Oregon AgrAbility: Providing Solutions to the Agricultural Community

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Oregon AgrAbility: Providing Solutions to the Agricultural Community

**Description**
Multiple stakeholders and key partners have collaborated efforts over the past four years to develop the Oregon AgrAbility project into a sustainable service provider to the state’s agricultural community. Individuals from Oregon State University, Pacific University, Goodwill Industries International, Inc. (Goodwill), and more have patterned its design after that established by the National AgrAbility Project (NAP), which has been operated by Purdue University in a partnership with Goodwill since 1991. The NAP and State/Regional Projects (SRAPs) receive funding from the United States Department of Agriculture (USDA) and their overall goal is to find solutions for farmers and ranchers experiencing a decline in function and agricultural productivity due to an injury or illness.

In January 2012 Jill Valenti and Cindi Johnson, third-year students in the School of Occupational Therapy worked together on their innovative practice project (IPP) to build on the progress previous students made through their IPP over the last two years. This year’s project focused on completing an on-farm assessment including preparing written findings and recommendations, revising the USDA grant application (submitted as a part of last year’s related IPP) including its work plan and the timeline of proposed activities, and producing public education materials for future Oregon AgrAbility workshops.

The current structure of Oregon AgrAbility includes leadership offered by Project Coordinators. An alumna of Pacific University and practicing occupational therapist, Jill Peacock, OTR/L has been appointed as the Farm Assessor. She was a member of the 2011 Oregon AgrAbility Innovative Practice Project and also attended the National AgrAbility workshop in 2010. Jill and Cindi believe the work plan and its associated timeline as presented act as clear and concise “maps” to guide stakeholders’ future efforts and measure Oregon AgrAbility’s efficacy.

**Disciplines**
Occupational Therapy | Rehabilitation and Therapy

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Innovative Practice Project:

Oregon AgrAbility
Providing Solutions to the Agricultural Community

Jill Valenti
Cindi Johnson

Pacific University, Oregon
May 2012
Annotated Table of Contents

Introduction
The evolution of the AgrAbility project overall as well as here in Oregon is described. The contributions from the 2012 innovative practice project are identified, which includes recommendations for future projects.

Innovative Practice Project Presentation
Contents from the presentation created by Jill Valenti, OTS and Cindi Johnson, OTS for the Research and Practice Symposium, held at Pacific University on May 2, 2012.

Revised USDA Grant Proposal
A grant proposal was submitted to the USDA in March 2011 to provide funding for future program development of the Oregon AgrAbility project. USDA panel reviewers ranked the grant proposal as “Medium Priority”, which did not secure funding. Reviewer comments were considered and revisions were made to the proposal, however there was no USDA request for applications in 2012.

Public Education Materials
Five brochures were developed on conditions common to agriculture workers. The topics are as follows:
• Arthritis
• Back Health
• Lung Health
• Diabetes
• Vision and Hearing
Introduction
Multiple stakeholders and key partners have collaborated efforts over the past four years to develop the Oregon AgrAbility project into a sustainable service provider to the state’s agricultural community. Individuals from Oregon State University, Pacific University, Goodwill Industries International, Inc. (Goodwill), and more have patterned its design after that established by the National AgrAbility Project (NAP), which has been operated by Purdue University in a partnership with Goodwill since 1991. The NAP and State/Regional Projects (SRAPs) receive funding from the United States Department of Agriculture (USDA) and their overall goal is to find solutions for farmers and ranchers experiencing a decline in function and agricultural productivity due to an injury or illness.

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Oregon AgrAbility

PROVIDING SOLUTIONS TO THE AGRICULTURE COMMUNITY

CINDI JOHNSON
JILL VALENTI
AgrAbility History

- Authorized by 1990 USDA Farm Bill
- National AgrAbility Project operated by Purdue University and Goodwill Industries
- State partnerships between private non-profit disability organization and land grant university
- Currently 22 projects receive funding from USDA
Oregon AgrAbility

- Project initiated in 2008
- IPPs in 2010 and 2011
- Stakeholders include:
  - Pacific University
  - Oregon State University
  - Goodwill Industries
  - Other partners: ATI, OR Voc Rehab
Agriculture in Oregon

- Agriculture accounts for 15% of state’s economy
  - Second leading industry
- 27% of Oregon land is dedicated to agriculture
- Ranked nationally as number one in production of 15 different commodities
Farming Population in Oregon

- 38,800 farms in Oregon
- Employment averages 58,000 and increases seasonally to 110,000
- 80% of farms are fully owned by operators of an average age of 58 years
- Approximately 50% of Oregon farms will change ownership within the next 10 years
Incidence of Injury and Disease in Oregon

- Farming is 8th most hazardous livelihood
- 28 deaths for every 100,000 workers annually
- 7 deaths occurred in Oregon in 2010, 42 in the northwest
- Oregon ranked 22% higher than the national average for disabling work injuries
- Motor vehicle accidents, falls, and age-related illnesses are typically not accounted for
Innovative Practice Project Goals

- Conduct on-site farm assessment with Farm Assessor Jill Peacock, OTR/L and write up findings and recommendations
- Revise USDA grant submitted in March 2011, including updated work plan and timeline of proposed activities
- Develop public education materials for distribution
Farm Assessment

- 54 year old male; right hemisphere TIA in August 2011
- 3rd generation owner and farmer
- 80 acres; primarily hay production
- Balance and coordination challenges, motor and sensory impairments, decreased strength and endurance
- Functional mobility and safety concerns
Farm Assessment Recommendations

- Extend depth of tractor step
- Increase grip size of tractor fender handle
- Modify tractor hand controls and clutch
- Add panoramic mirrors and overhead canopy to tractor
- Suggested modified hand tools
- Consider purchasing bale fork and adapted hitches
- Strengthening and coordination exercises
- Suggested follow-up with outpatient OT/PT and eye exam
USDA Grant Revisions

- Initial grant submitted March 2011 by previous year’s IPP group
- USDA panel reviewers ranked submission as “medium priority”
  - Did not secure funding
- Considered comments and made necessary revisions
- Currently no request for applications from USDA
USDA Work Plan

• Work plan identifies responsible parties and includes clear objectives, deliverables, and outcome measures
  ○ Provides critical project infrastructure with 4 year projection

• Proposed activities fall under the following categories:
  ○ Education
  ○ Networking
  ○ Assistance
  ○ Marketing
Public Education Materials

- Five brochures were developed on conditions common to agriculture workers
  - Arthritis
  - Back Health
  - Lung Health
  - Diabetes
  - Vision and Hearing
Arthritis

General Tips

- Loose switches, electrical outlets, and tools so they’re easy to reach.
- Gather needed supplies and materials before you start working.
- Transport items by cart rather than carrying them.
- Raise or lower the worktable or bench to reduce the need to bend or reach.
- Sit while you work to take the weight off your joints.
- Alternate difficult jobs with easier ones.
- Combine similar tasks.
- Do the work that needs to be done in one area before moving to another.
- Avoid gripping or grasping objects tightly for very long.
- Perform tasks using the strongest or largest joints possible.

For more specific examples of farm site modifications, please see the AgrAbility Toolbox at: agrability.org/toolbox/index.cfm

A Guide to Farming and Ranching with Arthritis

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AgrAbility
Cultivating Accessible Agriculture
Arthritis

WHAT IS ARTHRITIS?
Arthritis means “inflammation of a joint,” resulting in swelling, redness, pain, and loss of motion. If you are a farmer or rancher, you are at increased risk for arthritis-related disability. The impact of arthritis on a farmer or rancher can be quite profound because the condition reduces your physical strength and ability to move around and complete routine chores.

TYPES OF ARTHRITIS
• Osteoarthritis
Osteoarthritis occurs when the breakdown of the smooth, gliding surface of a joint known as cartilage. This produces pain, stiffness, and deformity made worse by use of the involved joint(s).
• Rheumatoid Arthritis
Rheumatoid arthritis is a systemic disease, meaning it involves the entire body. It is an inflammatory condition that primarily affects the synovium, the thin membrane that lines and lubricates a joint.
• Bursitis and Tendonitis
Bursitis is inflammation of the bursa, which is a small sac that acts like a cushion where a muscle crosses an other muscle or a bone. Tendonitis is inflammation of a tendon, which is the fibrous cord that attaches a muscle to a bone.

MANAGING ARTHRITIS
• Heat/Cold Treatments
A warm bath or shower can reduce morning stiffness and help make exercising easier. An ice pack applied to painful areas often helps to reduce the pain.
• Exercising
Range-of-motion exercises help maintain normal joint movement, relieve stiffness, and improve flexibility that's been lost. Strengthening exercises help retain or increase muscle tone to keep joints stable and more comfortable. Endurance exercises make the heart and lungs stronger, giving you more stamina, help you sleep better, keep weight under control, and lift your spirits.
• Sleep, Rest, and Pacing
A good night's sleep restores energy and strength and gives joints a chance to rest. Daytime resting is extremely important because it helps restore strength while keeping you from doing too much.
• Medication
The arthritis drugs prescribed for you can greatly reduce both the pain and the inflammation - if taken correctly.
• Coping with Stress
As a farmer or rancher you are often under a great deal of stress. Unmanaged stress can increase your pain and make it harder to live with arthritis.
• Work Simplification
Most farm or ranch-related tasks can be changed slightly so that the farmer or rancher with arthritis can perform them more easily. Therefore, for each task, think about how it might be simplified to require less energy or cause less stress on your joints.
• Protecting Your Joints
It is important to protect your joints against unnecessary stress that can cause more damage. Although protective habits won't reverse joint damage, they will help delay or prevent further damage.

