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Worksite and Secondary Injury Assessment and Documentation

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National AgrAbility Project

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Overview

- Value and Purpose of the Assessment Tool
- Principles for Providing Assistive Technology
- Agricultural Worksite Assessment Tool
- Assistive Technology Assessment Steps
- Updates to Worksite Assessment Tool
- Assistive Technology Solutions
- Liability
- AT Do's and Don'ts
- Secondary Injury Assessment Tool

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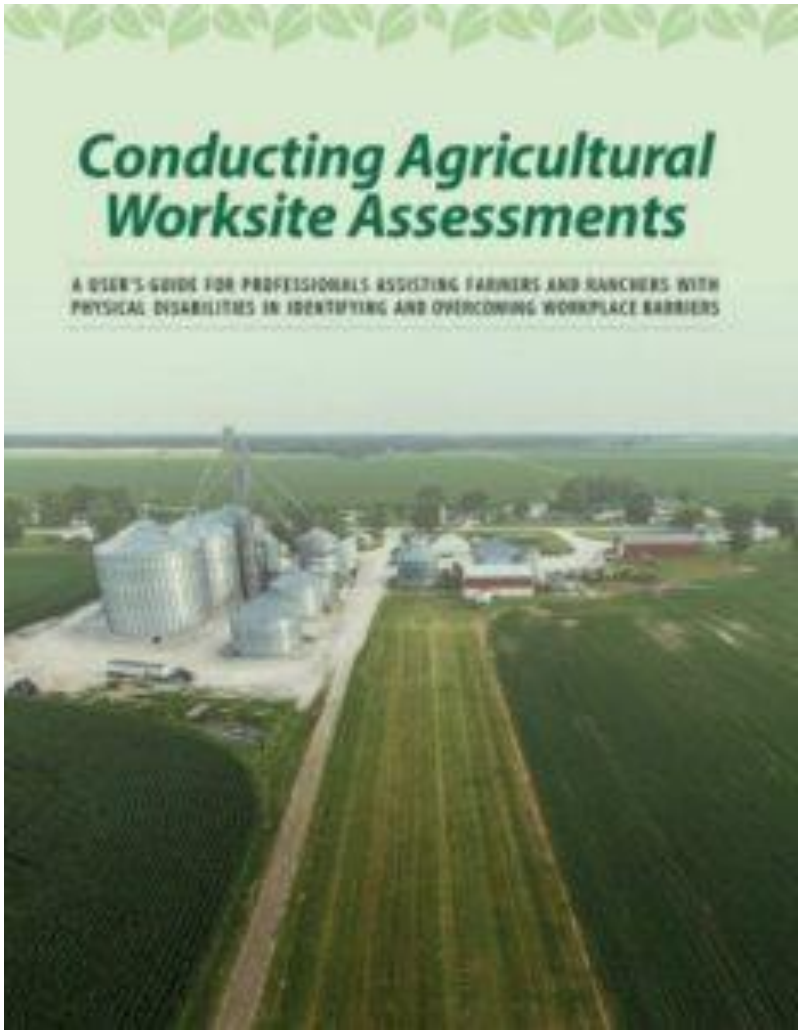

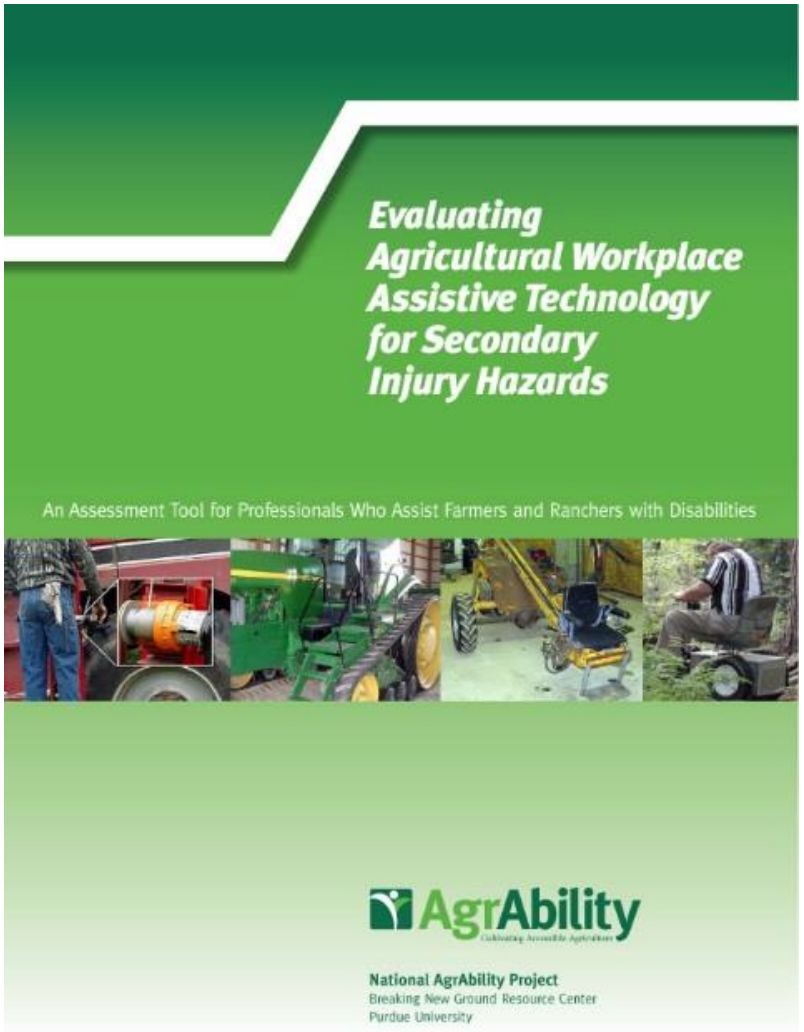

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Purpose of the Assessment

The purpose of the worksite assessment is to not merely collect data but gather the information necessary to serve the client and his/her family more effectively. It is not a research, or a data collection instrument, but rather an “enabling” tool.

