



Cultivating Accessible Agriculture

National AgrAbility Project
Purdue University

AgrAbility



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Farmer Veteran AgrAbility Coordinator



AgrAbility Mission

The vision of AgrAbility is to enhance quality of life for farmers, ranchers, and other agricultural workers with disabilities.

Through education and assistance, AgrAbility helps to eliminate (or at least minimize) obstacles that block success in production agriculture or agriculture-related occupations.



Whom Does AgrAbility Serve?

AgrAbility addresses a wide variety of disabling conditions in agriculture, including, but not limited to:

- Amputation
- Arthritis
- back impairment
- Deafness/hearing impairment
- Development disabilities, such as cerebral palsy or autism
- Disabling diseases, such as cancer or heart disease
- Mental/behavioral health problems
- Respiratory diseases
- Spinal cord injuries
- Stroke
- Traumatic brain injury
- Visual impairments

Whom Does AgrAbility Serve?

Just as disability is wide continuum, agriculture is also:

- Row crops: corn, soy, wheat, cotton, etc.
- Ranching
- Sheep and goats
- Dairy
- Produce, including organic
- Orchards
- Agritourism
- Niche markets, like llamas, herbs, etc.
- Floriculture
- Aquaculture
- Hydroponics
- Aquaponics

Disability within the Agricultural Community

- Causes of disability
 - Traumatic injury (agriculture is one of the most hazardous occupations). Many injuries also come from off-farm incidents.
 - Disease (Arthritis impacts many farmers)
 - Aging (Average age of U.S. farmers is 57+)
- Prevalence of disability
 - Approximately 15-20% of farm population impacted by disability
 - 1.04 – 2.23 million of the U.S. farm, ranch, and agricultural community impacted by disability

Barriers to Increased Independence of Persons with Disabilities within Agriculture

- Attitudes
- Public policy that sometimes fosters dependence rather than independence
- Lack of access to appropriate assistive technology
- Cost of assistive technology and needed modifications
- Potential for secondary injuries



Farmers with Disabilities Generally Have the Same Needs and Goals as All Farmers

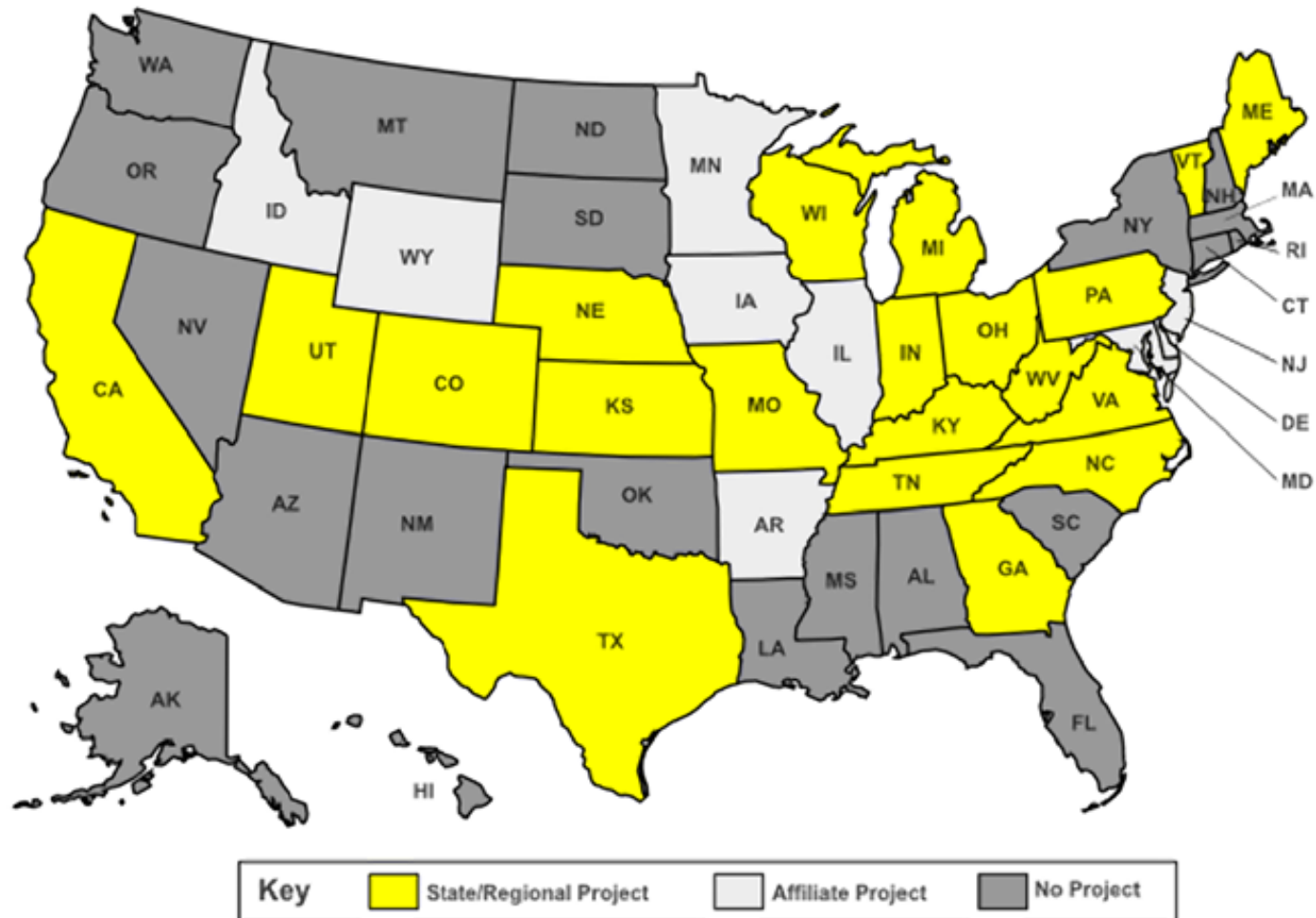
- Access to capital
- Meaningful employment
- Desire to provide
- Financial security