Material for this brochure modified from "Arthritis and Agriculture: A Guide to Understanding and Living with Arthritis" by Arthritis Foundation (Indiana Chapter, Heartland Region) and National Arthritis Project.
General Tips

- Obtain appropriate assistive technologies or labor-saving devices to assist in performing tasks that exceed your physical abilities.

- Add additional steps made out of non-slip material to farm machinery to assist in mounting and dismounting safely.

- An independent suspension seat can be installed in some tractors to help absorb shock and vibration.

- Tractor seat cushions can be modified or replaced to accommodate your back injury.

- In some tractors, a swivel seat pan can be added to assist the operator in rotating to see behind the tractor.

- Take a break at least every two hours to stretch and increase circulation to the lower back.

- Automatic hitching devices and automatic gate openers can reduce repetitive movements.

- Remember to use proper lifting and body mechanics.

For more specific examples of farm site modifications, please see the AgrAbility Toolbox at: agrability.org/toolbox/index.cfm

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A Guide to Farming and Ranching with Back Pain or Injury

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AgrAbility
Cultivating Accessible Agriculture
Back Health

Back Health

Farmers and people who work in farming environments are highly susceptible to back pain. Their work activities are often risk factors for developing this condition.

Body Mechanics

- **Lifting**
  - Get your body as close to the object as possible; bend your knees and lift with your legs. Lift gradually and smoothly without jarring.
  - When changing directions, turn with your feet, not your waist.

- **Stooping/Kneeling**
  - Get down on one or both knees; never stoop or bend from the waist.

- **Standing**
  - Stand with one foot resting higher than the other. Change the position of your feet occasionally.

- **Driving**
  - Adjust the seat so your knees are level with your hips and you can reach the controls comfortably.
  - Sit up straight. Do not slump or slouch over.
  - Support your lower back with a small cushion or rolled-up towel.
  - When stepping down from a tractor or combine, step down backward, not forward.

Exercises

As a general rule, people who are active and well-conditioned are much less likely to suffer from lower back pain due to muscle strain. Regular exercises strengthen the muscles so they are less likely to strain, tear, or spasm. This allows the muscles to work in harmony, providing improved alignment of the back and pelvis.

- **Notehike stretch**
  - To stretch hips, ankles, and strengthen abdominal muscles:
    1. Assume starting position.
    2. Face left knee slightly to show.
    3. Pull left knee to chest with both hands.
    4. Raise hand, head, knees to lower.
    5. Hold, count five times.
    6. Repeat five times.
    7. Repeat with right knee. NOTE: Keep lower back flat.

- **Pelvis 99**
  - To strengthen back muscles and reduce strain problems:
    1. Assume starting position.
    2. Tighten butt muscles.
    3. Hold several seconds.
    4. Release back muscles.
    5. Repeat five times.
    6. Repeat five times. NOTE: Keep lower back flat.

- **Kneel stretch**
  - To kneel on right knee, stretch muscles:
    1. Sit on right knee.
    2. Reach to touch floor.
    3. Repeat five times.
    4. Repeat with left leg.

Material for this brochure provided by the Eastern Seaboard Society of South's Farm Family Rehabilitation Management and "Overcoming Lower Back Pain in a Farm Environment" published by Mississippi State University Extension Service.
Lung Health

For more specific examples of farm site modifications, please see the AgrAbility Toolbox at: agrability.org/toolbox/index.cfm

A Guide to Farming and Ranching with a Respiratory Impairment

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AgrAbility
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Lung Health

LUNG CONDITIONS

• Farmer's Lung Disease
  An allergic reaction to decayed grain, silage, and bales of hay.

• Organic Dust Toxic Syndrome
  An non-allergic inflammatory reaction secondary to exposure to moldy foraged crops.

• Pulmonary Edema
  A life threatening illness caused by the lungs filling up with fluid due to inhalation of large quantities of irritants.

• Irritation of Mucous Membranes
  Inflammation of the eyes, nose, mouth, and upper airways of the lungs caused by dust.

• Bronchitis
  Inflammation of the bronchi that either develops quickly (acute) or over time (chronic) from dust exposure.

• Occupational Asthma
  Constriction of the bronchi caused by inhalation of irritating dusts and/or vapors, or allergenic materials.

RISK REDUCTION

Farming with a respiratory impairment is difficult, however, it is possible. Changes are sometimes required in routines and/or equipment to assist farmers with respiratory impairments so they can continue to work:

• Elimination of the Hazard/Exposure
  Ask yourself these questions: Is there someone who is less sensitive who can do the task that generates the exposure? Can the task be eliminated altogether? Can the exposure source be eliminated or prevented?

• Modification of the Task
  Sometimes, modifying the way things are done can help prevent exposure. See the general tips section of this brochure for ideas of how to modify hazardous tasks.

• Maintenance/Modification of Equipment
  Equipment maintenance and modification can reduce or prevent respiratory hazards. Keep a well-maintained ventilation system and keep moisture out of structures.

• Personal Protective Equipment
  NIOSH-approved respirators should be worn whenever handling chemicals or the environment is very dusty or there is exposure to an allergen by a sensitive individual. Some important things to remember are:
  (1) the protection is only as good as the condition of the equipment;
  (2) if the equipment is not maintained or worn properly, it will not protect the individual;
  (3) the equipment needs to fit the individual properly (facial seal prevents a good fit); and
  (4) the correct respirator needs to be worn for the specific task.

Health Care

To help prevent a chronic, debilitating disease from developing, it is recommended that a physician be seen on a regular basis.
A Guide to Farming and Ranching with Diabetes

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Diabetes

DIABETES

The term “diabetes mellitus” describes either a deficiency of insulin or a decreased ability of the body to use insulin, a hormone manufactured by cells in the pancreas. Insulin allows glucose (sugar) to enter cells and be converted to energy. Insulin is also needed to synthesize protein and store fat. In uncontrolled diabetes, glucose and lipids (fats) remain in the bloodstream and, with time, damage vital organs and, with time, damage vital organs and contribute to heart disease.

- Type I Diabetes
  Type I diabetes is an autoimmune disease in which the body does not produce any insulin because of damage to the pancreas. People with type I diabetes must take daily insulin injections to stay alive. Symptoms include weight loss, frequent urination, hunger, thirst, blurred vision, fatigue, and or coma.

- Type II Diabetes
  Type II (formerly called adult-onset) diabetes is a metabolic disorder resulting from the body’s inability to make enough or properly use insulin. In either case, glucose builds up in the blood. It is nearing epidemic proportions due to an increased number of older Americans and a greater prevalence of obesity and sedentary lifestyles. The goal of treatment is to lower blood sugar and improve the body’s use of insulin with effective meal planning, exercise, and weight loss. Sometimes insulin is prescribed as well.

COMPLICATIONS

- Eye Diseases and Blindness
  Damage in the form of swelling and blood leakage into the eye can interfere with the passage of light into the retina. This may cause blurred vision in the central field. Early detection and treatment could prevent up to 90% of diabetes-related blindness - be sure to tell your doctor about any changes in your vision.

- Kidney Failure
  Kidney failure is a condition when the kidneys are no longer able to rid the body of waste. Diabetes accounts for the majority of new cases of kidney failure, however it is estimated that up to half of the new cases of diabetes-related kidney failure could be prevented.

- Nerve Disease and Amputations
  People with diabetes often experience nerve damage over time, known as diabetic neuropathy. Diabetic neuropathy is the leading cause of non-traumatic lower limb amputations. Nerve damage is also a major concern for people with diabetes as the lack of sensation in the hands and feet can put them at risk for falls and fine

FARM MODIFICATIONS

- Pedal Modifications
  Simple pedal modifications can be made to farm vehicles so that they may be used with either foot. This is a good solution for decreased sensation or lower limb amputation.

- Custom Footwear
  Velcro attachments are available to make it easier to wear boots with a prosthesis limb. Also, custom shoes are recommended for individuals with diabetes to reduce the risk of sore caused by decreased sensation.

- Additional Steps and Handles
  Adding more steps or using a step ladder can make it easier to get around the farm safely. Also, consider additional handles to help maintain balance and prevent falls.
Vision and Hearing

General Vision Tips
- Have yearly visual screenings with your optometrist and/or ophthalmologist.
- Use wind chimes and other noise producers for orientation.
- Use a tennis ball hanging on a string to tell you when to stop vehicles.
- Level uneven terrain using concrete filler or scrap lumber.
- Use high contrast paint or tape to identify objects and uneven surfaces.

For more specific examples of farm site modifications, please see the AgrAbility Toolbox at: agrability.org/toolbox/index.cfm

General Hearing Tips
- Have yearly screenings with your physician and/or audiologist.
- Reduce level of noise at its source by replacing loose parts, lubricating machine parts, etc.
- Remove yourself from the source of noise or close doors/ windows to isolate yourself from the source of noise.
- Wear hearing protection.
- Implement assistive technology to aid communication after hearing loss has occurred.