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Value of Worksite Assessment

- To gain first-hand observations of potential barriers and resources
- To evaluate the client's ability to safely complete desired work-related tasks
- To inventory assets available as a basis for developing alternative solutions, including new enterprises

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Outcomes of Assessment

- Better understand farming operation, client's role on farm, and modifications needed
- Identify significant workplace barriers and functional limitations
- Opportunity to discuss desired modifications, task restructuring, or reassignment.
- Opportunity to identify specific client goals

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Today's Agriculture = Technology

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What is Assistive Technology? (AT)

Any item, piece of equipment, or product system, whether acquired commercially, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities. (Assistive Technology Act of 1998)

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Principles for Providing AT

1. **Do no harm**
2. Keep the consumer and his goals as the central focus
3. Focus on functional abilities and potential
4. Offer simplest but still effective solutions

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ADA Guidelines

- Private homes and farms are not covered by the ADA.
- Farm machinery is not covered by the ADA (SAE and ASABE standards do apply)
- However, when making recommendations, it is best to use the ADA Guidelines whenever possible.
- http://www.ada.gov/

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ADA Guideline Examples

- Ramp slope: 1 inch rise per 12 inches of run
- Door thresholds no greater than ¾ inch for wheelchairs
- Doors no less than 32 inches wide
- Pathways at least 36 inches wide
- Reach no more than 52 inches up, sideways 24 inches, down 18 inches

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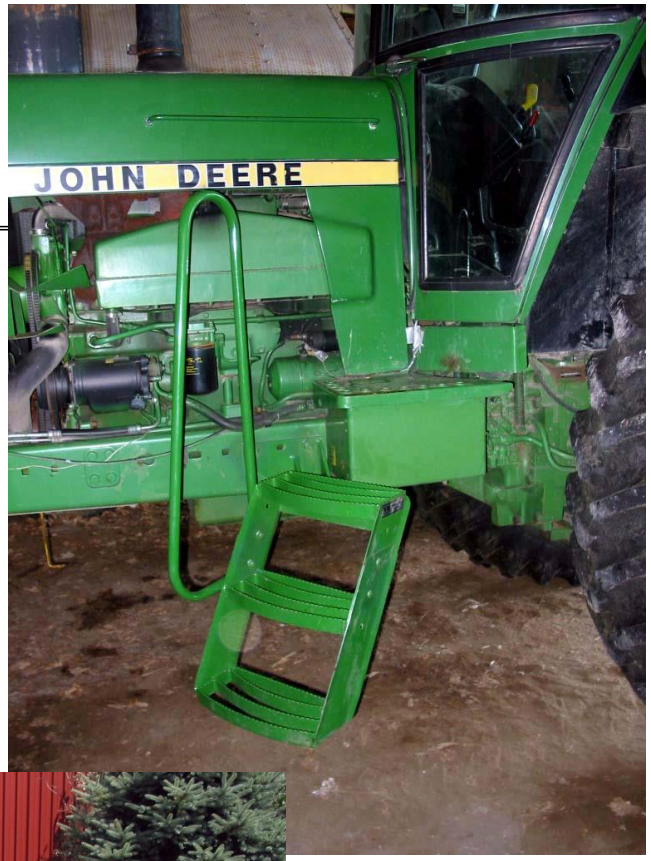

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Conducting Agricultural Worksite Assessments:

A User's Guide for Professionals Assisting Farmers and Ranchers with Physical Disabilities in Identifying and Overcoming Workplace Barriers

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Worksite Assessment Tool

- Who is it for?
  - Professionals
    - "Textbook" for new staff
      - Step-by-step approach
      - Designed to cover all the bases
    - "Playbook" for experienced staff
      - Improve assessment effectiveness
      - New angles, ideas

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Contents

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Contents Continued

6. Client Records—Confidentiality, etc.
7. Examples of Completed Assessments: spinal cord injury, arm amputation, leg amputation, back impairment
8. Related Resources
9. Appendix: Forms, Supplier List, Hotlines, Farm/Ranch Safety Inventory Tool

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2021 Edition Examples

- Provides Examples of Completed Forms
  - Client with a spinal cord Injury
  - Client with an arm amputation
  - Client with a leg amputation
  - Client with a back impairment

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2021 Edition Updates

- Updated and expanded narrative for conducting assessments
- Additional agricultural enterprises addressed
- Updated Assessment Tool format
- Conducting agricultural worksite safety inventory

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Assessment Equipment

- Camera
- Clipboard
- Pad of paper
- Tape measure
- Angle finder
- Fish scale
- String level
- Assessment tool
- Wire brush
- Circuit tester
- Pliers
- Magnifying glass
- Utility Knife

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The AT Assessment

Step 1. Gather information

- Interview the consumer *and* team

Step 2. Clarify the problems

- Interpret findings

- Integrate the information – consumer, tasks, technology, environment

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The AT Assessment

Step 3. Produce a list of goals and desired outcomes

- Prioritize

- Should reflect consumer's needs and preferences

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The AT Assessment

Step 4. Identify and describe the generic attributes the solution will need.

