <https://www.youtube.com/watch?v=Kiex5GCGJCQ&feature=youtu.be>

## Lesson 3: Safety and Equipment

\*Correlated course: Work and Industry, Technologies in Occupational Therapy

- Readings/Activities Before Class:
  - *Online Articles/Journals*- Health and Safety Authority. (2017). Code of practice for preventing injury and occupational ill health in agriculture.
  - *Book*: Donham, K. J. & Thelin, A. (2016). Acute injuries in agriculture. *Agricultural medicine: Occupational and environmental health for the health professions* (394-409). Hoboken, New Jersey: John Wiley & Sons, Inc.
- In Class Activities: PowerPoint/Equipment Vendors  
*Invite equipment vendor(s) working with farmers/ranchers to share their assistive technology and/or mobility devices. Equipment vendors vary from state to state, local to national organizations/companies. Common equipment vendors working with farmers/ranchers include, Life Essentials, Action Trackchair, and JBC.*
- Assignment: Activity Analysis  
*Complete an activity analysis over a daily farm task while considering safety and the use of equipment and/or analyze a specific machinery task.*
- Online webinar/video:
  - HSA. (2011). Farm safe-machinery. [YouTube Video] Retrieved from <https://www.youtube.com/watch?v=6HUCq5a1ZpM>
  - CompelMedia. (2011). SAIF "Tractor Safety Elements. [YouTube Video]. Retrieved from <https://www.youtube.com/watch?v=hZWmgC8t6Zc>
- Additional Resources:
  - Allen, P. B., Frick, M. J., & Field, W. E. (1995). The safety education training needs of farmers and rancher with physical disabilities. *Journal of Agricultural Education*, 36(3), 50-56.
  - National Farmers Union. (n.d.). Safety on the farm. Retrieved from <https://nfu.org/farmsafety/>

## Rehabilitation in Agriculture/Rural Communities Course

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## Lesson 4: Injury Prevention (Body Mechanics/Ergonomics)

\*Correlated course: Biomechanics/Physical Disabilities, Rehabilitation/Disability and Participation

- Readings/Activities Before Class:
  - *Online Articles/Resources*-Health and Safety Authority. (2017). Code of practice for preventing injury and occupational ill health in agriculture.
  - *Book*-Donham, K. J. & Thelin, A. (2016). Prevention of illness and injury in agriculture. *Agricultural medicine: Occupational and environmental health for the health professions* (503-550). Hoboken, New Jersey: John Wiley & Sons, Inc.
- In Class Activities: PowerPoint
- Assignment: Injury prevention presentations  
*Create and present on injury prevention techniques related to a specific farm task while considering principles of body mechanics and ergonomics.*
- Online webinar/video: Ability Tools. (2015). Ergonomics for farming and gardening. [YouTube Video]. Retrieved from <https://www.youtube.com/watch?v=iO5dlexlNwg&t=2602s>

## Lesson 5: Farmers/Ranchers with Disabilities

\*Correlated course: Disabilities Studies, Rehabilitation/Disability and Participation, Work and Industry, Community Practice/Emerging Areas of Practice/Special Topics

- Readings/Activities Before Class:
  - *Online Articles/Resources*-Coles, J. and O'Hare, M. *The role of occupational therapy in rural healthcare: A case study on farmers with disabilities.*
  - *Additional Resources*- AgrAbility. (n.d.). 25 years, 25 stories. Retrieved from [www.agrability.org/wp-content/uploads/2016/05/25\\_Year\\_Summary\\_accessible\\_web.pdf](http://www.agrability.org/wp-content/uploads/2016/05/25_Year_Summary_accessible_web.pdf)
- In Class Activities: Discussion with a Farmer/Rancher  
*Incorporate farmer(s) with a disability to discuss their story for an interactive discussion between health professionals and the farmer/rancher(s). For assistance getting in touch with farmers, contact the National AgrAbility Program and/or designated state AgrAbility program.*
- Assignment: Review case study of presenters and develop relevant questions  
*Review a brief description of the farmer/rancher(s) with a disability participating in the discussion. Based on the description, develop questions to guide the discussion and generate ideas of how an Occupational Therapist may assist the farmer/rancher immediately after the disability or at the current moment based on limitations.*
- Online webinar/video: National AgrAbility. (2015). Secondary injury: A conversation with farmer Ed Bell. [YouTube Video]. Retrieved from <https://www.youtube.com/watch?v=vvsp6m-GS7w&feature=youtu.be>

## Lesson 6: Occupational Therapy Interventions for Farmers/Ranchers

\*Correlated course: Occupational Therapy Practice, Technologies in Occupational Therapy, Work and Industry

- Readings/Activities Before Class:
  - *Online Articles/Resources*-Hissong, A. N. and Wilhite, C. S. (2009). Occupational therapy's role with farmers and ranchers with disabilities: Two perspectives. *OT Practice*, 14(4), 7-8.
    - Hissong, A. N. and Wilhite, C. (2008). Occupational therapy's role with farmers with disabilities or disease: Understanding the cultural factor of farming as a way of life. *OT Practice*, 13(13), CE1-7.
- In Class Activities: PowerPoint
- Assignment: Development of intervention plan