Vision and Hearing

A Guide to Farming and Ranching with Vision and/or Hearing Loss

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AgrAbility
Cultivating Accessible Agriculture
Vision and Hearing

VISION LOSS
The term “visual impairment” is generally used to describe a condition in which an individual has some limitation due to an uncorrectable visual acuity. The major causes of sight loss are injuries and disease. Injuries damage the eye and are either repairable to a correctable afflicted condition or vision is lost. Diseases, however, may degenerate vision over a period of time until it is totally diminished.

EYE IMPAIRMENTS
- Macular Degeneration
  Causes loss of central field vision making it difficult to read or do close work. Side vision makes it possible to detect objects to both sides of the individual.

- Detached Retinas
  The retina becomes detached from its normal position when a tear or hole occurs causing the area to fill with fluid. This condition causes an obstruction of vision and can appear as dark shadows around the central field.

- Diabetic Retinopathy
  About 80% of those diagnosed as having this condition experience swelling and leaking of blood vessels which may cause blurred vision in the central field. This interferes with the passage of light to the retina. Most often, some vision remains.

- Cataracts
  A clouding of the eye lens. The field of vision is not lost, but glaring light, double images, distortion, and a general loss of detail are results that impair one’s vision.

- Glaucoma
  A disease in which tissues inside the eye are damaged. This is caused by a buildup of fluid in the eye which causes increased pressure. Side vision can be destroyed resulting in “tunnel vision,” a small central area that a person sees.

- Retinitis Pigmentosa
  An inherited disease affecting vision due to break-down of tissue in the retina. Retinitis is characterized by night blindness and frequently leads to tunnel vision.

HEARING LOSS
Farmers are frequently exposed to high levels of noise because of their jobs. Tractors, augers, combines, grain dryers, power tools, chainsaws, lawn mowers, tractors, - each may produce noise exceeding recommended safe limits. These working conditions can make farmers/attackers prime targets for noise-induced hearing loss. Appropriate technology and ear plugs work strategies may be employed to accommodate the hearing loss while continuing to farm.

Material for this brochure modified from “Farming with a Vision Impairment” and “Farming with a Hearing Impairment” published by the Breaking New Ground Resource Center at Purdue University

BREAKING NEW GROUND
Collecting Independence for Farmers with Impairments
• Revise USDA grant to be compatible with the newest request for applications
• Offer 4 educational workshops throughout the state for potential clients
• Identify additional funding resources
• Continue on-site farm assessments
References

References Cont.

General Tips

- Locate switches, electrical outlets, and tools so they’re easy to reach.
- Gather needed supplies and materials before you start working.
- Transport items by cart rather than carrying them.
- Raise or lower the worktable or bench to reduce the need to bend or reach.
- Sit while you work to take the weight off your joints.
- Alternate difficult jobs with easier ones.
- Combine similar tasks.
- Do the work that needs to be done in one area before moving to another.
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For more specific examples of farm site modifications, please see the AgrAbility Toolbox at:
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Arthritis means “inflammation of a joint,” resulting in swelling, redness, pain, and loss of motion. If you are a farmer or rancher, you are at increased risk for arthritis-related disability. The impact of arthritis on a farmer or rancher can be quite profound because the condition reduces your physical strength and ability to move around and complete routine chores.

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TYPES OF ARTHRITIS

- **Osteoarthritis**
  Osteoarthritis causes the breakdown of the smooth, gliding surface of a joint known as cartilage. This produces pain, stiffness, and deformity made worse by use of the involved joint(s).

- **Rheumatoid Arthritis**
  Rheumatoid arthritis is a systematic disease, meaning it involves the entire body. It is an inflammatory condition that primarily affects the synovium, the thin membrane that lines and lubricates a joint.

- **Bursitis and Tendonitis**
  Bursitis is inflammation of the bursa, which is a small sac that acts like a cushion where a muscle crosses another muscle or a bone. Tendonitis is inflammation of a tendon, which is the fibrous cord that attaches a muscle to a bone.

MANAGING ARTHRITIS

- **Heat/Cold Treatments**
  A warm bath or shower can reduce morning stiffness and help make exercising easier. An ice pack applied to painful areas often helps to reduce the pain.

- **Exercising**
  Range-of-motion exercises help maintain normal joint movement, relieve stiffness, and restore flexibility that’s been lost. Strengthening exercises help retain or increase muscle tone to keep joints stable and more comfortable. Endurance exercises make the heart and lungs stronger, give you more stamina, help you sleep better, keep weight under control, and help lift your spirits.

- **Sleep, Rest, and Pacing**
  A good night’s sleep restores energy and strength and gives joints a chance to rest. Daytime resting is extremely important because it helps restore strength while keeping you from doing too much.

- **Medication**
  The arthritis drugs prescribed for you can greatly reduce both the pain and the inflammation - if taken correctly.

- **Coping with Stress**
  As a farmer or rancher you are often under a great deal of stress. Unmanaged stress can increase your pain and make it harder to live with arthritis.

- **Work Simplification**
  Most farm or ranch related tasks can be changed slightly so that the farmer or rancher with arthritis can perform them more easily. Therefore, for each task, think about how it might be simplified to require less energy or cause less stress on your joints.

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Material for this brochure modified from “Arthritis and Agriculture: A Guide to Understanding and Living with Arthritis” by Arthritis Foundation (Indiana Chapter, Heartland Region) and National AgrAbility Project
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- An independent suspension seat can be installed in some tractors to help absorb shock and vibration.
- Tractor seats cushions can be modified or replaced to accommodate your back injury.
- In some tractors, a swivel seat pan can be added to assist the operator in rotating to see behind the tractor.
- Take a break at least every two hours to stretch and increase circulation to the lower back.
- Automatic hitching devices and automatic gate openers can reduce repetitive movements.
- Remember to use proper lifting and body mechanics.

General Tips

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BACK HEALTH

Farmers and people who work in farming environments are highly susceptible to back pain. Their work activities are often risk factors for developing this condition.

BODY MECHANICS

- **Lifting**
  - Get your body as close to the object as possible; bend your knees and lift with your legs. Lift gradually and smoothly without jerking.
  - When changing directions, turn with your feet, not your waist.

- **Stooping/Kneeling**
  - Get down on one or both knees; never stoop or bend from the waist.

- **Standing**
  - Stand with one foot resting higher than the other. Change the position of your feet occasionally.

- **Driving**
  - Adjust the seat so your knees are level with your hips and you can reach the controls comfortably.
  - Sit up straight. Do not slump or slouch over.
  - Support your lower back with a small cushion or rolled-up towel.
  - When stepping down from a tractor or combine, step down backward, not forward.

EXERCISES

As a general rule, people who are active and well-conditioned are much less likely to suffer from lower back pain due to muscle strain. Regular exercise stretches the muscles so they are less likely to strain, tear, or spasm. This allows the muscles to work in harmony, providing improved alignment of the back and pelvis.

Material for this brochure modified from “Back Injury” by the Easter Seals Society of Iowa’s Farm Family Rehabilitation Management and “Overcoming Lower Back Pain in a Farming Environment” published by Mississippi State University Extension Service.
General Tips

- Wetting down the top layer of silage before removal will decrease dust levels.
- Handling dusty fodder mechanically, with the farmer at a safe distance, will decrease dust exposure.
- Using round bales of hay will enable the farmer to handle them mechanically and decrease exposure.
- Filling the silo quickly and fully will allow as little time as possible for formation of oxides and nitrogen.
- Pulling the cover off the top of the silage from the ground with a rope will make working inside the silo unnecessary.
- Thoroughly cleaning and disinfecting livestock buildings with a high pressure sprayer on a regular basis will decrease ammonia levels.
- Having wire mesh floors to facilitate self cleaning will decrease ammonia buildup.
- Using pellet feed or adding liquid fat to feed will decrease the amount of dust created.
- Vacuuming dust instead of sweeping will minimize dust clouds.

For more specific examples of farm site modifications, please see the AgrAbility Toolbox at: agrability.org/toolbox/index.cfm

General Tips

- Wetting down the top layer of silage before removal will decrease dust levels.
- Handling dusty fodder mechanically, with the farmer at a safe distance, will decrease dust exposure.
- Using round bales of hay will enable the farmer to handle them mechanically and decrease exposure.
- Filling the silo quickly and fully will allow as little time as possible for formation of oxides and nitrogen.
- Pulling the cover off the top of the silage from the ground with a rope will make working inside the silo unnecessary.
- Thoroughly cleaning and disinfecting livestock buildings with a high pressure sprayer on a regular basis will decrease ammonia levels.
- Having wire mesh floors to facilitate self cleaning will decrease ammonia buildup.
- Using pellet feed or adding liquid fat to feed will decrease the amount of dust created.
- Vacuuming dust instead of sweeping will minimize dust clouds.

For more specific examples of farm site modifications, please see the AgrAbility Toolbox at: agrability.org/toolbox/index.cfm

Lung Health

A Guide to Farming and Ranching with a Respiratory Impairment

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Farming with a respiratory impairment is difficult, however, it is possible. Changes are sometimes required in routines and/or equipment to assist farmers with respiratory impairments so they can continue to work.

- **Elimination of the Hazard/Exposure**
  Ask yourself these questions: Is there someone who is less sensitive who can do the task that generates the exposure? Can the task be eliminated altogether? Can the exposure source be eliminated or prevented?

- **Modification of the Task**
  Sometimes, modifying the way things are done can help prevent exposure. See the general tips section of this brochure for ideas of how to modify hazardous tasks.

- **Maintenance/Modification of Equipment**
  Equipment maintenance and modification can reduce or prevent respiratory hazards. Keep a well-maintained ventilation system and keep moisture out of structures.