- Develop several potential solutions
- Explore different options and strategies
- Perform simulations or trials of possible strategies

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The AT Assessment

Step 4. Continued

- Consider both short and long term consequences

-Consider impact of changes or new equipment on existing function and lifestyle

-Assure compatibility with existing or anticipated equipment

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The AT Assessment

Step 5. List several intervention options that meet the desirable outcomes

- Explore broad range of options

-Match desirable attributes to features of available equipment

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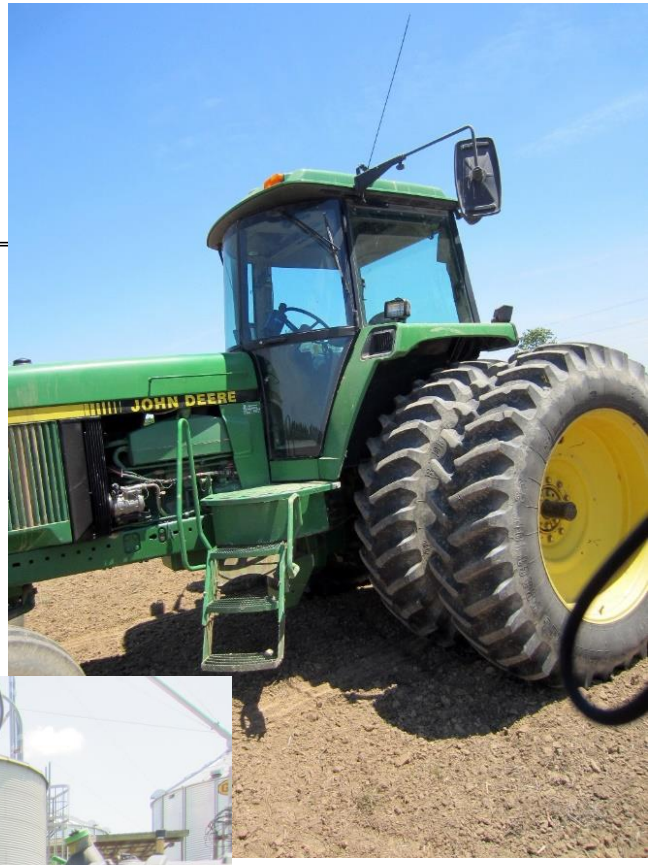
Step 5 Continued

- Consider using equipment of different levels of complexity (low tech to high tech, off-the-shelf to custom)

-Evaluate each for ability to match features desired and to meet goals

- Recognize appropriate and improper use of equipment and advise accordingly


JOHN DEERE

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The AT Assessment

Step 6. Restate the preliminary goals.

- Revise goals that may have changed as a result of the information and analysis
- Assist to resolve trade-offs and prioritize goals
- List chosen goals

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Step 6 Continued

- Select a measurable outcome for each goal
- Gain consensus on the selected goals from the consumer and team members

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The AT Assessment

Step 7. Select the most desirable intervention option

- Confirm the effectiveness of the option to meet the established goals

- Gain consensus on the selected intervention

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The AT Assessment

Step 8. Make recommendations

- Include specifics and details of new or modified equipment or technology
- Include training, follow-up, and other recommended services

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Step 8 Continued

- Include other appropriate solutions –
  - Surgery
  - Job training
  - Prosthetics, etc.
- Communicate the recommendations in a written report

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Funding AT

- *AgrAbility cannot provide direct funding or equipment*
- State Vocational Rehabilitation (VR)
- Veterans Administration (VA-VR)
- Non-profit organizations
- Foundations
- Local sources
- Crowd funding

FAQ

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Before

After
Stairway and Catwalk

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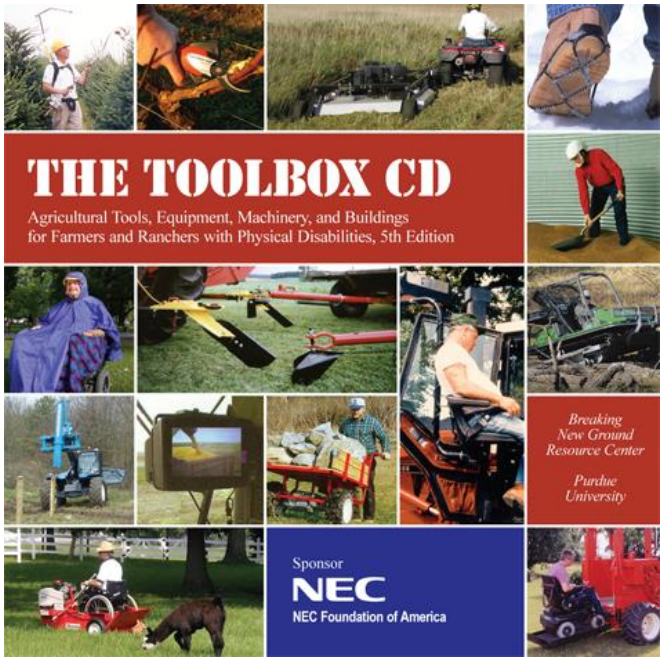
AT for Agriculture

- The Toolbox Assistive Technology Database
  - Available on CD and online at www.agrability.org/toolbox
- Many products are not specifically designed for use as AT



THE TOOLBOX

Assistive Technology Database

Back | Search | View by Category | Technical Articles

- Crop and Materials Handling/Storage
- Gardening
- Lawn Care
- Livestock Handling and Housing
- Orchards, Nurseries, and Vineyards
- Outdoor Mobility
- Outdoor Recreation
- Safety and Health
- Shops and Shop Tools
- Skid-Steer Loaders and Other Self-Propelled Equipment
- Specialty Enterprises
- Tractors and Combines
- Trucks
- Utility Vehicles, ATVs, and other Off-Road Vehicles
- Vegetable, Small Fruit, and Flower Production
- Woodlots and Forestry

Back | Search | View by Category | Technical Articles

THE TOOLBOX

Assistive Technology Database

Jiffy Hitch with PTO Connector

Without having to leave the tractor seat, the Jiffy Hitch with PTO Connector allows one to connect the PTO at the same time that the male carrier on the tractor's three-point-hitch lift arm and female receiver (pin-attached or welded on the implement) are locked. Connection is made as would be done so manually (i.e., spline to spline), with no clutches or other mechanisms required and no loss of the PTO's strength or power.