AgrAbility History

- AgrAbility began in 1991 as part of the USDA Cooperative State Research, Education, and Extension Service (now NIFA)
- Breaking New Ground at Purdue University started in 1979 and was a model for AgrAbility, along with several similar projects
- In 1991, there were 8 funded state and regional AgrAbility projects (SRAPS); as of 2014, there are 20 SRAPs and several previously-funded affiliate projects
- One National AgrAbility Project (NAP) supports the SRAPs

AgrAbility Projects 2014



AgrAbility Partnerships

- All AgrAbility projects – state projects and the national project – are partnerships between a land-grant university and at least one disability-related program.
- Current NAP partners
 - Purdue University (Breaking New Ground)
 - Goodwill of the Finger Lakes
 - The Arthritis Foundation – Heartland Region
 - The University of Illinois at Urbana-Champaign & Colorado State University (external evaluators)

Unfunded NAP Partners

- Farmer Veteran Coalition
- National FFA Organization
- Northwestern University
Rehabilitation Engineering Research Center
- APRIL (Association of Programs for Rural
Independent Living)
- RESNA (Rehabilitation and Assistive
Technology Society of North America)
- RTC Rural at the University of Montana



AgrAbility Services/Priorities

- Education
 - Workshops; resource development; online education
- Networking
 - Leveraging efforts with other groups; peer support
- Direct Assistance
 - Site visits; consultations; business planning
- Marketing
 - Publics awareness activities and materials



Special Responsibilities of the NAP

- Provide support to the state and regional AgrAbility Projects
 - Training
 - Resources
 - Consultations with NAP specialists
- Provide direct services to customers in states without AgrAbility Projects

What Does AgrAbility Not Provide?

- Funding
- Equipment (though some Tech Act Project partners provide certain AT)
 - Most funding for assistive technology comes through state vocational rehabilitation systems
 - Other sources of grants and loans are available

AgrAbility and Veterans

- AgrAbility has served veterans since its inception, but in the past, veteran status wasn't identified in many cases
- Primarily worked in past with veterans from Vietnam and Korea eras
- Currently, greater public support and focus on veterans issues
- Emerging programs for farmer veterans, like Farmer Veteran Coalition, are enabling veterans interested in agriculture



Disability Barriers to Veterans

- Post-Traumatic Stress Disorder (PTSD) and Traumatic Brain Injury (TBI) are the signature disabilities of the current conflicts
- Greater survival rate of catastrophic injuries due to improved body armor and enhanced medical support



AgrAbility Conferences for Veterans

- Rochester, NY – May 2012
- Purdue University Beck Center – November 2012
- AgrAbility National Training Workshop
 - Multiple sessions dealing with veterans' issues during past three workshops
- NAP regional events have incorporated veteran components
- SRAPs have held veteran-specific workshops