- **Personal Protective Equipment**
  NIOSH-approved respirators should be worn whenever handling chemicals or the environment is very dusty or there is exposure to an allergen by a sensitive individual. Some important things to remember are:
  
  1. the protection is only as good as the condition of the equipment;
  2. if the equipment is not maintained or worn properly, it will not protect the individual;
  3. the equipment needs to fit the individual properly (facial hair prevents a good fit); and
  4. the correct respirator needs to be worn for the specific task.

- **Health Care**
  To help prevent a chronic, debilitating disease from developing, it is recommended that a physician be seen on a regular basis.

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**LUNG CONDITIONS**

- **Farmer’s Lung Disease**
  An allergic reaction to decayed grain, silage, and bales of hay.

- **Organic Dust Toxic Syndrome**
  An non-allergic inflammatory reaction secondary to exposure to moldy for-aged crops.

- **Pulmonary Edema**
  A life threatening illness caused by the lungs filling up with fluid due to inhalation of large quantities of fumigants.

- **Irritation of Mucous Membranes**
  Inflammation of the eyes, nose, mouth, and upper airways of the lungs caused by dust.

- **Bronchitis**
  Inflammation of the bronchi that either develops quickly (acute) or over time (chronic) from dust exposure.

- **Occupational Asthma**
  Constriction of the bronchi caused by inhalation of irritating dusts and/or vapors, or allergenic materials.

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**RISK REDUCTION**

Material for this brochure modified from “Respiratory Issues” published in AgrAbility Quarterly, October 2004 and “Farming with a Respiratory Impairment” published by the Breaking New Ground Resource Center at Purdue University.
For more specific examples of farm site modifications, please see the AgrAbility Toolbox at:
agrability.org/toolbox/index.cfm

General Tips

- Use meal planning sheets to assist with shopping and preparing food.
- Implement an electronic aid to prompt you to eat meals and snacks at the right time each day.
- Monitor your glucose levels according to your doctor’s recommendations.
- Consult your doctor regarding insulin treatment.
- For people with low vision or blindness, use auditory outputs, magnification aids, and/or mobility canes.
- Wear protective clothing to prevent potential bumps or cuts.
- Apply padding to protruding objects to prevent injuries.
- Use contrasting colors on the edges of objects, doorways, and steps to make edges easier to see.
- Keep your shop well organized.
- Wear custom shoes to avoid sores and reduce risk of infection.
- Implement non-slip materials to prevent slips and falls caused by lack of sensation.

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The term “diabetes mellitus” describes either a deficiency of insulin or a decreased ability of the body to use insulin, a hormone manufactured by cells in the pancreas. Insulin allows glucose (sugar) to enter cells and be converted to energy. Insulin is also needed to synthesize protein and store fats. In uncontrolled diabetes, glucose and lipids (fats) remain in the bloodstream and, with time, damage vital organs and, with time, contribute to heart disease.

- **Type I Diabetes**
  Type I diabetes is an autoimmune disease in which the body does not produce any insulin because of damage to the pancreas. People with type I diabetes must take daily insulin injections to stay alive. Symptoms include weight loss, frequent urination, hunger, thirst, blurred vision, fatigue, and/or coma.

- **Type II Diabetes**
  Type II (formerly called adult onset) diabetes is a metabolic disorder resulting from the body’s inability to make enough or properly use insulin. In either case, glucose builds up in the blood. It is nearing epidemic proportions due to an increased number of older Americans and a greater prevalence of obesity and sedentary lifestyles. The goal of treatment is to lower blood sugar and improve the body’s use of insulin with effective meal planning, exercise, and weight loss. Sometimes insulin is prescribed as well.

**COMPLICATIONS**

- **Eye Diseases and Blindness**
  Damage in the form of swelling and blood leakage into the eye can interfere with the passage of light into the retina. This may cause blurred vision in the central field. Early detection and treatment could prevent up to 90% of diabetes-related blindness - be sure to tell your doctor about any changes in your vision.

- **Kidney Failure**
  Kidney failure is a condition when the kidneys are no longer able to rid the body of wastes. Diabetes accounts for the majority of new cases of kidney failure, however it is estimated that up to half of the new cases of diabetes-related kidney failure could be prevented.

- **Nerve Disease and Amputations**
  People with diabetes often experience nerve damage over time (diabetic neuropathy). This is the leading cause of non-traumatic lower limb amputations. Nerve damage is also a major concern for people with diabetes as the lack of sensation in the hands and feet can put them at risk for falls and fine motor deficits.

**FARM MODIFICATIONS**

- **Pedal Modifications**
  Simple pedal modifications can be made to farm vehicles so that they may be used with either foot. This is a good solution for decreased sensation or lower limb amputation.

- **Custom Footwear**
  Velcro attachments are available to make it easier to wear boots with a prosthetic limb. Also, custom shoes are recommended for individuals with diabetes to reduce the risk of sores caused by decreased sensation.

- **Additional Steps and Handles**
  Adding more steps or using a step ladder can make it easier to get around the farm safely. Also, consider additional handles to help maintain balance and prevent falls.

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Material for this brochure modified from “Farming with Diabetes” published in AgrAbility Quarterly, Winter 2001 and “Farming with a Lower Extremity Amputation or Impairment” published by the Breaking New Ground Resource Center at Purdue University.
**General Vision Tips**
- Have yearly visual screenings with your optometrist and/or ophthalmologist.
- Use wind chimes and other noise producers for orientation.
- Use a tennis ball hanging on a string to tell you when to stop vehicles.
- Level uneven terrain using concrete filler or scrap lumber.
- Use high contrast paint or tape to identify objects and uneven surfaces.

**General Hearing Tips**
- Have yearly screenings with your physician and/or audiologist.
- Reduce level of noise at its source by replacing loose parts, lubricating machine parts, etc.
- Remove yourself from the source of noise or close doors/windows to isolate yourself from the source of noise.
- Wear hearing protection.
- Implement assistive technology to aid communication after hearing loss has occurred.

For more specific examples of farm site modifications, please see the AgrAbility Toolbox at: agrability.org/toolbox/index.cfm

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**A Guide to Farming and Ranching with Vision and/or Hearing Loss**

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VISION LOSS
The term “visual impairment” is generally used to describe a condition in which an individual has some limitation due to an uncorrectable visual acuity. The major causes of sight loss are injuries and disease. Injuries damage the eye and are either repairable to a correctable sighted condition or vision is lost. Diseases, however, may degenerate vision over a period of time until it is totally diminished.

EYE IMPAIRMENTS

- **Macular Degeneration**
  Causes loss of central field vision making it difficult to read or do close work. Side vision makes it possible to detect objects to both sides of the individual.

- **Detached Retinas**
  The retina becomes detached from its normal position when a tear or hole occurs causing the area to fill with fluid. This condition causes an obstruction of vision and can appear as dark shadows around the central field.

- **Diabetic Retinopathy**
  About 80% of those diagnosed as having this condition experience swelling and leaking of blood vessels which may cause blurred vision in the central field. This interferes with the passage of light to the retina. Most often, some vision remains.

- **Cataracts**
  A clouding of the eye lens. The field of vision is not lost, but glaring light, double images, distortion, and a general loss of detail are results that impair one’s vision.

- **Glaucoma**
  A disease in which tissues inside the eye are damaged. This is caused by a buildup of fluid in the eye which causes increased pressure. Side vision can be destroyed resulting in “tunnel vision,” a small central area that a person sees.

- **Retinitis Pigmentosa**
  An inherited disease affecting vision due to breakdown of tissue in the retina. Retinitis is characterized by night blindness and frequently leads to tunnel vision.

HEARING LOSS
Farmers are frequently exposed to high levels of noise because of their jobs. Tractors, augers, combines, grain dryers, power tools, chain saws, lawn mowers, snowmobiles - each may produce noise exceeding recommended safe limits. These working conditions can make farmers/ranchers prime targets for noise-induced hearing loss. Appropriate technology and on-farm work strategies may be employed to accommodate the hearing loss while continuing to farm.

Material for this brochure modified from “Farming with a Vision Impairment” and “Farming with a Hearing Impairment” published by the Breaking New Ground Resource Center at Purdue University

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**Breaking New Ground**
Cultivating Independence for Persons with Disabilities in Agriculture
Project Description

The Oregon AgrAbility Project is a second-time applicant for the United States Department of Agriculture (USDA) grant as a State and Regional AgrAbility Project (SRAP). AgrAbility is a program to assist farmers and ranchers who have experienced injury or illness in continuing their lifestyles of agriculture production. Since 2008, representatives from Oregon State University (OSU), Pacific University (Pacific), Goodwill Industries International, Inc. (Goodwill), Access Technologies, Inc. (ATI) and Oregon State Office of Vocational Rehabilitation Services (OVRS) have met regularly to discuss the viability of a SRAP in Oregon. This proposal was created on the basis of these informal partnerships as well as input from interested stakeholders, peer reviewers, and a needs assessment. Thus far, the group has initiated networking, incorporated graduate student projects, hosted a workshop, and conducted multiple farm assessments.

The proposed service and research SRAP will include education, networking, direct assistance, and marketing for the benefit of Oregon stakeholders. The objectives outlined in this proposal provide a clear direction for the development of a new AgrAbility program. Objectives are outlined for a four year time period, with the intention that, given the extensive groundwork done in the initial years, the program will be well-established and self-sustaining at that point.