Cost range: See below

Limitations Addressed by Product: Lower extremity, Upper extremity, Strength/endurance, Back

---

Toolbox :: Tractors and Combines :: Hitching :: Tractor Three-Point Hitching

Toolbox :: Tractors and Combines :: Hitching :: Power-Take-Off Shaft Coupling

Source	Jiffy Hitch Systems, Incorporated 9100 West Beaver Street Jacksonville, FL, 32220
Website	www.jiffyhitchsystems.com
Email	info@jiffyhitchsystems.com
Phone	800-786-2829 904-786-2821
Fax	904-786-9779
Est. Cost	$1,425-$3,330 *Total costs are determined by the number and types of hitches required by each customer.

Last updated: Apr 19, 2019

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Resources

The National AgrAbility Project provides informational resources on a wide range of topics of interest to agricultural workers with disabilities. Many of these resources are available to be viewed online or for download. Some resources may only be available in print format and may be obtained by contacting us.

- Arthritis
- Assistive Technology
- Back Health
- Beginning Farmers
- Caregivers
- Funding Assistance
- Farm Stress and Mental/Behavioral Health
- Success Stories
- Technical Reports/Plowshares
- Underserved Populations
- Veterans
- Videos Related to Disability in Agriculture
- Worksite and Vocational Issues
- Youth

If you are interested in purchasing a physical copy of any resource (print, video, CD/DVD), please contact us for more information.

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Conducting an Agricultural Workplace Safety Inventory

- Safe Farm Management Practices
- Safe Work Practices
- Emergency Management
- Personal Protective Equipment
- Farmstead and Buildings
- Crop and Feed Storage Areas

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- Storage Areas
- Fuel Storage Areas
- Small Powered Equipment
- Tractors
- Towed Equipment
- Harvesting Equipment
- Chemical Application Equipment

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- Anhydrous Application Equipment
- Portable Augers and Elevators
- Livestock Facilities
- Shop
- Shop Tools
- Fields and Roadways
- Livestock, Utility, and Grain Trailers

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Break Time

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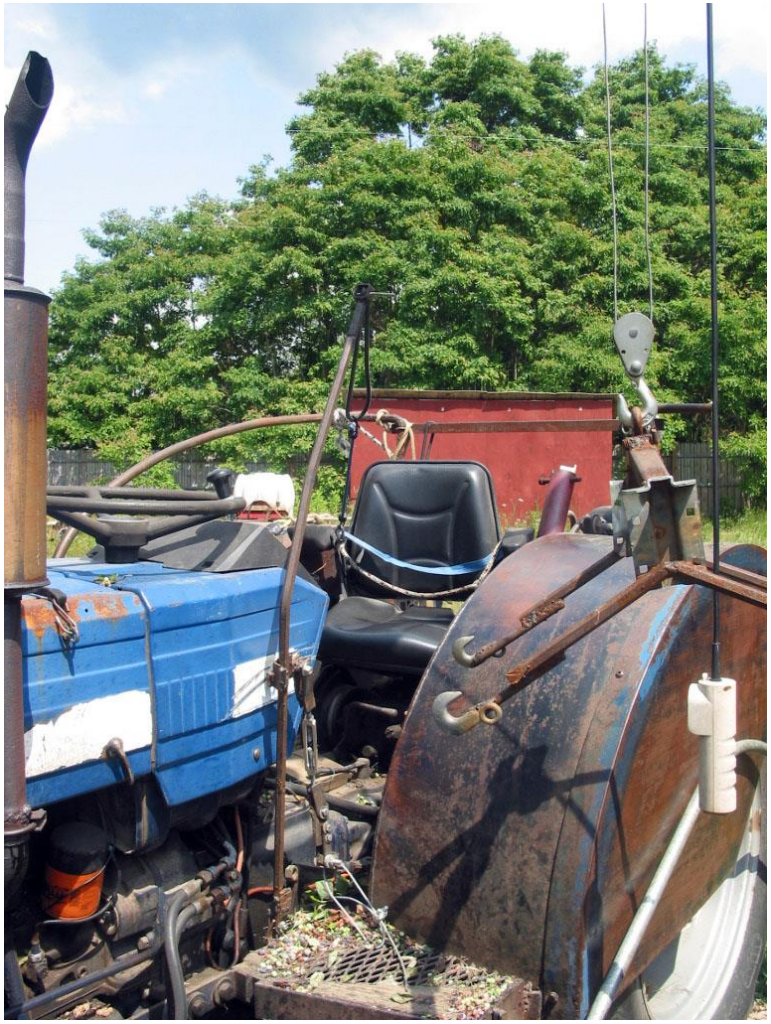

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Liability

- Liability is all about managing risk.
- You must be aware of both “professional” and “product” liability and/or risk.
- Agriculture is inherently risky
- Products and practices pose professional liability risks for AgrAbility staff
- Case study

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Limiting Liability

- One of the best ways to manage or limit your liability or risk is to never practice outside your educational or “experiential” role.
- Document, document, document

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Four Categories of Liability

- Product design
- Product manufacture or assembly
- Product labeling – warnings and instructions
- Professional recommendations

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Professional Liability Protection

- Professional liability insurance
- Maintain proper and complete documentation
- Follow the “safety hierarchy”

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Safety Hierarchy

"There are multiple layers or approaches for dealing with safety problems. The ones at the top of the safety hierarchy are best. You don't have to exhaust all the possibilities at the top, but you need to do what you can to do the things at the top versus the things at the bottom of the safety hierarchy."

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Safety Hierarchy

- Level 1 – Eliminate the hazard entirely
- Level 2 – Add safeguarding technology
- Level 3 – Use warning signs, labels, decals, etc.
- Level 4 – Thoroughly train and instruct the operator/user to deal with hazards
- Level 5 – Provide personal protective equipment

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What is wrong with these AT solutions?