AgrAbility Web-Based Resources Related to Veterans

- Webinars
 - [Veterans in Agriculture: Military 101](#) (August 30, 2012)
 - [The Work of the Farmer Veteran Coalition](#) (December 11, 2013)
 - [Suicide Awareness with a Focus on Veterans and Rural Americans](#) (June 26, 2014)
- Upcoming web page for veterans interested in agriculture

AgrAbility Ongoing Collaborations

- Farmer Veteran Coalition (FVC)
 - www.farmvetco.org
 - FVC director serves on AgrAbility Advisory Team
 - AgrAbility Project Director is member of FVC board of directors
 - Shared funding for Farmer Veteran AgrAbility Coordinator position
- USDA – Returning Veterans to Agriculture
 - www.rv2a.org
 - Roadmap with information about USDA and other organizations assisting veterans in agriculture



New Farm Bill & Veterans

- Defines a “veteran farmer or rancher”
- Recognizes veterans as a distinct class
- Includes veterans for services under the Outreach and Assistance Program for Socially Disadvantaged Farmers and Ranchers
- Gives special consideration to veterans under the Conservation Reserve Program’s Transition Incentive Program, the USDA Operating Loan Program, and Value-Added Producer Grants.



AgrAbility Resources

- The most important resources AgrAbility has are the many staff member around the country
 - Varied backgrounds
 - Multiple responsibilities
 - High levels of dedication



Educational Resources:

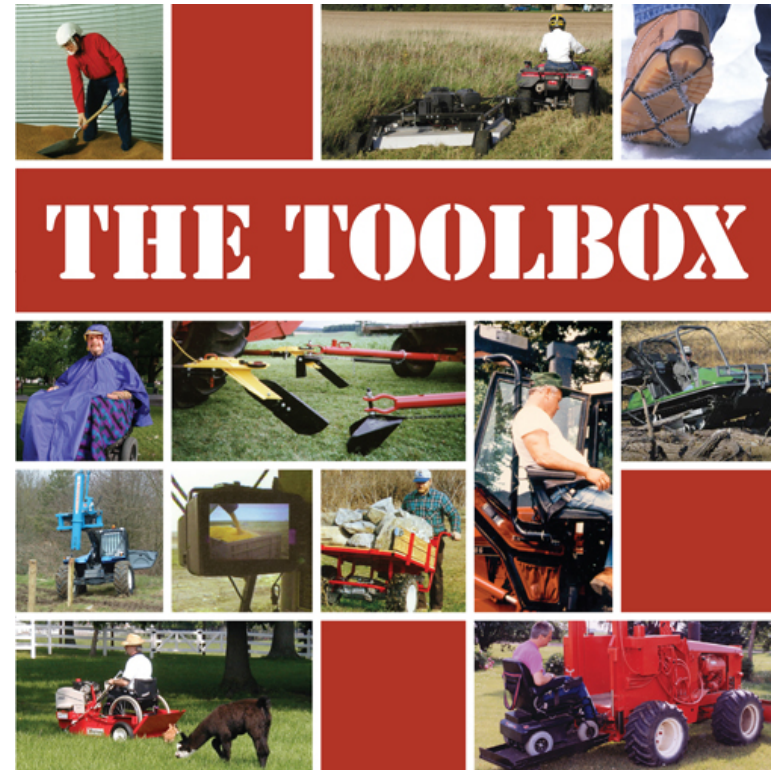
www.agrability.org

- Project information and contacts
- Downloadable resources
- Online training
- News and upcoming events