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*Develop an intervention plan for a farmer/rancher to enhance performance in daily tasks. Intervention plan may then be implemented in the on-site, if applicable (refer to onsite implementation of intervention plan description).*

- Online webinar/video: Hendrix, T. (2015). Farming and gardening with occupational therapy. [YouTube Video]. Retrieved from <https://www.youtube.com/watch?v=J20clqOGDM>

## Lesson 7: Assistive Technology/Mobility Devices

*\*Correlated course: Occupational Therapy Practice, Physical Disabilities, Technologies in Occupational Therapy, Work and Industry*

- Readings/Activities Before Class:
  - Online Articles/Resources-Grisso, R., Perumpral, J., Ohanehi, D., & Ballin, K. (2014). Assistive technologies in agriculture. Virginia Cooperative Extension, Publication 442-084.
    - National AgrAbility Project. (2010). Evaluating agricultural workplace assistive technology for secondary injury hazards: An assessment tool for professionals who assist farmers and ranchers with disabilities. Purdue University.
  - Optional-Willkomm, T. (2013). Assistive technology solutions in minutes: Ordinary items extraordinary solutions (2<sup>nd</sup> ed.). Durham, New Hampshire: The Institute on Disability at the University of New Hampshire.
- In Class Activities: PowerPoint
- Assignment: Creation of Assistive/Mobility Device  
*Develop an assistive/mobility device, that does not currently exist, for farmers/ranchers considering typical limitations, injury prevention, safety, and functionality.*
- Online webinar/video: National AgrAbility. (2015). Selecting a wheelchair for agricultural use. [YouTube Video]. Retrieved from <https://www.youtube.com/watch?v=YvA-eYcZGXU&feature=youtu.be>
  - National AgrAbility. (2016). Rural assistive technology. [YouTube Video]. Retrieved from <https://www.youtube.com/watch?v=d5a4xaJwiOc&feature=youtu.be>
- Additional Resources:
  - <http://www.agrability.org/toolbox/>
  - <https://www.resna.org/>

## Lesson 8: Mental Health

*\*Correlated course: Occupational Therapy Practice/Mental Health/Psychosocial Implications, Health and Wellness/Wellness Through Occupation*

- Readings/Activities Before Class:
  - Online Articles/Resources-Roy, P., Tremblay, G., Oliffe, J. L., Jbilou, J., & Robertson, S. (2013). Male farmers with mental health disorders: A scoping review. *The Australian Journal of Rural Health*, 21, 3-7.
  - Book-Donham, K. J. & Thelin, A. (2016). Psychosocial conditions in agriculture. *Agricultural medicine: Occupational and environmental health for the health professions* (351-370). Hoboken, New Jersey: John Wiley & Sons, Inc.
    - Optional-Warren, J. C. & Smalley, K. B. (2014). Mental health in rural areas. *Rural public health: Best practices and preventive models* (85-93). New York, New York: Springer Publishing Company, LLC
    - Optional-Warren, J. C. & Smalley, K. B. (2014). Substance use and abuse in rural America. *Rural public health: Best practices and preventive models* (95-114). New York, New York: Springer Publishing Company, LLC
- In Class Activities: PowerPoint



- **Assignment:** Electronic resource educating farmers on mental health  
*Create an educational resource, which can be distributed, to farmers and/or health professionals discussing mental health related to agriculture work. May include a handout, electronic presentation (such as Infogram), or other mode of presenting information.*
- **Online webinar/video:** Attitude. (2016). Depression on the farm. [YouTube Video]. Retrieved from <https://www.youtube.com/watch?v=VjfeXcukBRM&t=40s>

### Additional Hands on Experience

#### Lesson 9: Activity Day/On-site Assessment

*\*Correlated course: Occupational Therapy Practice (Evaluations/Assessments)*

- **Readings/Activities Before Class:**
  - *Online Articles/Resources-Breaking New Ground, Purdue University. (2008). Conducting agricultural worksite assessments: A users guide for professional assisting farmers & ranchers with physical disabilities. Retrieved from <http://www.agrability.org/wp-content/uploads/2015/11/WSA.pdf>*
- **Hands on Activity:** On-site Visit to Farm  
*Visit a local farmer/rancher's operation for firsthand experience of the daily tasks required for maintaining the operation as well as how various tasks are performed.*
- **Assignment:** Completion of On-site Assessment  
*Complete an on-site assessment of a farmer/rancher and their daily tasks including completion of an occupational profile as well as observation of principles of range of motion, strength, and functional mobility. Considering using the resource, Conducting agricultural worksite assessments: A users guide for professional assisting farmers & ranchers with physical disabilities produced by Breaking New Ground, as a guide for completing a comprehensive assessment.*