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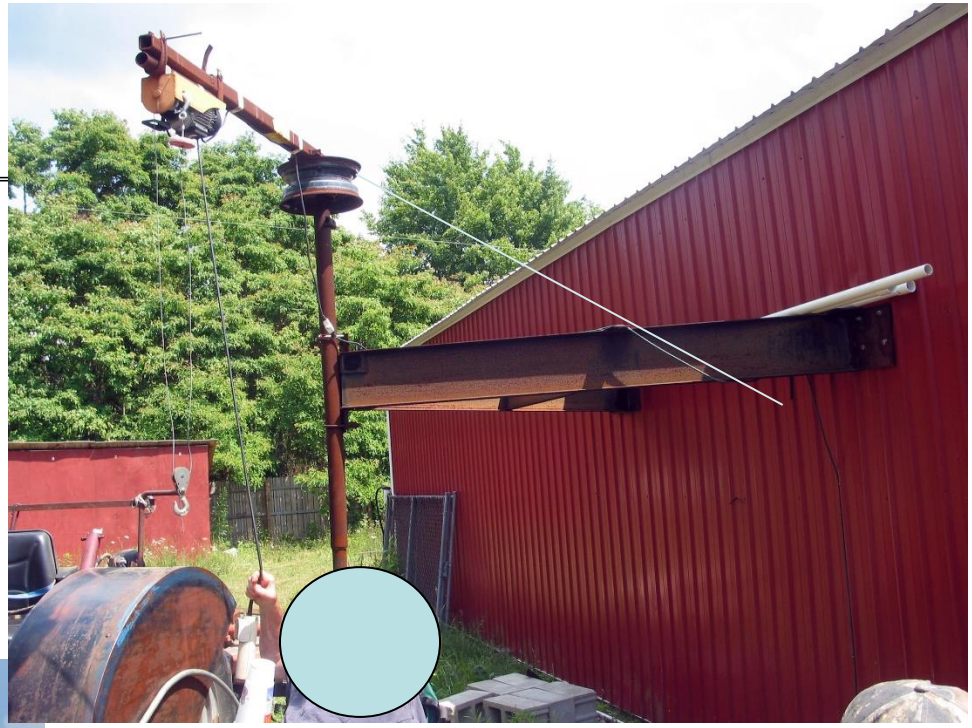
What is wrong with these AT solutions?



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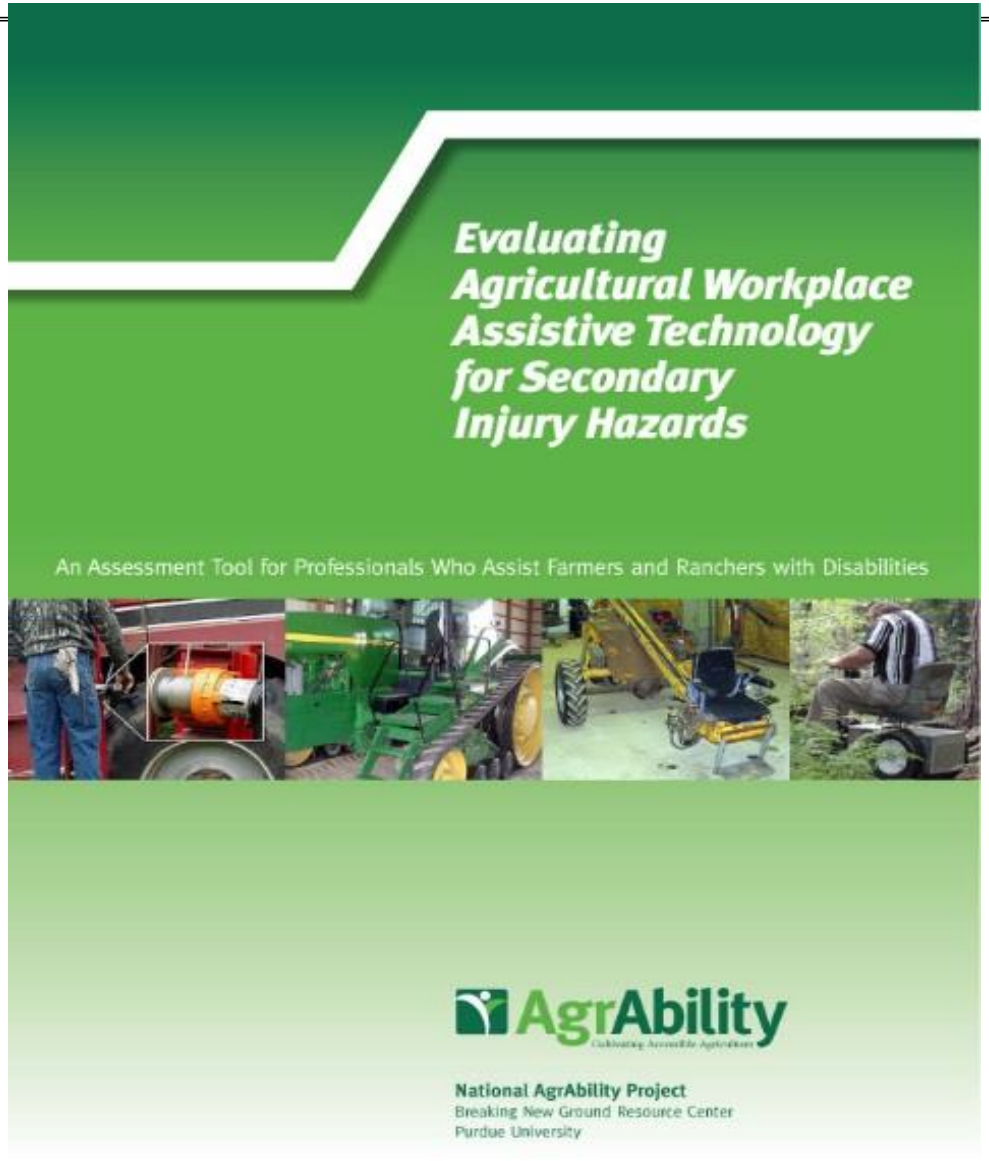