For the purposes of this application, the term “partners” refers to the group of people developing the proposal and the term “stakeholders” refers to the larger community of people who have an interest or investment in the support of farmers and ranchers. Per the Request for Applications, the Project Description and its component parts are limited to no more than 25 pages. Letters of Commitment from each of the Project partners are included to support the ability of the group to provide the proposed services.

(1) Project Justification

a) Justify the need for the project clearly and concisely by describing its magnitude and scope.

Approximately 16.5 million of Oregon’s 61.4 million acres are devoted to farming and ranching operations (Oregon State University Extension Service [OSUES], 2011). The impact of those operations spreads way beyond the 27% of dedicated state acreage through interactions among seven agricultural industry components identified in the OSUES report. When these are examined as a whole a more significant economic contribution to the state is presented. The grouping of production, processing, agricultural support services, wholesale trade, transportation and warehousing, retail trade, and food services and drinking places yields $28.9 billion in sales and approximately 261 thousand jobs in Oregon.

Agriculture is responsible for 15% of the state’s economy and is its second leading industry (Oregon Department of Agriculture [ODA], 2011). The total value of agricultural products sold is $4.39 billion comprised of $2.98 billion in crops and $1.41 billion in livestock, poultry, and their products (United States Department of Agriculture, 2007). Of total agricultural production, 80% is shipped out of state with about one-third exported out of the country. This is largely due to Oregon being responsible for one-hundred percent of the production of the nation’s blackberries, boysen and young
berries, hazelnuts, loganberries, and black raspberries. Oregon is ranked nationally as number one in production of 15 different commodities (largely berries, grass seeds, and Christmas trees) and is ranked among the top five states in production of an additional 19 commodities (ODA, 2011; United States Department of Agriculture National Agricultural Statistics Service [USDANASS], 2011). Overall, Oregon’s agricultural industry is one of the most diverse with production of more than 225 different commodities of which greenhouse and nursery products and cattle and calves rank first and second respectively according to value (ODA, 2011).

In 2010 there were 38,800 farms in Oregon responsible for on-farm employment that averages 58,000 and increases seasonally to 110,000 (USDANASS, 2011; ODA, 2011). Nearly 80% of farms are fully owned by operators of an average age of 58 years old and it is anticipated that about half of Oregon farms will change ownership within the next 10 years (ODA, 2011). Despite the industry’s significant contribution to Oregon’s and the nation’s economy, there is currently no established system through which farm operators and agricultural workers receive support following injury or illness. Oregon AgrAbility seeks to fill this niche.

b) Provide current baseline data including incidence of injuries and disease in the farming population. For all estimates included, explain and substantiate any assumptions made.

The Oregon Farm Bureau (OFB) reports farming as the 8th most hazardous livelihood, with 28 deaths for every 100,000 workers annually (Oregon Farm Bureau, 2012). In fact, of the 42 agriculture-related deaths in the northwest in 2010, seven occurred in Oregon (Pacific Northwest Agriculture and Safety Center, 2011). Given that Oregon rated 22% higher than the national average for the incidence of disabling work injury (Barnhart, 2009) and that farming and ranching are a primary source of employment in Oregon, one can assume that many of these injuries are acquired as a result of agricultural work. These figures do not account for injuries sustained outside of work, such as motor vehicle accidents, falls, and unreported injuries or illnesses that can also impact one’s ability to farm.

Based on the most current information available, the average age of agricultural workers in Oregon is 58 years old (USDA Census of Agriculture, 2009). The national population of adults over 65 is expected to triple by the year 2030. This indicates a growing majority of farmers who will experience arthritis, back pain, visual impairments, and other conditions as a natural course of aging, all of which pose unique challenges to farming. The combination of an aging worker population and a high-risk area of occupation indicate a critical need for regional support services such as Oregon AgrAbility.

c) Review current related programs concentrating on limitations this application intends to address.

While many organizations in Oregon offer job placement services and employment support, including job training and consultation services, none are specifically designed to support and provide services for agricultural workers with disabilities. National agencies, such as the Occupational Safety and Health Organization (OSHA), state agencies (ODA, OFB), and Oregon’s not-for-profit, state-chartered workers’ compensation insurance company, SAIF, each address disability prevention; however, these programs do not provide services to workers with disabilities,
networking or education. These agencies do not provide on-site farm visits, recommendations for modification of routines and environments, assistive devices, or collaboration with other support services. Furthermore, these agricultural associations are primarily located in urban areas throughout the state of Oregon, thus creating additional limitations to service access. In addition to serving agricultural workers with disabilities, it is also vital that resources be readily available to assist in the primary prevention of injury and illness. An in-depth, web-based review of resources for agricultural workers, including ODA, OFB, and Oregon Department of Human Services (ODHS), yielded disparate results.

Oregon is the ninth largest state, with land and water covering 98,379 square miles (United States Census Bureau, 2012). Geographic distance is a key barrier for health care access in Oregon for all rural residents. This barrier is more significant for the disabled population and studies report higher rates of disability in the Oregon rural population (16.0%) compared to the state average (13.3%) (Dill, Neal, Delahanty, Jacobson & Lund, 2010; Erickson, Lee & Schrader, 2010). Additionally, public transportation is sparse in rural areas, which complicates access. A recent study conducted at Portland State University, found that only 7% of the rural population was served by fixed-route transit while another 22% were served by “demand response” service (Dill et al., 2010). These limited transit options restrict access to health care and/or employment assistance. Geographic distance, higher rates of disability, limited public transportation, and subsequent restricted access serve as barriers to support services for agricultural workers.

d) Justify the applicants’ ability to provide these services by detailing the applicants’ accomplishments from similar projects.

OSU is the land-grant university in the OR AgrAbility partnership. The OSU Cooperative Extension service has a wide variety of programs promoting diverse populations including communities, families and individuals. The Family & Community Health program and the Agriculture program provide education, community partnerships, resources, and action to broad audiences throughout the states’ 36 counties. Current Extension programs facilitate problem solving, leadership development, and management of resources (College of Agricultural Sciences, n.d.). Faculty and staff members, William Braunworth and Linda Brewer respectively, have experience in grant administration and in service to local and international agriculture. Over the course of their careers, they have developed an extensive network of agricultural contacts (L. Brewer, personal communication, February 15, 2011). Additionally, both demonstrate skill in agricultural education and networking. These include regular Cooperative Extension in-services, Growing Farms workshops, and an annual Small Farms conference.

Pacific is the private university in the OR AgrAbility partnership. This university has a mission of community service to the underserved. Each of the universities’ four colleges actively participate in research, with health and human services well represented through the Colleges of Education, Health Professions and Optometry. The School of Occupational Therapy has played an integral role in the development of the Oregon AgrAbility SRAP. School of Occupational Therapy faculty member Nancy Krusen, OTR/L, has received private grant funding in February 2011 to support the Northwest AgrAbility Workshop. She also received a Pacific faculty development grant in 2012 to conduct four regional AgrAbility workshops for the following year. In addition, she has extensive experience in education, networking, and accreditation evaluation. A total of seven graduate students from the School of Occupational Therapy (OT) have
contributed ~500 hours of unpaid service to the Oregon AgrAbility project. Work completed by graduate students includes developing a strategic plan, implementing the Northwest AgrAbility Workshop, and participating in on-site farm assessments. The School of OT is highly committed to AgrAbility, and has graduate students available annually to work on the project as part of their final capstone course.

Oregon AgrAbility has partnered with Goodwill Industries since development in 2008. Goodwill is the official non-profit organization of the proposed SRAP. The organization has a long-standing history of serving the unemployed, as well as persons with disabilities, throughout the United States. Goodwill provided career training and support services to over 2.4 million people in 2010 alone. Goodwill is well-recognized for its dedication to helping communities through meaningful employment, including farming and agriculture. The organization has a history of involvement AgrAbility projects as well as with sustainable community supported agriculture (CSA) programs (Goodwill Keystone Area, 2012).

ATI is a non-profit organization, specializing in ergonomics and assistive technology, which provides resources and consultative services to persons with disabilities. ATI is a silent partner in OR AgrAbility. ATI provides a device loan library, training and technical assistance, financing resources, equipment demonstrations, device maintenance, and regular newsletter publications. The program is partially funded by a grant from Rehabilitation Services Administration (RSA) of the U.S. Department of Education. ATI administers Oregon’s Statewide Assistive Technology Program through a team of Certified Assistive Technology Specialists (Access Technologies, Inc., n.d.). This well-established statewide program has its own funding, which allows it to provide the Oregon AgrAbility with many necessary resources.

OVRS is a division of the Department of Human Services that is funded by both the state and federal governments. The program assists people with a variety of disabilities in keeping or obtaining work throughout the state of Oregon. Services are unique to the individual and target their personal interests and employment goals. (Department of Human Services, 2009). OVRS has provided Oregon AgrAbility clients with funding for farm modifications including adaptive equipment and assistive technology. They also offer personnel and educational resources to AgrAbility clients in order to promote successful participation in their agricultural livelihood.

e) Describe the stakeholders’ role in defining the application’s scope and their future role in project planning.

Representatives from OSU, Pacific, Goodwill, ATI and OVRS have met regularly since 2008 to discuss the viability of a SRAP in Oregon. The collaboration resulted in the presentation of the Northwest AgrAbility Workshop in February 2011. Together this group determined the best contributions of each representative as detailed below.