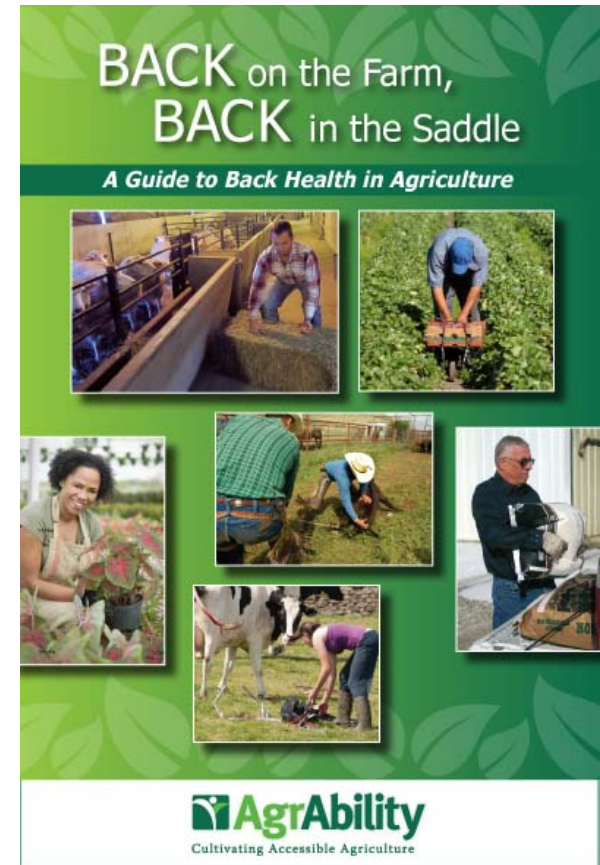
The Toolbox Assistive Technology Database

- Print, CD, and web versions
www.agrability.org/Toolbox
- More than 1000 products to help farmers and ranchers with disabilities



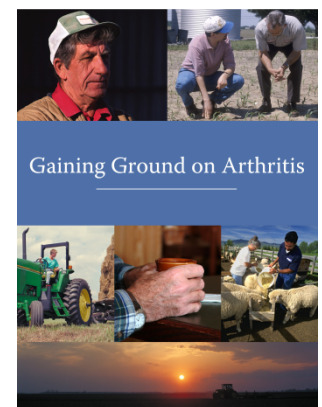
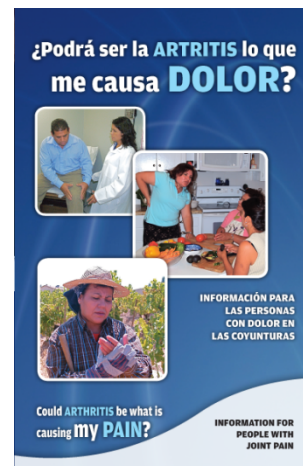
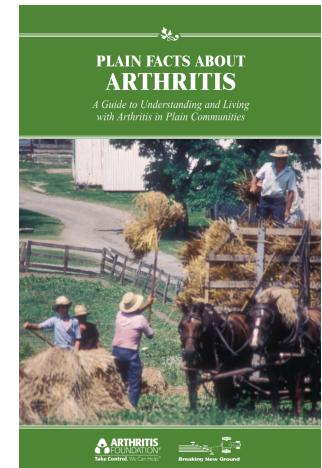
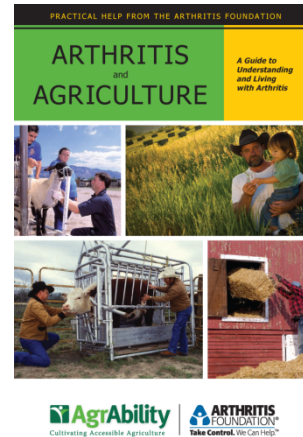
BACK on the Farm, BACK in the Saddle

- 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



Arthritis Resources

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



Plowshares

- 30 technical reports on specific topics, such as farming with a spinal cord injury
- Currently being updated

PLOWSHARES #8

Special *Breaking New Ground* Technical Report

New Concepts in Lift Attachments for Tractors and Combines*

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INTRODUCTION

An estimated 250-300 farm and ranch operators in the U.S. experience a permanent spinal cord injury each year (Field, PVA 1992). Hundreds more suffer strokes, loss of limbs, and other conditions that severely limit their mobility. These farmers¹ are faced with the challenge of accessing the equipment they use regularly to till, plant, spray, harvest, and complete other essential tasks. If successful in addressing this challenge, they are usually able to continue to be a vital part of their farming operation. Understandably, therefore, among the most frequent requests received by the Breaking New Ground Resource Center (BNG) at Purdue University are ones that relate to accessing equipment by those with restricted mobility.

The purpose of this article is to provide those considering modification of a tractor, combine, or other piece of machinery with information adequate to make an informed decision concerning the lift concept best suited to their needs. The "homemade" and research-based solutions presented in this paper specifically apply to agricultural machinery, but the concepts can be transferred to other types of heavy equipment, such as logging and earth-moving equipment. Several factors, such as safety, cost, adaptability, and desired tasks should be carefully considered prior to a final decision on a lift design. Consultation with a rehabilitation engineer, an experienced assistive technology fabricator, and other farmers who have made similar modifications is strongly encouraged.