#### Lesson 10: Implementation of Intervention Plan

*\*Correlated course: Occupational Therapy Practice (Interventions)*

- **Readings/Activities Before Class:** Independent Reading Related to Intervention Plan
- **Hands on Activity:** On-site Visit to Farm
- **Assignment:** On-site Implementation of Intervention Plan  
*Implement the developed intervention plan with the assistance of the farmer/rancher for increased functional performance in daily tasks.*

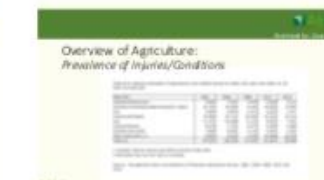
#### Lesson 11: Outreach to Health Professionals

*\*Correlated course: Program Development, Management, Special Topics*

- **Readings/Activities Before Class:** Independent Reading Based on Project
  - *Book-*
    - *Optional- Warren, J. C. & Smalley, K. B. (2014). Future directions in rural public health. Rural public health: Best practices and preventive models (255-261). New York, New York: Springer*
- **Hands on Activity:** On-site Training
- **Assignment:** Implementation of Training Program or In-service Presentation  
*Develop a training program and/or organize an in-service for health professionals, who may assist farmers/ranchers in practice, to educate on the role of Occupational Therapy as well as possible farm related treatment ideas that could be implemented in the clinic. Utilize previous lessons to assist in creation of the presentation.*

## Appendix E

## Rehabilitation in Agriculture/Rural Communities Course: Example Lesson PowerPoints





## Overview of Agriculture: Prevalence of Hygiene Conditions

Table 1: Prevalence of Hygiene Conditions in Agricultural Settings (2018-2020)

Category	2018	2019	2020
Hygiene Practices	75%	80%	85%
Sanitation Facilities	60%	65%	70%
Water Quality	55%	60%	65%
Food Safety	70%	75%	80%
Animal Welfare	65%	70%	75%
Environmental Impact	50%	55%	60%

Source: Agricultural Hygiene Survey Data, 2018-2020.

**Cultural Philosophy**

- Review, *A growing opportunity: OT's role helping farmers and ranchers*, by Arlene Winkler

[illegible]

**Relevance to Occupational Therapy Services**

\* Review Agricultural medicine: Occupational and environmental health for the health professions (pages 1-25), by Kirby J. Gonsky and Anders Thelin

### Discussion Questions

- How might health professionals collaborate with farmers, ranchers and/or current programs to provide additional services for the population?
- How can health professionals further advocate for farmers/ranchers within their professional organization to increase services for this population?

## References

1. G. K. S. Wong, *Journal of Polymer Science: Part A: Polymer Chemistry*, **45**, 1055 (2007).
2. J. S. Hwang, *Journal of Polymer Science: Part A: Polymer Chemistry*, **45**, 1055 (2007).
3. J. S. Hwang, *Journal of Polymer Science: Part A: Polymer Chemistry*, **45**, 1055 (2007).
4. J. S. Hwang, *Journal of Polymer Science: Part A: Polymer Chemistry*, **45**, 1055 (2007).
5. J. S. Hwang, *Journal of Polymer Science: Part A: Polymer Chemistry*, **45**, 1055 (2007).
6. J. S. Hwang, *Journal of Polymer Science: Part A: Polymer Chemistry*, **45**, 1055 (2007).
7. J. S. Hwang, *Journal of Polymer Science: Part A: Polymer Chemistry*, **45**, 1055 (2007).
8. J. S. Hwang, *Journal of Polymer Science: Part A: Polymer Chemistry*, **45**, 1055 (2007).
9. J. S. Hwang, *Journal of Polymer Science: Part A: Polymer Chemistry*, **45**, 1055 (2007).
10. J. S. Hwang, *Journal of Polymer Science: Part A: Polymer Chemistry*, **45**, 1055 (2007).

*Lesson 2: Acute/Secondary Injuries  
Associated with Farming Tasks*

**Online Webinar/Video**

Review the National Ag Alliances' video entitled, "Crop-Tunnel Syndrome and Antibiotics: Overpacking the #1 Tool in a Farmer's Tool Box" (<https://www.youtube.com/watch?v=K6GSGJ0D8nU&list=PL9ubtbcUc>)

\*May be used in conjunction with PowerPoint presentation.

## Who is Most Susceptible to Injuries?

- Elderly persons
- Individuals with preexisting injuries/conditions
- Individuals with prosthetic devices
- Children
- Visitors

- What are the number of total or restricted injuries for a specific state or community?
- What are the typical cause of injuries (total or restricted) related to Boreing/hacking?