OSU’s faculty expertise in state agriculture and their established statewide network of service defines its scope of service to farmers and ranchers as agricultural workers. OSU Land Grant Institution identifies its best contributions as financial administration, an established support infrastructure, and principal investigator for success of the proposed project. OSU Cooperative Extension identifies its best contributions as education, networking, marketing and direct services through the Agricultural, and Family and Community Extension Services.

Pacific’s expertise in education and collaborative health care defines its scope of service to farmers and ranchers as people who desire to adapt to life challenges to continue their roles as agricultural workers. Pacific identifies its best contribution as
education, networking, marketing and direct service. Dr. Nancy Krusen, OTR/L, Associate Professor at Pacific University School of Occupational Therapy initiated the conversation with National AgrAbility Project representatives in 2008 to begin development of a SRAP in Oregon. Dr. Krusen also joined Robert Fetsch, the director of the Colorado AgrAbility project, as a member of the National AgrAbility Evaluation Committee to examine the McGill Quality of Life tool and with the Independent Operation Farm/Ranch Tool to collect empirical data for outcomes. Dr. Krusen now serves the project in the capacity of a Project Coordinator. Also, in 2010 Jill Peacock, who was a third-year student at the School of Occupational Therapy at the time, was selected as the recipient of a stipend from Goodwill to attend that year’s National AgrAbility Professional In-Service Training. Ms. Peacock now serves the project in the capacity of Farm Assessor. Additionally, the project is assigned as a capstone project annually to third-year School of Occupational Therapy students to facilitate delivery of service to the agricultural community and promote its development statewide.

Goodwill’s commitment to meeting the employment needs of persons with disabilities defines its scope of service to farmers and ranchers as people who want to continue their current employment. Goodwill identifies its best contribution as networking, marketing and direct service. Mr. Eric Olson from Goodwill and Dr. Krusen met at the National AgrAbility Workshop in 2008, beginning the discussion of collaboration for an Oregon SRAP. Mr. Olson serves the project in the capacity of Coordinator of the National AgrAbility Project.

ATI is an informal partner and has been a regular participant in the partnership planning meetings. ATI identifies its best contribution as consultative service when there is a need for assistive technology.

OVRS is an informal partner and has been a regular participant in the partnership planning meetings. Per the OVRS website (2012), the statewide resource assists “individuals with disabilities in getting and keeping a job that matches their skills, interests and abilities. OVRS staff works in partnership with the community and businesses to develop employment opportunities for people with disabilities” (What is OVRS? para. 1). OVRS currently works with Oregon farmers and ranchers to facilitate continuation of their employment. OVRS identifies its best contribution as networking and education for vocational rehabilitation counselors and for farmers and ranchers.

The key partners (OSU, Pacific, Goodwill) have demonstrated a high level of commitment to the Oregon AgrAbility project since its inception in the fall of 2008 (Juhasz & Scanlon, 2010). The partners are committed to continuing their respective roles in support of a SRAP.

f) Detail the justification and/or reason for selection of the non-profit disability partner.

Goodwill’s mission states: “Goodwill Industries International enhances the dignity and quality of life of individuals, families, and communities by eliminating barriers to opportunity and helping people in need reach their fullest potential through the power of work” (Goodwill Industries International, 2012). This is directly in line with the values of Pacific University and OSU Extension Service, both of which seek to enable underserved individuals and populations. Whereas Pacific and OSU Extension emphasize specific populations (i.e. the agriculture community) and service fields (i.e. healthcare), Goodwill focuses on contributory work and participation within communities. The intention is that Goodwill’s expertise in providing tangible opportunities to help individuals participate in their communities will play a key role in making the Oregon AgrAbility project self-sustaining.
In 2008, Eric Olson of Goodwill and Nancy Krusen of Pacific met at the National AgrAbility workshop and formed a partnership to develop the Oregon AgrAbility SRAP. Since then, the partnership has grown to include the aforementioned stakeholders as well as representatives from Southern Oregon Goodwill and Columbia-Willamette Goodwill. Additionally, Goodwill provided economic support in the form of a stipend for a Pacific graduate student to attend the 2010 National AgrAbility workshop. They were also an integral part of offering the first Northwest AgrAbility workshop in 2011. Goodwill’s involvement and investment with the Oregon AgrAbility project continues to grow, as outlined in their Letter of Commitment.

(2) Work Plan

The following is a detailed description of the Work Plan to be carried out by the Oregon AgrAbility Project over the next four years (2011-2015). The focus of the work plan will be to build service capacity for Oregon AgrAbility SRAP. Each objective includes responsible individuals, activities/strategies, outcome evaluation methods, and timeline. The primary goals and objectives aim to broaden human resources, establish the means to create financial sustainability, increase networking and community outreach, develop an infrastructure for on-site farm assessments, and formalize a marketing plan.

A. Education

Objective A1: Conduct training for Farm Assessors.

Project Coordinator(s) shall provide three workshops annually to train potential Farm Assessors sourced from Oregon AgrAbility stakeholders.

Yr1: Develop peer networks and conduct on-farm assessment training with an emphasis on selecting appropriate resources and equipment. Instructive efficacy will be demonstrated when trainees:

- exchange contact information within peer network;
- demonstrate competence in conducting on-farm assessments; and
- can locate specific resources and equipment relevant to client needs.

Yr2: Continue per Yr1 plan with an additional emphasis on preventing secondary injuries. Instructive efficacy will be demonstrated when trainees:

- meet Yr1 efficacy measures; and
- demonstrate working knowledge of preventive health measures and risks associated with certain conditions and populations.

Yr3: Continue per Yr2 plan with an additional emphasis on diagnosis specific intervention. Instructive efficacy will be demonstrated when trainees:

- meet Yr2 efficacy measures; and
- can identify relevant adaptive equipment, task modifications, and work simplification strategies associated with specific diagnoses.

Yr4: Continue per Yr3 plan with an additional emphasis on ensuring infrastructure is in place for sustainable agriculture systems. Instructive efficacy will be demonstrated when trainees:

- meet Yr3 efficacy measures; and
- can recognize when recommendations from the on-farm assessment have been effectively implemented and integrated by the client.
Objective A2: Provide education for potential AgrAbility clients.
Project Coordinator(s) and Farm Assessor(s) shall provide three workshops annually to educate potential AgrAbility clients about Oregon AgrAbility services.

Yr1: Provide education regarding the scope of Oregon AgrAbility with emphasis on resources and equipment available to them through the AgrAbility network. Instructive efficacy will be demonstrated when potential clients:
- exchange contact information within AgrAbility network;
- demonstrate understanding of on-farm assessment content; and
- demonstrate awareness of potential resources and equipment modifications.

Yr2: Continue per Yr1 plan with an additional emphasis on preventing secondary injuries. Instructive efficacy will be demonstrated when potential clients:
- meet Yr1 efficacy measures; and
- demonstrate working knowledge of preventive health measures and risks associated with certain conditions and populations.

Yr3: Continue per Yr2 plan with an additional emphasis on diagnosis specific intervention. Instructive efficacy will be demonstrated when potential clients:
- meet Yr2 efficacy measures; and
- demonstrate an awareness of relevant adaptive equipment, task modifications, and work simplification strategies associated with specific diagnoses.

Yr4: Continue per Yr3 plan with an additional emphasis on ensuring infrastructure is in place for sustainable agriculture systems. Instructive efficacy will be demonstrated when potential clients:
- meet Yr3 efficacy measures; and
- can recognize the significance of implementing and integrating recommendations made in the on-farm assessment.

Objective A3: Provide education for potential AgrAbility referral and networking sources.
Project Coordinator(s) and Farm Assessor(s) shall provide six in-service events annually to educate potential AgrAbility referral and networking sources about Oregon AgrAbility services. Target audience may include healthcare providers, insurers, vocational counselors, farm equipment vendors, and members of agricultural organizations.

Yr1: Provide education regarding the scope of Oregon AgrAbility with emphasis on resources and equipment available through the AgrAbility network. Instructive efficacy will be demonstrated when potential referral and networking sources:
- exchange contact information within AgrAbility network;
- demonstrate understanding of on-farm assessment content; and
- demonstrate awareness of potential resources and equipment modifications.

Yr2: Continue per Yr1 plan with an additional emphasis on preventing secondary injuries. Instructive efficacy will be demonstrated when potential referral and networking sources:
- meet Yr1 efficacy measures; and
- demonstrate working knowledge of preventive health measures and risks associated with certain conditions and populations.

Yr3: Continue per Yr2 plan with an additional emphasis on diagnosis specific intervention. Instructive efficacy will be demonstrated when potential referral and networking sources:
- meet Yr2 efficacy measures; and
- demonstrate an awareness of relevant adaptive equipment, task modifications, and work simplification strategies associated with specific diagnoses.
Yr4: Continue per Yr3 plan with an additional emphasis on ensuring infrastructure is in place for sustainable agriculture systems. Instructive efficacy will be demonstrated when potential referral and networking sources:

- meet Yr3 efficacy measures; and
- can recognize the significance of implementing and integrating recommendations made in the on-farm assessment.

**Objective A4: Provide education for secondary higher education faculty and health professions students.**

*Project Coordinator(s) and Farm Assessors(s) shall collaborate with Pacific annually to carry on student project involvement with Oregon AgrAbility.*

Yr1: Provide opportunity annually for occupational therapy students to complete Innovative Practice Project with Oregon AgrAbility. Instructive efficacy will be demonstrated when occupational therapy students:

- successfully achieve objectives as per requirements of capstone course, which include a written report and presentation to the community.