*This work was sponsored in part by the United States Department of Agriculture, CSREES USDA Project #96-EDFA-1-003 and support from Life Essentials, West Lafayette, Indiana.

¹As in all BNG publications, the term "farmer" is used to identify one who is directly involved in agricultural production (i.e., farmer, rancher, agricultural worker).

Nearly all of the designs documented and evaluated for possible inclusion in this report had two things in common — (1) they were relatively low cost, and (2) they successfully addressed the problem of accessing agricultural equipment. There were other lifts evaluated, however, that exposed the user to considerable



Figure 1. Valmet tractor with Life Essentials Pilot Lift.

risk of injury, required significant assistance from another person, or were not highly reliable and, therefore, were not included. From earlier BNG research came a set of design criteria aimed at guiding development of future lift concepts that proved useful in evaluating lifts for this report. Those criteria include the following desired characteristics:

1. A seat or platform to lift a person from ground level to the cab door in a position that would facilitate easy transfer into the operator's seat. (In some cases, this required a vertical lift of over 9 feet.)

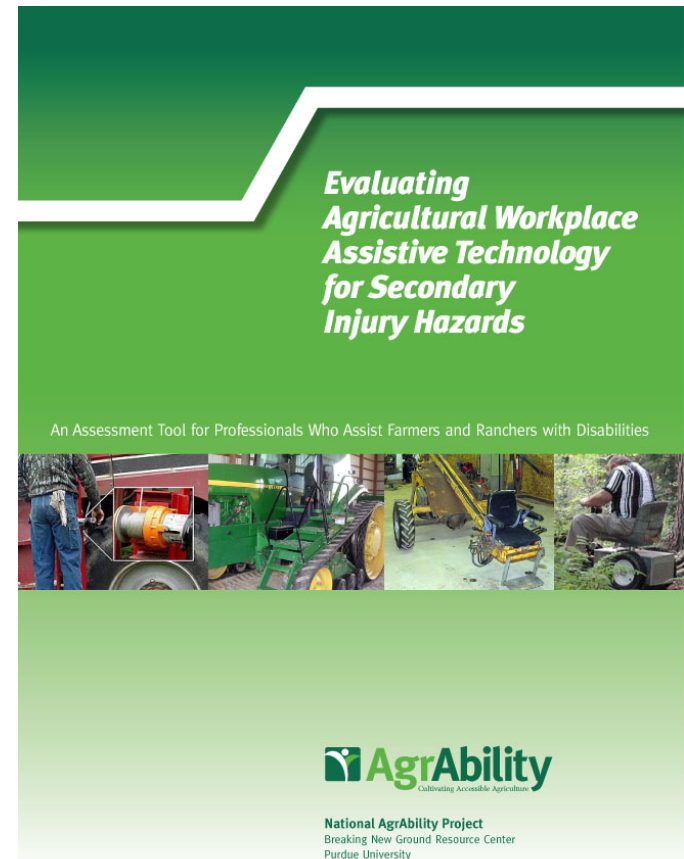
Conducting Agricultural Worksite Assessments

- Step-by-step guide for evaluating farms and ranches
- Reproducible assessment form
- Electronic database for recording data and printing reports