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Secondary Injury Assessment

- Provide an evaluation tool for funding agencies to estimate safety of home-made AT
- A training tool for rehab professionals
- Secondary injury prevention
- Help identify potential for injury
- Provide suggestions for remedial action

Section III.
EXPLANATION OF THE ASSISTIVE TECHNOLOGY ASSESSMENT ITEMS

Note: Each of the 55 items that fall under the eight categories in this reference section has been ascribed an injury-potential rating of high (H) or medium (M) or low (L), based on research studies involving farmers and rehabilitation professionals. The rating, which follows the item number, serves as an indication of the general risk level—e.g., 1 (H), 5 (M), 7 (L). For further information applicable to the safety of devices and work practices used in the agricultural workplace, see the list of resources in Appendix A. For a general farm/ranch inventory designed to help a client identify other workplace hazards, see Appendix B.

Items Related to the Construction/Components of an AT

1 (H) **General construction** — *Does the AT (whether fabricated or modified) appear to be of sturdy and stable construction?*

Sturdy, stable construction is important to any AT's long-term, reliable, and safe operation. Indications of good construction include: use of quality materials; overall integration of well-fitting component parts; properly welded or bolted joints; and the right size, grade, and number of fasteners at appropriate places. (Since adherence to building codes could be mandatory for construction, proper approval may have to be obtained before modifying a structure.)

Homemade person lift with an unstable base, dangling wires/cables, and winch mechanism not certified to transport humans.

2 (H) **Physical damage** — *Is there any physical damage (e.g., cracks, rust, rot, wear, corrosion, bends, dents) apparent that would affect performance or safety?*

Cracks indicate weakness, leading to breakage. Rust, rot, wear, and/or corrosion could indicate deterioration or weakness. Bends or dents can hinder proper functioning of moving parts during operation. Close investigation and measured judgment are required to

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Examples of Safety Concerns

Participant Feedback

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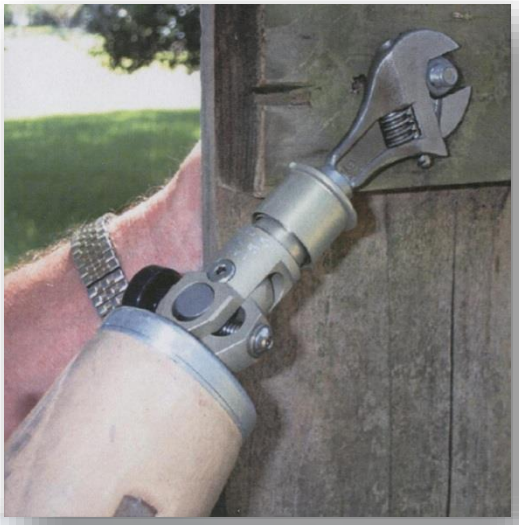
Examples of Assistive Technology in Agriculture



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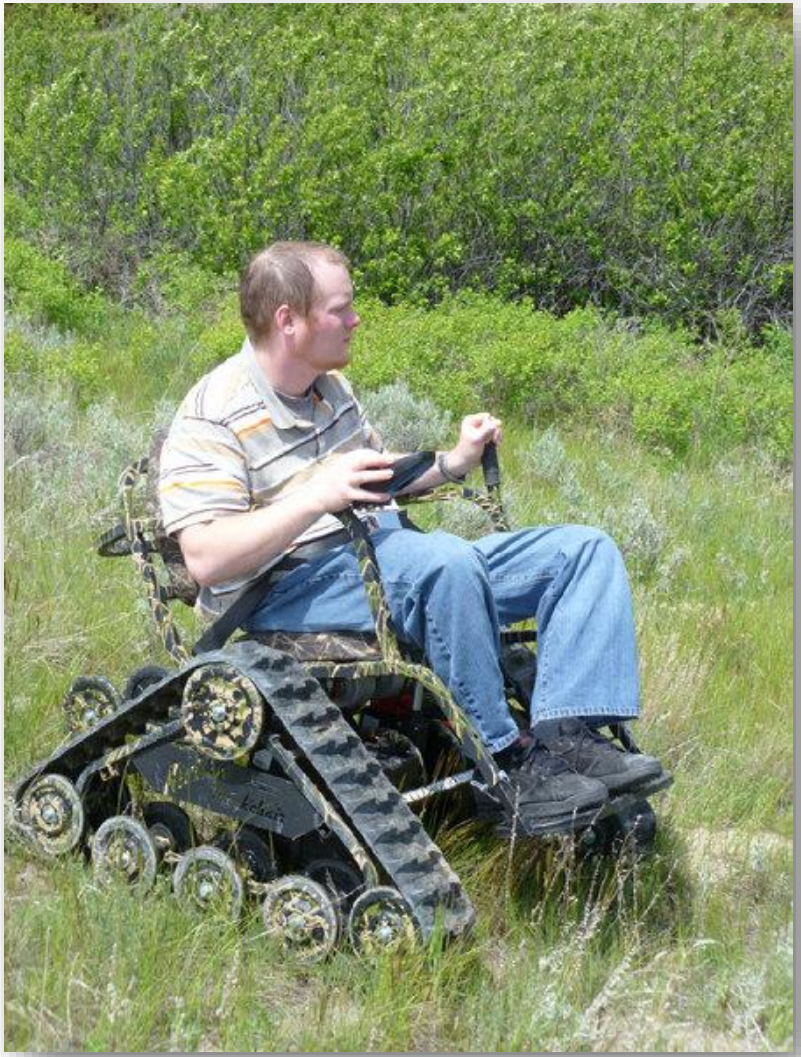
Action Trackchair