## Cause of injuries

- Exasperation of current injury/disability
- Having unaffected limb due injury/disability
- Prolonged vibration
- Trips/falls/slip
- Profound entanglement
- Livestock
- Unseen terrain
- Machinery
- Mental health



**Common Secondary Injuries**

- Bruises
- Pressure sores
- Cuts
- Crushed body parts
- Strains/sprains/joint ligaments
- Fractures
- Amputations

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**Prevention of Secondary Injuries**

- Modify work environment
- Assistive technology in mechanical lifts/platforms, when necessary
- Ramps/steps (when necessary)
- Implementation of communication devices
- Ergonomic tools
- Power gates
- Extra rungs/ladder-mounted chairs
- Seat cushions
- Hand controls



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**Discussion Questions**

- What effort can be taken by health professionals or farmers/ranchers to reduce acute/secondary injuries?
- How might prevention of secondary injuries look different for various demographics of farmers/ranchers? Consider older versus younger farmers, farmers/ranchers with a disability, farms/ranch children, etc.
- How may injury prevention be reinforced to farmers/ranchers once returning home to the farm/ranch to prevent secondary injuries?

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**References**

- Gonsky, R. J. & Trudy, T. (2019). *Occupational safety in agriculture: understanding the unique risks and environments of farms for the health professionals*. (AOTA). Retrieved from: <https://www.aota.org/occupational-safety-in-agriculture>
- Gonsky, R. J., Trudy, T., & Trudy, T. (2019). *Preventing secondary injuries in agriculture: understanding the unique risks and environments of farms for the health professionals*. (AOTA). Retrieved from: <https://www.aota.org/occupational-safety-in-agriculture>

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**Lesson 3: Safety and Equipment**

**Lesson 3: Safety and Equipment**

**Common Machinery Used**

- Tractor
- All-terrain vehicle/utility vehicle
- Skid steer
- PTO-powered implements
- Auger
- Confined spaces (grain, silage, manure storage)



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**Safety with Farm Machinery**

- Research one common piece of machinery used on the farm to identify possible safety concerns and the solutions that could be provided by health professionals.

**Farm Machinery Safety Videos**

- Review HSA's video entitled, "Farm safety machinery" (<https://www.youtube.com/watch?v=6H4uCapd2p0>)
- Review Cornell's video entitled, "SAFE Tractor Safety Elements" (<https://www.youtube.com/watch?v=H2Wng2062z0>)

**General Farm Safety Tips**

- Perform regular maintenance checks/inspections
- Wear your seat belt/tractor safety belt
- Operate machinery in safe manner/conditions, use the correct safety equipment, and follow proper procedures
- Avoid off-road driving, especially
- Consider safety equipment that can be used for safety
- Avoid working in confined spaces, such as grain, silage, manure storage
- Avoid alcohol, drugs, and fatigue
- Discuss Farm Safety with your family and community. Farm safety is a shared responsibility.

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**References**

- Gonsky, R. J. & Trudy, T. (2019). *Occupational safety in agriculture: understanding the unique risks and environments of farms for the health professionals*. (AOTA). Retrieved from: <https://www.aota.org/occupational-safety-in-agriculture>
- Gonsky, R. J., Trudy, T., & Trudy, T. (2019). *Preventing secondary injuries in agriculture: understanding the unique risks and environments of farms for the health professionals*. (AOTA). Retrieved from: <https://www.aota.org/occupational-safety-in-agriculture>
- Gonsky, R. J., Trudy, T., & Trudy, T. (2019). *Preventing secondary injuries in agriculture: understanding the unique risks and environments of farms for the health professionals*. (AOTA). Retrieved from: <https://www.aota.org/occupational-safety-in-agriculture>

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**Lesson 3: Safety and Equipment**

**Lesson 4: Injury Prevention (Body Mechanics/Ergonomics)**

**Online Webinar/Video**

Review Ability Tools video entitled, "Ergonomics for Farming and Gardening" (<https://www.youtube.com/watch?v=K25dkaNagJk>)

\*May be used in place of or conjunction with PowerPoint presentation

**Barriers to Injury/Illness Prevention**

- Occupational demands
- Cultural philosophy
- Economic/social economics
- Attitude on the farm

**Injury/Illness Prevention Hierarchy**

- Review, Agricultural medicine: Occupational and environmental health for the health professions (page 247-249) by Kelley J. Gustafson and Anders Thelin



**Iowa Model of Integrated Multimodal Prevention Interventions**

- Review, Agricultural medicine: Occupational and environmental health for the health professions (page 228-229) by Kelley J. Gustafson and Anders Thelin

**Ergonomic/Body Mechanic Principles**

- Review typical ergonomic and body mechanic principles and how they can be tailored to the farming/ranching set up on.

**General Injury Prevention**

- Personal Protective Equipment
- Implement ergonomic/body mechanic principles
- Elimination of hazards
- Safety considerations
- Regular repair of equipment/tools

**Discussion Questions**

- Using your knowledge and experience with injury prevention, what are additional resources and/or steps that should be taken when considering the farming/ranching occupation? Consider the various stages of the health care process and how injury prevention for farmers/ranchers may be best incorporated.