Yr2: Continue per Yr1 plan with an additional emphasis on occupational therapy students’ participation in a short term (1 to 4 week) fieldwork experience. Instructive efficacy will be demonstrated when occupational therapy students:

- meet Yr1 efficacy measures; and
- receive passing scores on the level 1 fieldwork evaluation.

Yr3: Continue per Yr2 plan with an additional emphasis on occupational therapy students’ participation in a long term (10 to 12 week) fieldwork experience. Instructive efficacy will be demonstrated when occupational therapy students:

- meet Yr2 efficacy measures; and
- receive passing scores on the level 2 fieldwork evaluation.

Yr4: Continue per Yr3 plan with an additional emphasis on interdisciplinary health professions students’ participation in clinical education experience. Instructive efficacy will be demonstrated when health professions students:

- meet Yr3 efficacy measures; and
- receive passing scores on clinical education evaluations.

**Objective A5: Develop Oregon AgrAbility educational materials for stakeholders and potential clients.**

*Project Coordinator(s) shall facilitate development of printable, electronic, and presentable Oregon AgrAbility resources.*

Yr1: Develop a slide presentation on the offerings of Oregon AgrAbility. Instructive efficacy will be demonstrated when authors:

- produce slides that inform potential audiences about the offerings of Oregon AgrAbility;
- detail common conditions relevant to the agriculture community; and
- highlight adaptive equipment and modifications relevant to the agriculture community.

Yr2: Continue per Yr1 plan with additional emphasis on developing printable resources for local distribution. Instructive efficacy will be demonstrated when authors:

- meet Yr1 efficacy measures;
- create five or more informational brochures on the conditions most common to the agriculture community; and
- generate a handout on the overall scope of Oregon AgrAbility.
Yr3: Continue per Yr2 plan with additional emphasis on Oregon AgrAbility website development. Instructive efficacy will be demonstrated when authors:
• meet Yr2 efficacy measures;
• publish the website live on the internet; and
• include the website address on all available materials.

Yr4: Continue per Yr3 plan with additional emphasis on public demonstration of select pieces of equipment and assistive devices. Instructive efficacy will be demonstrated when presenters:
• meet Yr3 efficacy measures;
• demonstrate proper use of select pieces of equipment and assistive devices; and
• effectively convey knowledge of topic to audience.

B. Networking
Objective B1: Establish a peer network.
Project Coordinator(s) shall facilitate development of a formal electronic database of agriculture community partners.
Yr1: Identify potential agriculture community partnerships and obtain contact information from those interested in joining the Oregon AgrAbility network. Economic value will be demonstrated when database:
• has exceeded 25 entries; and
• is available to all network members.

Yr2: Continue per Yr1 plan with additional emphasis on organizing and categorizing entries. Economic value will be demonstrated when database:
• meets Yr1 value measures;
• entries are categorized into groups with headings such as stakeholders, healthcare providers, insurers, vocational counselors, farm equipment vendors, and members of agricultural organizations; and
• entries are maintained in electronic format.

Yr3: Continue per Yr2 plan with additional emphasis on making electronic database available on Oregon AgrAbility website. Economic value will be demonstrated when database:
• meets Yr2 value measures; and
• is live on the website.

Yr4: Continue per Yr3 plan with additional emphasis on expanding network entries to include information such as webpage links, service area and description, hours, and accessibility. Economic value will be demonstrated when database:
• meets Yr3 value measures; and
• is maintained with contact information updated annually.

Objective B2: Present at professional conferences.
Project Coordinator(s) shall collaborate with stakeholders to develop proposals and presentations for conferences. Target audiences may include healthcare providers, insurers, and vocational counselors, which supplement AgrAbility services.
Yr1: Identify key state conferences and submit proposals for presentations. Economic value will be demonstrated when target audiences:
• exchange contact information within the AgrAbility network; and
• demonstrate an understanding of how they can supplement AgrAbility services at the state level.
Yr2: Continue per Yr1 plan with additional emphasis on identifying key regional conferences and submitting proposals for presentations. Economic value will be demonstrated when target audiences:
  • meet Yr1 value measures; and
  • demonstrate an understanding of how they can supplement AgrAbility services at the regional level.

Yr3: Continue per Yr2 plan with additional emphasis on identifying key national conferences and submit proposals for presentations in collaboration with National AgrAbility. Economic value will be demonstrated when target audiences:
  • meet Yr2 value measures; and
  • demonstrate an understanding of how they can supplement AgrAbility services at the national level.

Yr4: Continue per Yr3 plan with additional emphasis on identifying key international conferences and submit proposals for presentations in collaboration with National AgrAbility. Economic value will be demonstrated when target audiences:
  • meet Yr3 value measures; and
  • demonstrate an understanding of how they can supplement AgrAbility services at the international level.

Objective B3: Establish a presence at public agriculture-related venues.
Project Coordinator(s) shall collaborate with stakeholders to develop presence at community events. Target venues may include 4-H, FFA, fairs, community centers, farmers markets, and grange hall meetings.

Yr1: Identify and speak to members at a minimum of 5 agricultural organization meetings. Economic value will be demonstrated when attendees:
  • exchange contact information within the AgrAbility network;
  • demonstrate awareness of how to access potential resources; and
  • provide at least 2 new client referrals.

Yr2: Continue per Yr1 plan with additional emphasis on identifying and attending a minimum of 5 agriculture-related community events. Economic value will be demonstrated when attendees:
  • meet Yr1 value measures;
  • exchange contact information within the AgrAbility network;
  • demonstrate awareness of how to access potential resources; and
  • provide at least 2 new client referrals.

Yr3: Continue per Yr2 plan with additional emphasis on putting on a minimum of 1 workshop for a target community audience with a focus on injury prevention. Economic value will be demonstrated when attendees:
  • meet Yr2 value measures;
  • exchange contact information within the AgrAbility network;
  • demonstrate awareness of how to access potential resources;
  • demonstrate a working knowledge of preventive health measures and risks associated with certain conditions and populations; and
  • provide at least 2 new client referrals.

Yr4: Continue per Yr3 plan with additional emphasis on diagnosis specific interventions. Economic value will be demonstrated when:
  • meet Yr3 value measures;
  • exchange contact information within the AgrAbility network;
  • demonstrate awareness of how to access potential resources;
• can identify relevant adaptive equipment, task modifications, and work simplification strategies associated with specific diagnoses; and
• provide at least 2 new client referrals.

C. Assistance

Objective C1: Develop infrastructure for providing assistance.

*Farm Assessor(s) shall be responsible for implementing a formal referral and intervention protocol.*

**Yr1:** Actively communicate with contacts within the Oregon AgrAbility network to source new referrals. Intervention success will be demonstrated when referral sources:
• are contacted twice a month; and
• provide at least 2 new client referrals.

**Yr2:** Continue per Yr1 plan with additional emphasis on developing standard protocol to provide a timely response for new referrals. Intervention success will be demonstrated when new referrals:
• meet Yr1 value measures;
• have been contacted within 48 hours of receipt of referral;
• have participated in a phone screening with the farm assessor;
• have been scheduled for on-site evaluation, if appropriate, within one week of phone screening;
• have participated in on-site evaluation;
• are provided with formal written report of evaluation and are in agreement with recommendations;
• have been educated regarding available funding sources and means of contact; and
• continue to receive AgrAbility services until discharge.

**Yr3:** Continue per Yr2 plan with additional emphasis on follow up with clients. Intervention success will be demonstrated when clients:
• meet Yr2 value measures;
• are contacted six months after discharge for status update; and
• complete client satisfaction survey.

**Yr4:** Continue per Yr3 plan with additional emphasis on contacting satisfied clients regarding potential client referrals. Intervention success will be demonstrated when satisfied clients:
• meet Yr3 value measures; and
• provide at least 2 new client referrals.

Objective C2: Conduct on-site farm assessments.

*Farm Assessor(s) shall complete a variety of on-site farm assessments using the aforementioned protocol and the Agricultural Worksite Assessment Tool for Farmers and Ranchers with Physical Disabilities developed by the National AgrAbility Project.*

**Yr1:** Complete five on-site farm assessments per protocol. Intervention success will be demonstrated when farm assessor:
• has 75% client satisfaction; and
• completes all farm assessments within protocol parameters.

**Yr2:** Continue per Yr1 plan with additional emphasis on completing a total of 10 on-site assessments per protocol. Intervention success will be demonstrated when farm assessor:
• meet Yr1 value measures;
• has 75% client satisfaction; and
• completes all farm assessments within protocol parameters.

Yr3: Continue per Yr2 plan with additional emphasis on completing a total of 15 on-site assessments per protocol. Intervention success will be demonstrated when farm assessor:
• meet Yr2 value measures;
• has 75% client satisfaction; and
• completes all farm assessments within protocol parameters.

Yr4: Continue per Yr3 plan with additional emphasis on completing a total of 20 on-site assessments per protocol. Intervention success will be demonstrated when farm assessor:
• meet Yr3 value measures;
• has 75% client satisfaction; and
• completes all farm assessments within protocol parameters.

D. Marketing

Objective D1: Develop printed marketing materials.