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Journeyman Scooter

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Lend-A-Hand Forearm Assistive Device

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Plastic-Mulch Lifter

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Quick-Cut Greens Harvester

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Hand-Saver Hay-Bale Handles

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Hitch-Mounted Calf Carrier

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ATV/UTV-Mounted Calf Catcher

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Kaycee Cutter Hay Knife

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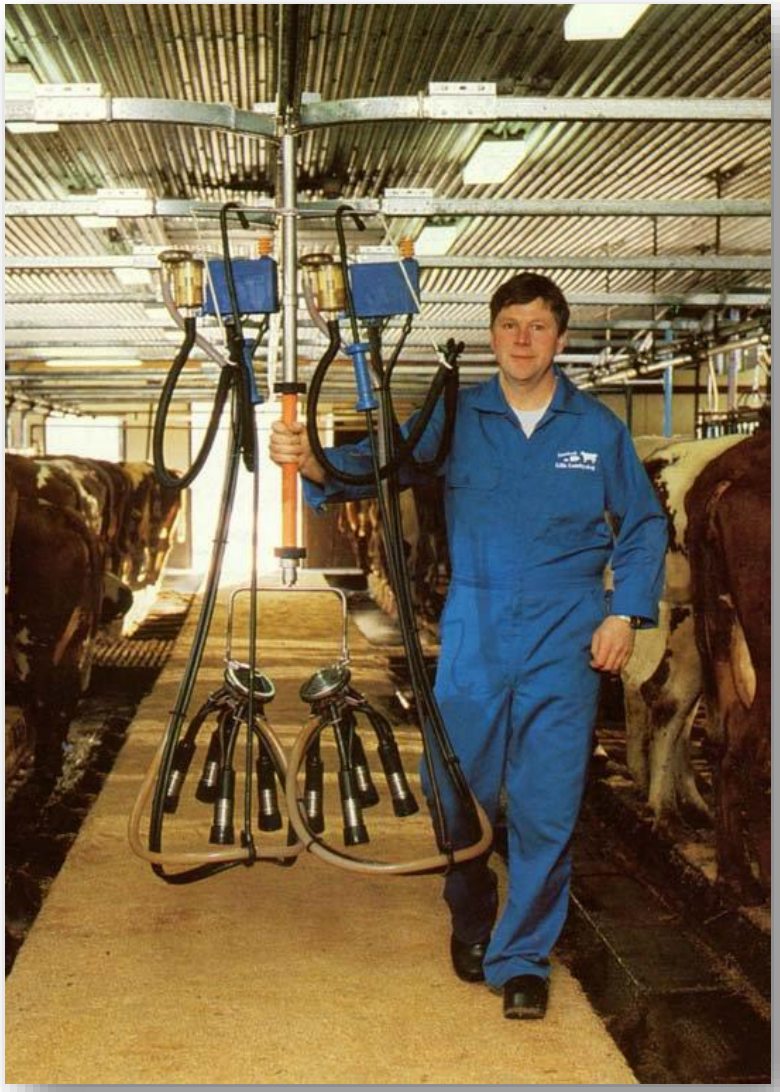

EasyLine Milker Unit Carrier

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Bobman FL Cleaner/Spreader

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Assistive Technology in Agriculture: Lower Tech Examples

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Resources

“DON’T REINVENT THE WHEEL”

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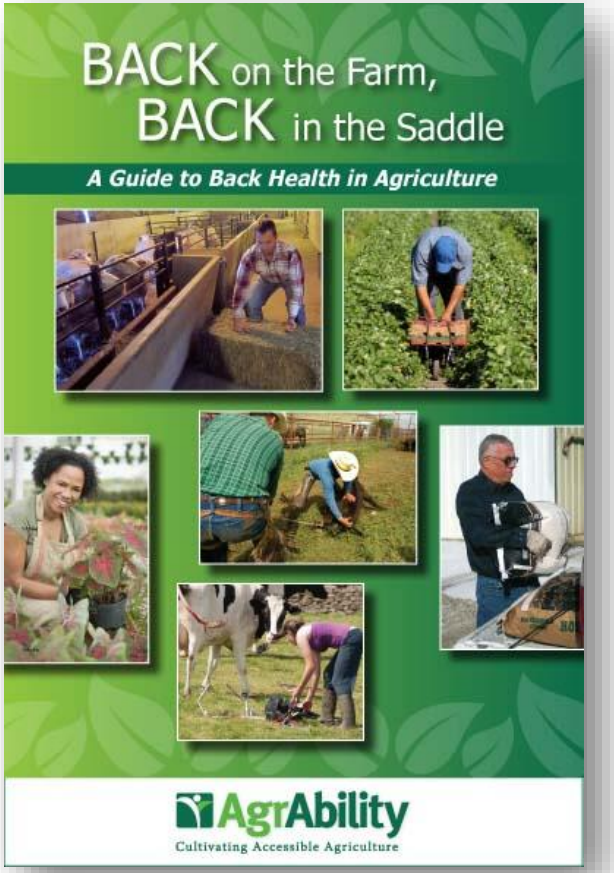
BACK on the Farm, BACK in the Saddle

- Back problems = most common disabling conditions reported by AgrAbility clients.
- 21-page booklet discusses many aspects of back problems in ag settings
- www.agrability.org/resources/back