**References**

1. Gustafson, K. J. & Thelin, A. (2016). Occupational and environmental health for the health professions (2nd ed.). St. Louis, MO: Elsevier.
2. Gustafson, K. J. & Thelin, A. (2016). Occupational and environmental health for the health professions (2nd ed.). St. Louis, MO: Elsevier.

**Lesson 5: Occupational Safety and Health (OSH) Fundamentals**

**Lesson 6: Occupational Therapy Interventions for Farmers/Ranchers**

**Occupational Therapy Related to Agriculture/Rural Communities**

- Review the following articles:
  - Housh, A. H. and Housh, C. S. (2016). Occupational Therapy in rural and farm communities: A review of the literature. *OTJR: The Journal of Occupational Therapy Research*, 36(4), 1-8.
  - Housh, A. H. and Housh, C. S. (2016). Occupational Therapy in rural and farm communities: A review of the literature. *OTJR: The Journal of Occupational Therapy Research*, 36(4), 1-8.



### Assistive Technology Evaluation:

- Utilize the following agricultural equipment as assistive technology for secondary injury needs. An assessment tool for professionals who assist farmers and ranchers with disabilities, by the National Agricultural Project for assistance in evaluating assistive technology for farmers/ranchers

Rebecca A. Thomas, Ph.D., 2014

### Self Assembled Assistive Technology:

- Utilize the assistive technology solutions in creative, ordinary items extraordinary solutions, by Thomas Williams, for easy to assemble and disassemble that can be used on the farm/ranch

Williams, 2017

### Mobility Devices:

- Consider previous lessons and the farming/ranching occupation, how might current mobility devices be effectively/efficient based on the occupation? What might be the considerations when recommending mobility devices to farmers/ranchers when returning to their occupation? What type of mobility devices would you recommend based on the variety of farm/ranch work?



Rebecca A. Thomas, Ph.D., 2014

### References

- Thomas, R. Thomas, A. Thomas, A. (2014). Assistive technology in agriculture: impact on depression, anxiety, and stress.
- Rebecca A. Thomas, Ph.D. (2014). Assistive technology in agriculture: impact on depression, anxiety, and stress.
- Rebecca A. Thomas, Ph.D. (2014). Assistive technology in agriculture: impact on depression, anxiety, and stress.
- Rebecca A. Thomas, Ph.D. (2014). Assistive technology in agriculture: impact on depression, anxiety, and stress.

Rebecca A. Thomas, Ph.D., 2014

### Lesson 8: Mental Health

### Lesson 8: Mental Health

### Impact of Farming/Ranching on Mental Health

- Impact of the culture
- Stigma associated with mental health
- Isolation of rural life
- Availability of mental health services
- Financial constraints of farming/ranching
- Low wages and working conditions
- Additional information can be found in Rural public health and practice and prevention needs (pages 95-100), by Jacob Warren and K. Margaret Gaudin

Rebecca A. Thomas, Ph.D., 2014

### Stress

- Sources of stress
- Financial stress
- Management/Prevention of Stress
- Additional information can be found in Rural public health and practice and prevention needs (pages 95-100), by Jacob Warren and K. Margaret Gaudin

Rebecca A. Thomas, Ph.D., 2014

### Depression/Anxiety

- What is the current rate/prevalence of farmers/ranchers with depression/anxiety (increasing or decreasing or may not be known)?
- Reasons for developing
- Prevalence of depression/anxiety
- Additional information can be found in Rural public health and practice and prevention needs (pages 95-100), by Jacob Warren and K. Margaret Gaudin

Rebecca A. Thomas, Ph.D., 2014

### Suicide

- What is the current rate/prevalence of farmers/ranchers committing suicide (increasing or decreasing or may not be known)?
- Causes of suicide
- Depression, financial stress, isolation, and other factors
- Additional information can be found in Rural public health and practice and prevention needs (pages 95-100), by Jacob Warren and K. Margaret Gaudin

Rebecca A. Thomas, Ph.D., 2014

### Substance Use

- What is the current rate/prevalence of farmers/ranchers using various substances, including alcohol, prescription drugs, etc. (increasing or decreasing or may not be known)?
- What might be the possible reasons for using (may refer to impact of stress)
- Additional information can be found in Rural public health and practice and prevention needs (pages 95-100), by Jacob Warren and K. Margaret Gaudin

Rebecca A. Thomas, Ph.D., 2014

### Efforts to Combat Mental Health Concerns in Farmers/Ranchers

- National and international efforts to combat
- Farm and ranch health

Rebecca A. Thomas, Ph.D., 2014

### Occupational Therapy's Role in Mental Health

- Intervention techniques
- Additional information can be found in Rural public health and practice and prevention needs (pages 95-100), by Jacob Warren and K. Margaret Gaudin

Rebecca A. Thomas, Ph.D., 2014

### Discussion Questions

- As health professionals, what additional efforts can be made to decrease mental health concerns for farmers/ranchers? Consider current programs/efforts and how you may be able to expand upon to better meet the needs of farmers/ranchers.
- How might you address a mental health concern of farmers/ranchers who may be receiving your services for a different reason?