Project Coordinator(s) shall facilitate the development of print marketing materials to be made available for distribution to all stakeholders, network members, potential clients, and all other interested parties.

Yr1: Develop a general information flyer providing an overview of Oregon AgrAbility. Marketing success will be demonstrated when audience:
• has access to flyer;
• demonstrates awareness of how to access potential resources; and
• provides at least 2 new client referrals.

Yr2: Continue per Yr1 plan with additional emphasis on translating available printed information into Spanish to support the Hispanic population. Marketing success will be demonstrated when audience:
• meets Yr1 value measures;
• has access to bilingual materials;
• demonstrates awareness of how to access potential resources; and
• provides at least 2 new client referrals.

Yr3: Continue per Yr2 plan with additional emphasis on identifying and placing an advertisement in an appropriate newspaper and/or magazine. Marketing success will be demonstrated when audience:
• meets Yr2 value measures;
• demonstrates awareness of how to access potential resources;
• shows an interest in Oregon AgrAbility as quantified by an increased number of website visits; and
• provides at least 2 new client referrals.

Yr4: Continue per Yr3 plan with additional emphasis on producing a monthly newsletter for distribution to all members of the Oregon AgrAbility network. Marketing success will be demonstrated when members:
• meet Yr3 value measures;
• have a hard copy of monthly newsletter;
• demonstrates awareness of how to access potential resources; and
• provides at least 2 new client referrals.

Objective D2: Develop virtual marketing materials.
Project Coordinator(s) shall facilitate the development of virtual marketing materials to be made available to all stakeholders, network members, potential clients, and all other interested parties.

Yr1: Develop Oregon AgrAbility social networking account. Marketing success will be demonstrated when viewers:
- have access to page;
- “like” the page 75% of the time;
- demonstrates awareness of how to access potential resources; and
- provides at least 2 new client referrals.

Yr2: Continue per Yr1 plan with additional emphasis on placing advertisements on appropriate agriculture-related websites. Marketing success will be demonstrated when viewers:
- meets Yr1 value measures;
- demonstrates awareness of how to access potential resources; and
- shows an interest in Oregon AgrAbility as quantified by an increased number of social networking page visits; and
- provides at least 2 new client referrals.

Yr3: Continue per Yr2 plan with additional emphasis on Oregon AgrAbility website development. Marketing success will be demonstrated when viewers:
- meets Yr2 value measures;
- have access to the website;
- demonstrates awareness of how to access potential resources;
- provides at least 2 new client referrals.

Yr4: Continue per Yr3 plan with additional emphasis on placing links to the Oregon AgrAbility website on appropriate agriculture-related websites. Marketing success will be demonstrated when viewers:
- meet Yr3 value measures;
- access the website from strategically placed links;
- demonstrates awareness of how to access potential resources; and
- provides at least 2 new client referrals.

Objective D3: Develop face to face opportunities to promote Oregon AgrAbility visibility.

Project Coordinator(s) shall facilitate the development of opportunities for in-person public appearances to promote Oregon AgrAbility.

Yr1: Design an Oregon AgrAbility logo to screen print onto shirts and other marketing materials (hats, sweatshirts, pens, key chains, etc.). Marketing success will be demonstrated when the logo:
- is printed onto all previously developed items, such as brochures and flyers; and
- is printed onto all new marketing materials.

Yr2: Continue per Yr1 plan with additional emphasis on attending community agriculture events, such as farmers’ markets, with marketing materials available for giveaways and/or purchase. Marketing success will be demonstrated when audience:
- meets Yr1 value measures;
- has access to marketing materials;
- is receptive to receipt of marketing materials; and
- demonstrates awareness of how to access potential resources.
Yr3: Continue per Yr2 plan with additional emphasis on identifying and attending at least two trade shows in a vendor capacity. Marketing success will be demonstrated when audience:
- meets Yr2 value measures;
- demonstrates awareness of how to access potential resources; and
- provides at least 2 new client referrals.

Yr4: Continue per Yr3 plan with additional emphasis on sponsoring an agriculture-related event. Networking success will be demonstrated when audience:
- meet Yr3 value measures;
- demonstrates awareness of how to access potential resources; and
- provides at least 2 new client referrals.

<table>
<thead>
<tr>
<th>Project Coordinator(s)</th>
<th>Farm Assessor(s)</th>
<th>Project Coordinator(s) and Farm Assessor(s)</th>
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<tr>
<th>Year</th>
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<tr>
<td>Quarter 1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>1</td>
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**EDUCATION**

**Conduct training for Farm Assessors**
- Develop peer networks and conduct on-farm assessment training with an emphasis on selecting appropriate resources and equipment
- Conduct on-farm assessment training with an emphasis on preventing secondary injuries
- Conduct on-farm assessment training with an emphasis on diagnosis specific intervention
- Conduct on-farm assessment training with an emphasis on ensuring infrastructure is in place for sustainable agriculture systems

**Provide education for potential AgrAbility clients**
- Provide education regarding the scope of Oregon AgrAbility with emphasis on resources and equipment available through the AgrAbility network
- Provide education on preventing secondary injuries
- Provide education on diagnosis specific intervention
- Provide education on ensuring infrastructure is in place for sustainable agriculture systems
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<td>Provide opportunity for OT students to participate in short-term fieldwork experiences</td>
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<tr>
<td>Provide opportunity for OT students to participate in long-term fieldwork experiences</td>
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<tr>
<td>Provide opportunity for interdisciplinary health professions students to participate in clinical experiences</td>
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**NETWORKING**

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<td>Sponsor an agriculture-related event</td>
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### (3) Division of Labor

The Oregon AgrAbility project is a collective effort with multiple stakeholders and partners collaborating together to achieve the aforementioned objectives. Responsibilities of the involved parties will vary greatly, however the Project Coordinator(s) and Farm Assessor(s) have well-defined roles within the project, which are outlined here.

Bill Braunworth of OSU and Nancy Krusen of Pacific are the principal investigators for the Oregon AgrAbility project and serve as the Project Coordinators. Their job responsibilities are as follows:

- Facilitate annual training workshops for Farm Assessor(s).
- Facilitate annual education workshops for potential AgrAbility clients.
- Facilitate annual in-service events for potential referral and networking sources.
- Collaborate with Pacific University graduate students for annual capstone projects.
- Coordinate development and distribution of education and marketing materials.
- Coordinate development of formal electronic database of agriculture community partners.
- Coordinate development of proposals and presentations for conferences and public agriculture related events.
- Promote AgrAbility through in-person events and communications.
An alumna of Pacific University and practicing occupational therapist, Jill Peacock, OTR/L, has been appointed the role of Farm Assessor. She was a member of the 2011 Oregon AgrAbility Innovative Practice Project and also attended the National AgrAbility workshop in 2010. Her job responsibilities (modified from Oklahoma AgrAbility) are as follows (Oklahoma AgrAbility, 2010).

- Provide support services to farmers including visiting on the telephone, at his/her farm, and other locations that meet the farmers/ranchers needs.
- Utilize and teach problem solving techniques with assigned farmers or ranchers.
- Refer enrolled farmers/ranchers to programs with services that compliment individual needs.
- Inform and assist farmers/ranchers about the process of adjusting to a disability.
- Effectively communicate, listen, and understand the problems faced by farmers/ranchers enrolled in the program.
- Maintain a working knowledge of current trends and developments in the area of farming and disabilities by reading books, journal articles, and relevant materials.
- Organize and maintain information on assigned farmers/ranchers including files, documentation on number of visits, and referrals made.
- Share and develop educational materials relevant to the needs of enrolled farmers/ranchers.
- Attend regular training and participate in ongoing professional development.
- Develop and implement the formal referral and intervention protocol outlined in the work plan.
- Work with Pacific University students including training in farm assessment as needed.

(4) Management Plan

a) Since 2008, multiple stakeholders and partners have collaborated efforts aimed at developing the Oregon AgrAbility project into a sustainable service provider. Relationships thus far have been successfully managed through the use of electronic mail, a group Internet page (wiki), telephone, and regular in-person partner meetings. The project has evolved and has formalized sufficiently enough that a Farm Assessor has been formally appointed. She has assumed many of the day to day operations management and has become the point person for client interactions. The Project Coordinators will remain responsible for the oversight of the Oregon AgrAbility Project and shall delegate responsibilities to the Farm Assessor or stakeholders as deemed appropriate. The aforementioned Work Plan was designed to act as a guide for the project to ensure its infrastructure is firmly established and to ensure it has ample growth opportunities. Meetings at least quarterly between OSU, Pacific and Goodwill will take place where the Work Plan's objectives, deliverables, and outcome measures are reviewed to gauge progress, financial performance, and plan for next steps. Prior to the close of each meeting, the team will assign duties and delegate deliverable dates.

b) Primary fiscal and administrative oversight will be through the OSU Post-Award Administration Office. All Oregon AgrAbility Project activities must comply with USDA and OSU policies and procedures. Secondary fiscal and administrative oversight for Goodwill will be through the Southern Oregon Goodwill Industries Office of the Vice-President. Secondary fiscal and administrative oversight for Pacific will be through the Research Center.

c) Fiscal management will be provided through the OSU Post-Award Administration Office. Project Coordinators shall finalize the funds management strategy for any financial awards.
d) A timeline summarizing the sequence and duration of the Work Plan’s proposed program objectives is detailed in Table 2 below.

Table 2: Timeline of Proposed Activities

Works Cited