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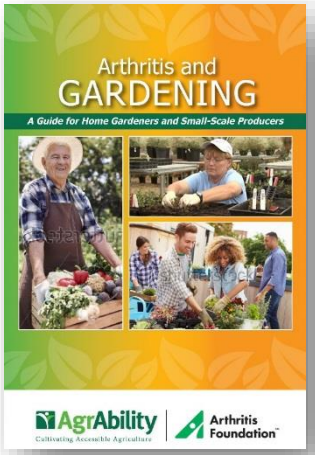
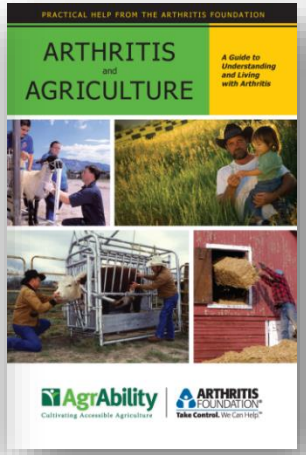
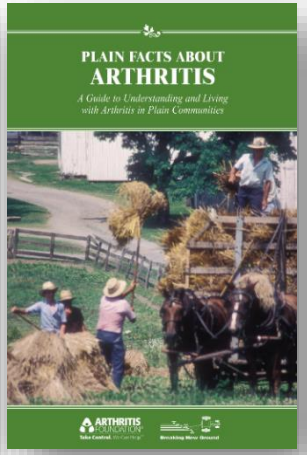
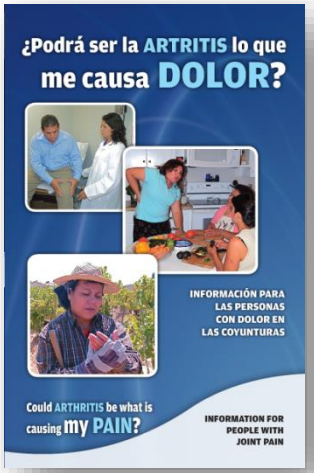
Arthritis Resources

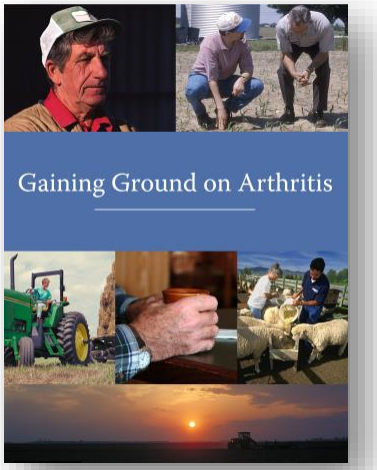
- *Arthritis and Gardening*
- *Arthritis and Agriculture*
- *Plain Facts about Arthritis*
- *¿Podrá ser la Artritis lo que me causa Dolor?* (Could Arthritis be the cause of my Pain?)
- *Gaining Ground on Arthritis* DVD











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Recent Publications

- *AgrAbility 1991-2016: 25 Years, 25 Stories*
  - A summary of AgrAbility's 1st 25 years with focus on client success stories
- *AgrAbility: A USDA Program with Demonstrated Impact*
  - A concise view of AgrAbility with impact data and client success story

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Plowshares

- 30+ technical reports on specific topics, such as farming with a spinal cord injury
- Several new topics and updates underway

AGRABILITY PLOWSHARES TECHNICAL REPORT

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Agricultural Machinery Access Lifts: Design, Utilization, and Safety Issues

Revised June 2018:
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INTRODUCTION

Each year, an estimated 250-300 farmers and ranchers in the U.S. experience permanent spinal cord injury (Field, 1992) and hundreds more suffer strokes, loss of limbs, and other conditions that severely limit their mobility. Many of these agricultural producers are faced with the challenge of accessing the operator stations of the machinery that they use regularly to till, plant, spray, harvest, or complete many other farming/ranching tasks.

This paper discusses accessibility-related issues, including potential assistive technology options, selection criteria and safety related to mechanical lift technologies for accessing tractors, combines, or other pieces of equipment utilizing mechanical-lift technology. Having the appropriate information, the right mindset, encouragement from others, and professional advice/assistance, many producers with mobility impairments regain access to equipment that is so essential to their livelihood. Although the homemade and commercially produced access solutions discussed here apply specifically to agricultural machinery, the concepts demonstrated are relevant to various pieces of off-highway heavy equipment used in many industries.

Early Equipment-Accessibility Research

Over the years, some of the most frequent requests received by the Breaking New Ground (BNG) Resource Center at Purdue University have been related to accessing agricultural tractors and machinery by farmers/ranchers with restricted mobility. During the early 1980s, with support from Deere & Company and the National Institute of Handicapped Research (now the National Institute on Disability, Independent Living, and Rehabilitation Research) BNG began to explore various solutions that could assist these individuals in accessing their equipment following a spinal cord or other disabling injury or condition. From this early research came a set of design criteria to guide development of "person-access lifts", criteria that subsequent experience has proven useful.

BNG's first priority was to document and evaluate the designs of those access lifts that had been homemade or fabricated locally by welding or machine shops, often with the input of professional engineers. These early access lifts generally fell into three categories: sling lift, platform lift, and chair lift.

Several less conventional concepts were also studied, among them: (1) operator carried up to the machine's operator station by a second person, (2) operator elevated to the operator station via front-end loader bucket or forklift, and (3) various ramp configurations whereby operator could be wheeled, walked, or otherwise helped up to the level of the operator station. While each of these methods "worked", they presented safety concerns and/or relied heavily on a second person, thus were, not endorsed or encouraged by BNG.

[1] Dr. Ehlers is an Assistive Technology Professional (ATP) and serves as the Technology Outreach Coordinator for the National AgrAbility Project.

[2] Dr. Field is Director of the National AgrAbility Project, headquartered at Purdue University, and a faculty member of the Department of Agricultural and Biological Engineering.

[3] Dr. Yoder is an Assistant Professor in the Department of Environmental, Agricultural and Occupational Health College of Public Health at University of Nebraska Medical Center.

[4] Mr. Stoller is an agricultural engineer, Assistive Technology Professional (ATP) with Michigan AgrAbility, and founder of Foresight Services, LLC / Disability Work Tools.

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Questions?