Rebecca A. Thomas, Ph.D., 2014

### References

- Rebecca A. Thomas, Ph.D. (2014). Assistive technology in agriculture: impact on depression, anxiety, and stress.
- Rebecca A. Thomas, Ph.D. (2014). Assistive technology in agriculture: impact on depression, anxiety, and stress.
- Rebecca A. Thomas, Ph.D. (2014). Assistive technology in agriculture: impact on depression, anxiety, and stress.
- Rebecca A. Thomas, Ph.D. (2014). Assistive technology in agriculture: impact on depression, anxiety, and stress.

Rebecca A. Thomas, Ph.D., 2014

## Appendix F

Rehabilitation in Agriculture/Rural Communities Course: Modified Presentation of Lesson 7  
(Assistive Technology/Mobility Devices)-PowerPoint Presentation

### Objectives

- Understand the role of the National AgrAbility Project and resources available to health professionals and clients
- Discuss the relevance and role Occupational Therapy has within agriculture/rural communities
- Identify assistive technology & mobility devices used and/or recommended for farming/ranching

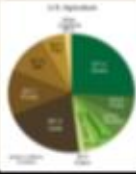
### Agriculture Overview

#### National

- Approximately 21.4 million (17% of US workforce) full/part time individuals work in agriculture or related occupations
- Average reported number of farm workers for 2014: 730,8 thousand
- The US is a leader in agricultural product export at \$129.7 billion in 2014
- The average farm size has risen from 418 acres in 2007 to 442 acres in 2014

#### Indiana

- 14% of Indiana's workforce is connected to agriculture
- Approximately \$23.874 billion are employed by farms



NASSA 2017, USDA 2019

### Importance of Serving Farmers & Ranchers

- Typically an underserved population
- Farm work is one of the top dangerous jobs in the US
- Due to the nature of one's work environment, it is likely this population will receive health care services at one point in their lives
- A 2008 study, on prevalence of disabilities within the agriculture population, estimates approximately 1.04-2.23 million individuals have a disability

*No matter what area of practice in which you may land, it is likely you, as an OT, will treat a farmer, rancher, or agriculture personnel*

Source: Delmonico et al., 2008

### Cultural Philosophy

"Farming is in one's blood...and it means a lot to losing it's almost taking the soul out of farmers!"

- Farming is a way of life, an identity, and a valued role where one feels great pride

- Why I Farm:

[https://www.youtube.com/watch?v=6L37\\_5142](https://www.youtube.com/watch?v=6L37_5142)

Source: 2015, McQuinn et al., 2015



AgrAbility serves to enhance the quality of life for farmers, ranchers, and agriculture workers experiencing a disability due to farm or non-farm related injuries. Through services provided, individuals have the opportunity to continue their desired occupation or find a new occupational interest.

agrability.org

**AgrAbility**  
Enabling Accessible Agriculture

**Services Provided**

- On-site Accessibility Assessments
- Consultative Services
- Educational Opportunities
- Outreach Efforts
- Provide Informational Resources



**Occupational Therapy Services**

- Clinical Relevance
  - Injuries
  - Chronic conditions
  - Mental health
- Common Interventions/Modification Ideas
  - Mechanical lifts
  - Assistive technology
  - Energy conservation techniques
  - Bimodal of hazardous environments
  - Use of safety equipment
  - Modified work tools
  - Consideration of lighting





**References**

- AgrAbility. (n.d.). AgrAbility...its about hope. Retrieved from <http://www.agrability.org/>
- Dubay, G.R., Jones, P.J., Field, W.E., Metcalfe, J.M., & Tomoshech, R.L. (2008). Estimating the prevalence and disability within the US farm and ranch population. *Journal of Agromedicine*, 13(3), 175-188.
- National Association of State Departments of Agriculture (2017). Indiana State Department of Agriculture. Retrieved from <http://www.instate.org/9353/State/IN.aspx>
- PUEExtension. (2017). AgrAbility its about hope (short version). Retrieved from: <https://www.youtube.com/watch?v=3rOvH5o0f8d&feature=youtu.be>
- Swain, S. Indiana AgrAbility and assistive technology on the farm. (PowerPoint Slides).
- USDA. (2018). 2017 Agricultural Statistics Annual. Retrieved from [https://www.nass.usda.gov/Publications/Ag\\_Statistics/2017/index.php](https://www.nass.usda.gov/Publications/Ag_Statistics/2017/index.php)
- USDA. (2018). FAQ. Retrieved from <https://www.usda.gov/faq/#Q11>
- Wallis, A. (2015). A growing opportunity: OT's role helping farmers and ranchers. *OT Practice*, 12-16.