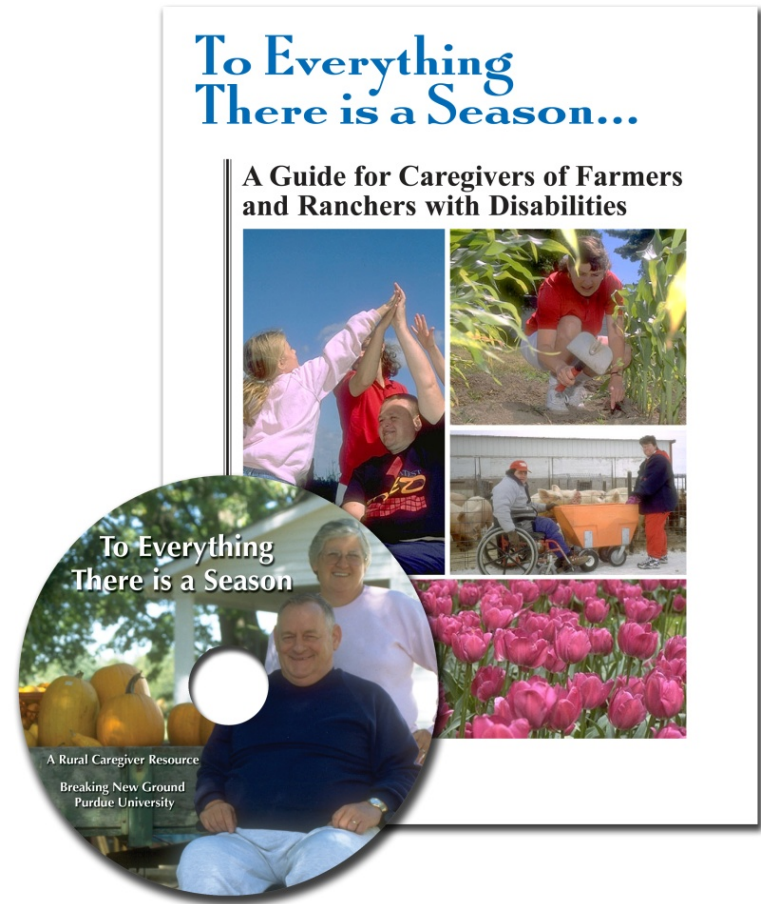
AT Secondary Injury Evaluation

- Step-by-step guide for evaluating AT for secondary injury hazards
- Reproducible assessment forms



To Everything There is a Season: Rural Caregiver Support

- Written resource
- Video/DVD
- www.ruralcare.info
 - Includes video clips
 - Downloadable resources
 - Links to many organizations



Newsletters

- AgrAbility Harvest
 - Annual to national audience
- AgrAbility e-Note
 - Monthly to AgrAbility staff members

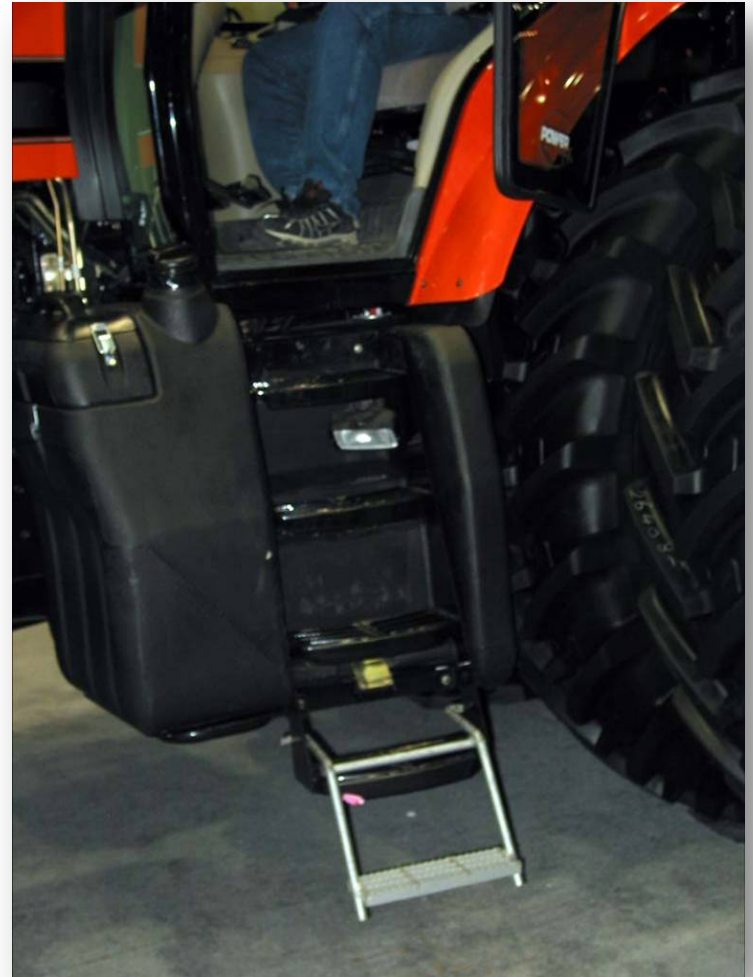


Examples of Assistive Technology in Agricultural Workplaces

- Farmers are generally creative
- Assistive technology is the result of real world problem solving
- The priority is task completion