**AgrAbility**  
Enabling Accessible Agriculture

Developed by Daniele Cingari, OTD

**ASSISTIVE TECHNOLOGY & MOBILITY DEVICES**

**AgrAbility**  
Enabling Accessible Agriculture

Developed by Daniele Cingari, OTD

**Online Webinars**

Review the National AgrAbility's video entitled, "Rural Assistive Technology"  
<https://www.youtube.com/watch?v=d5a4xaJwOc&feature=youtu.be>

Review the National AgrAbility's video entitled, "Selecting a Wheelchair for Agricultural Use"  
<https://www.youtube.com/watch?v=YvA-eYcZGXU&feature=youtu.be>

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**General Assistive Technology**

- Mechanical lifts (truck/tractor/standing):
  - Quick hitch adaptors
  - Steering wheel knob
  - Hand controls
  - Artificial intelligence
  - Swivel seats/seat cushions
  - Mirrors/cameras



Screened by: 2014





AgAbility  
Developed by: Daniele Cingari, PhD

### Livestock Assistive Technology

- Automated gates/gate wheels
- Spring loaded latches/doors
- Cattle chutes/squeeze chutes
- Automated self feeding systems
- Water heaters
- Automatic milking systems
- Feather pickers

October 16, 2014

This slide contains a list of livestock assistive technologies and a small image of a system. The technologies listed are: Automated gates/gate wheels, Spring loaded latches/doors, Cattle chutes/squeeze chutes, Automated self feeding systems, Water heaters, Automatic milking systems, and Feather pickers. The image shows a person standing next to a green livestock handling system.





### Horticulture & Gardening Assistive Technology

- Extended tool handles
- Elevated gardens
- Garden benches
- Ergonomic/adaptive tools



Revised 10/2014



### Assistive Technology Resources

Visit the National AgrAbility Project Assistive Technology Toolbox for additional tools and equipment

<http://www.agrability.org/toolbox/?mode=browse>

### Assistive Technology Resources

- National AgrAbility Project: [agrability.org](http://agrability.org)
- Rehabilitation Engineering and Assistive Technology Society of North America: <https://www.resna.org/>
- Life Essentials: [www.lifeessentialsifts.com/](http://www.lifeessentialsifts.com/)
- EasterSeals: [www.easterseals.com/](http://www.easterseals.com/)
- AbleData: <https://abledata.acl.gov/>
- The National Public Website on Assistive Technology: [assistivetech.net/](http://assistivetech.net/)

Revised AgrAbility Project 10/14

### Assistive Technology Evaluation

Free online resource for evaluating assistive technology for farmers and ranchers created by the National AgrAbility Project entitled, *Evaluating Agricultural Workplace Assistive Technology for Secondary Injury Hazards: An Assessment Tool for Professionals Who Assist Farmers and Ranchers with Disabilities*

[www.agrability.org/wp-content/uploads/2015/11/SecInjryAsmtTool.pdf](http://www.agrability.org/wp-content/uploads/2015/11/SecInjryAsmtTool.pdf)

Revised AgrAbility Project 10/14



**AgrAbility**  
Developed by: Danielle Clegon, OTD

### Self-Assembled Assistive Technology

Additional resource on easy assembly assistive technology can be found in Therese Wilkomm's book, *Assistive Technology Solutions in Minutes: Ordinary Items Extraordinary Solutions*. Resource can be purchased from various retail providers.

Wilkomm, 2013

**AgrAbility**  
Developed by: Danielle Clegon, OTD

### Case Study

Tom is a small dairy farmer who raises 80 cows and 50 heifers. Due to his type of operation, he is required to milk the cows twice a day as well as perform various tasks around the farm, including feeding/watering, vaccinations, equipment maintenance, etc. At the age of 42, Tom suffered an ischemic stroke affecting the left side (upper and lower extremity). After 6 months of recovery and rehabilitation, Tom feels ready to return to the farm full time. During Tom's recovery, his son stepped up to carry out most of the farm tasks, however has to return to his full time job. After returning to the farm full time, Tom has suffered minor injuries due to his continued neglect and impulsivity, often tripping over objects. He continues to demonstrate difficulty giving calves vaccinations (left hand dominance), entering and exiting the skid steer, and bringing in the cows from pasture for milking.

**AgrAbility**  
Developed by: Danielle Clegon, OTD

### Assistive Technology & Mobility Device

Utilize prior knowledge to develop an assistive technology/mobility device, that does not currently exist, based on the case study while considering typical limitations, injury prevention, safety, functionality, occupational demands, environmental factors, etc.





**AgrAbility**  
Developed by: Danielle Clegon, OTD

### References

- Gesso, R., Perumpral, J., Ohanehi, D., & Babin, K. (2014). Assistive technologies in agriculture. Virginia Cooperative Extension, Publication 442-084.
- National AgrAbility Project. (2010). Evaluating agricultural workplace assistive technology for secondary injury hazards: An assessment tool for professionals who assist farmers and ranchers with disabilities. Purdue University.
- National AgrAbility Project. (n.d.). The toolbox: Assistive technology database. Retrieved from [www.agrability.org/toolbox/#modal=browse](http://www.agrability.org/toolbox/#modal=browse)
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Appendix G  
Rehabilitation in Agriculture/Rural Communities Course: Modified Presentation of Lesson 7  
(Assistive Technology/Mobility Devices)-Supplemental Case Study

**Assistive Technology and Mobility Devices in Agriculture/Rural  
Communities**

**Case Study:**

Tom is a small dairy farmer who raises 80 cows and 50 heifers. Due to his type of operation, he is required to milk the cows twice a day as well as perform various tasks around the farm, including feeding/watering, vaccinations, equipment maintenance, etc. At the age of 42, Tom suffered an ischemic stroke affecting the left side (upper and lower extremity). After 6 months of recovery and rehabilitation, Tom feels ready to return to the farm full time. During Tom's recovery, his son stepped up to carry out most of the farm tasks, however has to return to his full-time job. After returning to the farm full time, Tom has suffered minor injuries due to his continued neglect and impulsivity, often tripping over objects. He continues to demonstrate difficulty giving calves vaccinations (left hand dominance), entering and exiting the skid steer, and bringing in the cows from pasture for milking.

**Activity:**

Utilize prior knowledge to develop an assistive technology/mobility device, that does not currently exist, based on the case study. Use the assistive technology resources including: the National AgrAbility Project Toolbox ([www.agrability.org/toolbox/](http://www.agrability.org/toolbox/)), *Evaluating Agricultural Workplace Assistive Technology for Secondary Injury Hazards: An Assessment Tool for Professionals Who Assist Farmers and Ranchers with Disabilities* ([www.agrability.org/wp-content/uploads/2015/11/SecInjryAssmtTool.pdf](http://www.agrability.org/wp-content/uploads/2015/11/SecInjryAssmtTool.pdf)), and *Assistive Technology Solutions in Minutes: Ordinary Items Extraordinary Solutions* (refer to hard copy resource provided) as reference when creating the device.

**Consider:**

- Possible limitations of the client and device
- Injury prevention
- Safety
- Functionality of device
- Occupational demands of client and job tasks
- Environmental factors

Appendix H  
Final Results of Goal Attainment Scale Based on Doctoral Capstone Project at AgrAbility

Success	Goal	Goal	Goal	Goal
<b>Level of Predicted Attainment</b>	<i>Number of Indiana Occupational Therapy Programs Reached to Give Presentation Regarding Occupational Therapy in Agriculture</i>	<i>Number of AgrAbility/Rural Community Occupational Therapists Reached to Provide Information Relative to Course Design</i>	<i>Effectiveness of Presentations Given to Occupational Therapy Schools Through Use of Pre/Post Surveys</i>	<i>Resources Provided to Students, Occupational Therapists, and AgrAbility</i>
<b>Much Less Than Expected -2</b>	Presentation will be given to 1/6 Indiana Occupational Therapy Programs.	Contact will be made with 1 Occupational Therapist practicing in a rural setting to complete interview questions that will be used in developing a course.	Thirty percent of all students reached will complete the pre- and post-survey while indicating advanced learning and knowledge following the presentation.	A course was not designed. No additional resources provided to upon discontinuation of doctoral experience.
<b>Somewhat Less Than Expected -1</b>	Presentation will be given to 2/6 Indiana Occupational Therapy Programs	Contact will be made with 2 Occupational Therapist practicing in a rural setting to complete interview questions that will be used in developing a course.	Forty percent of all students reached will complete the pre- and post-survey while indicating advanced learning and knowledge following the presentation.	A course will be outlined, however not fully developed to be shared Doctoral Paper Written Summary.
<b>Expected 0</b>	Presentation will be given to 3/6 Indiana Occupational Therapy Programs	Contact will be made with 3 Occupational Therapist practicing in a rural setting to complete interview questions that will be used in developing a course.	Fifty percent of all students reached will complete the pre- and post-survey while indicating advanced learning and knowledge following the presentation.	A course will be designed including related activities to be shared in the Doctoral Paper Written Summary.
<b>Somewhat More Than Expected +1</b>	Presentation will be given to 4/6 Indiana Occupational Therapy Programs	Contact will be made with 4 Occupational Therapist practicing in a rural setting to complete interview questions that will be used in developing a course.	Sixty percent of all students reached will complete the pre- and post-survey while indicating advanced learning and knowledge following the presentation.	A course will be designed including related activities to be shared in the Doctoral Paper Written Summary in conjunction with creation of a handout.
<b>Much More Than Expected +2</b>	Presentation will be given to 5/6 Indiana Occupational Therapy Programs	Contact will be made with 5 Occupational Therapist practicing in a rural setting to complete interview questions that will be used in developing a course.	Seventy percent or higher of all students reached will complete the pre- and post-survey while indicating advanced learning and knowledge following the presentation.	A course will be designed including related activities to be shared in the Doctoral Paper Written Summary in conjunction with the creation of a handout and webinar.