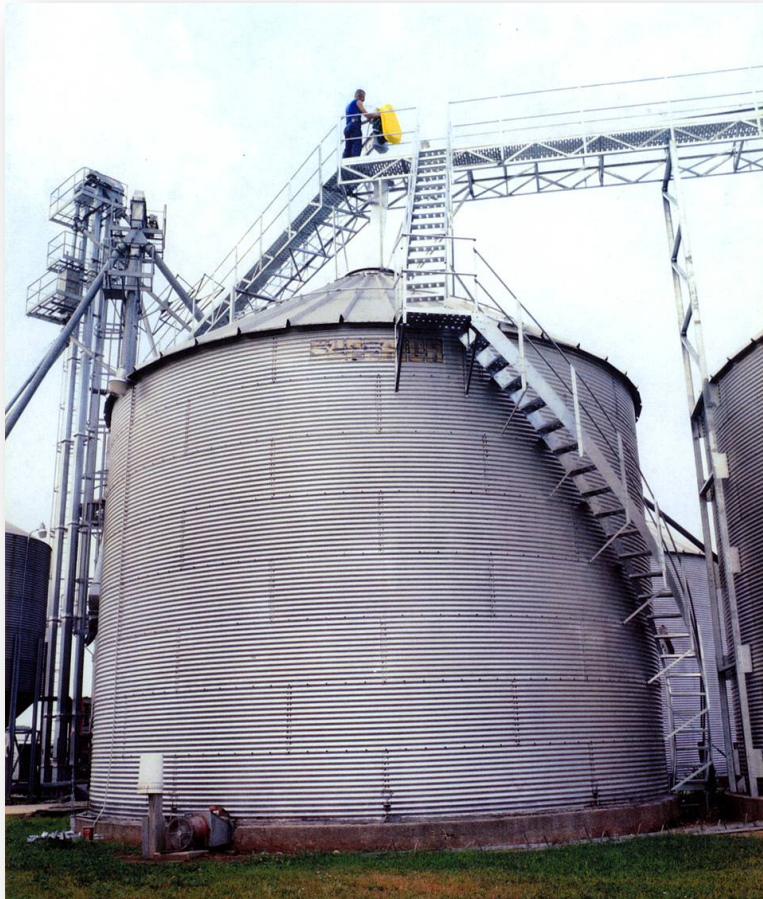














Transition to GWOT Signature Injuries/Disabilities

Combat Injuries

- Mortality Rates for injuries
 - WWII 30%
 - Vietnam 24%
 - OEF/OIF 10%

More Survivors
and disabilities



more survivors with long-term injuries

OIF/OEF

- 97% of injuries caused by explosions, mostly IEDs
- 50% of injuries were to head and neck
- 20% of wounded had some degree of brain injury

Signature Injuries OEF/OIF

- Eye Injuries
- Lower extremity injuries and amputations
- Traumatic brain injuries
- Repeated/serial traumatic brain injuries

Combat Exposure Effects

- Increased risk for Post Traumatic Stress Disorder (PTSD)
 - Increases with multiple deployments
- Increased risk for depression
- Increased risk for alcohol-related problems
- Increased exposure to injury, including TBI
- These problems are not mutually exclusive

What is PTSD?

An anxiety disorder:

- Characterized by emotional instability after stressful event(s)
- Trauma that overwhelmed the person's usual psychological defenses
- Trauma created an unmanageable memory that causes ongoing emotional outbursts and depression when reminded of event

PTSD symptoms

- Intrusive
 - Recollections, re-experiencing
 - Distressing dreams
- Avoidant
 - Detachment/estrangement
 - Loss of libido and initiative
- Hyperarousal
 - Sleep difficulties
 - Irritability/anger
 - Lack of concentration
 - Hypervigilance

Panic Attacks

- Palpitations
- Sweating
- Feelings of choking
- Chest pain
- Nausea
- Dizziness
- Fear of dying/losing control

Traumatic Brain Injury

Symptoms/Consequences

- Sensory and/or motor problems
- Changes in behavior (personality, concentration, memory, perception, emotional control)
- Decreased mental efficiency
- Depression
- Anxiety
- Irritability
- Sleeping problems
- Headaches
- Fatigue
- Blurred vision

PTSD and TBI

Overlapping Signs and Symptoms!

Treatment Considerations

PTSD

- Medications (antidepressants, beta blockers), perhaps long term
- Psychotherapy (patient, family, group, cognitive behaviour)

TBI

- Mild, may resolve w/o treatment
- Rehab services
- Counseling for adjustment to permanent disability