AgrAbility is a USDA-sponsored program that assists farmers, ranchers, other agricultural workers, and family members impacted by disability.

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

- Arthritis and related issues
- Spinal cord injuries/paralysis
- Back impairments and pain
- Amputations
- Head/Brain injury
- Visual impairments
- Hearing impairments
- Congenital diseases
- Cerebral palsy
- Respiratory impairments
- And others...

It's About Hope (YouTube)
The term arthritis refers to an “inflammation of a joint”. It is used to refer to over 100 rheumatic diseases that are characterized by problems in and around joints. The inflammatory types of arthritis cause systemic problems, such as fatigue, that interfere with the physical work that is necessary in the business of farming.

**Rheumatic Diseases/Autoimmune Diseases**

The body attacks itself (joints) causing inflammation, pain and degeneration of the connective tissue. Most are chronic and have no cure.

**Arthritis Defined…**

- **50 Million** people in the US have doctor diagnosed Arthritis - 1.4 million (IN)
- **Osteoarthritis** - 27 million MOST COMMON FORM SEEN IN AGRICULTURE
- **Rheumatoid Arthritis** - 1.3 million
- **Gout** - 3 million
- **Fibromyalgia** - 5 million

Bursitis, Tendonitis, Brittle Bone Disease, Degenerative Disc Disease, Spondylitis, Hip Dysplasia, Lyme Disease, Osteoporosis/Osteomalacia, Psoriatic Arthritis...also linked to Heart Disease and Diabetes.

- > ¾ are younger than 65 years old.
- Nearly **700,000** children
- 2nd to heart disease as a work disability.
- Affects women twice as often as men.

**Doctor-Diagnosed Adults with Arthritis in Your State**

- 50 million Adults in the United States live with Arthritis everyday.
  - **Indiana** - 1.4 million
- By the year 2030, an estimated 67 million or 26% of the projected total adult population will have arthritis.
- Arthritis is the most common cause of disability, limiting nearly 21 million Americans in their occupations.

**Arthritis: A Nation In Pain**

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- > ¾ are younger than 65 years old.
- Nearly **700,000** children
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**Risk Factors & Warning Signs**

- **Risk factors you cannot control:**
  - Age 65 +
  - Gender
  - Genetic/Family history
- **Risk factors you can control:**
  - Excess weight
  - Joint injuries
  - Sports
  - Occupation
- Persistent pain
- Stiffness, swelling, redness or heat
- Difficulty performing daily activities
- Difficulty moving the joint, range of motion
- Possible fatigue, weight loss, nausea

**Arthritis Management**

- Get a proper diagnosis - early detection
- Work with a team of health care providers - prescriptions, OTC medications, surgical options
- Get proper exercise - watch your weight and diet
- Joint protection - body mechanics
- Use assistive technologies - if appropriate
- Manage stress and pace yourself - work simplification
- Be educated - unproven remedies

**Ergonomics**

- Goal: make sure workers are uninjured, safe, and comfortable, as well as productive
- Finds the best fit between worker and the job.
- **Physical Capabilities + Body Limitations + Work Tasks + Tools Available + Environment = ERGONOMICS**

**How will these methods affect a farmer?**
Support Your Joints

• Proper footwear is crucial to supporting the ankles and knees.
• Be aware of carrying heavy loads using your wrist as the main joint.
• With physician approval, wear braces to support repetitive and stressful movements, such as hand pruning, weeding, and dropping seeds.
• Wear gloves to support the wrists and finger joints.

Perfecting Your Posture

• Avoid staying in one position too long, and avoid repetitive tasks for long periods of time.
• Use the strongest and largest joints and muscles for the job.
• Poor posture can lead to pain, fatigue, and strains. The upper back has limited movement, the lower back needs to be able to flex forward and backward, it should NOT twist.

Complimentary Therapies

• Acupuncture
• Guided Imagery
• Supplements – Ash oil (omega 3), chondratin, glucosamine
• Hot/Cold Therapy
• Massage
• Aroma Therapy

Consult a doctor or a rheumatologist for the methods that are best for your own health.

When A Farmer Has Arthritis

Farmers and ranchers with arthritis are faced with many obstacles that limit their ability to continue farming.

Like farming, arthritis is often a 24-hour, 7-day a week occupation. As hard as it is for a farmer to change routine, life-style changes can be beneficial. And not all change has to use technology. Pain, fatigue, and stiffness are effects of arthritis that can limit a farmer and rancher.

It may cause difficulty completing a specific task, hinder the progress of daily activities, or even leave them feeling completely overwhelmed. From simple physical tasks – getting on the tractor, loading feed – to social activities, arthritis can interfere with one’s life.

Assessment

1. Current Situation and Needs
2. Adaptive and Assistive Technologies

Agricultural Awareness

Common Occupational Risk Factors
Top 7 Pain-Causing Activities by Survey

• Being overweight
• Bending/Kneeling/Squatting/Climbing/Jumping (grain bins, ladders, milking, etc.)
• Heavy Lifting or Carrying (feed bags, water buckets, etc.)
• Frequent Bending/Twisting/Turning (heights of weight benches, storage, tool locations, etc.)
• Persistent awkward postures
• Hard tasks and use of tools
• Compression of weight bearing joints by lifting in awkward positions
• Walking long distances, sometimes over uneven/difficult terrain
• Driving for long periods of time (exposure to whole-body vibration) in tractors/utility vehicles
• Weather exposure – cold and hot
• Vibrations from lawn care machinery, stress on joints from weed eaters, trimmers, etc.
• Ranch work - horsemanship, roping, farrier work
• Livestock care – chutes, medical attention, breeding

Repetitive forceful work is considered to both aggravate and accelerate development of osteoarthritis and aggravate other forms of arthritis.
On-Farm Modifications

- Use proper body mechanics.
  - Keeping your feet shoulder width apart
  - Bending at the knees/hips - keeping the back straight
  - Carrying the weight as close to the body as possible
- Livestock awareness, clear working areas and pathways, chutes
- Proper mounting and lifting techniques
- Personal body limitations, strength and past injury awareness

In-Home Modifications… that can be used on the FARM!

- Key Holders
- Jar Openers
- Seat-Belt Handles
- Car Steering Wheel Covers
- Utensil Holders
- Writing Utensils
- Button Hook
- Door Knob Grips or Levers
- Extendable Grasp Tool
- Swivel Seats
- Sock and Shoe Puller
- Jewelry Magnet
- Support Poles

Buzz Word: Ergonomics!

Careful tool selection can make gardening easier, while protecting you from unnecessary and unwanted stress, strain, and injury.

Some tools are made specifically for women, with lighter materials and smaller grips.

Benefits:
- Neutral join positions
- Minimize stress, maximize power
- Appropriately sized, soft padded handles
- Reduction of vibration and slipping
- Thumb rests and proper diameter grips
- Spring-loaded or power-assist tools that increase leverage

Ergonomic Hand Tools

- Tools should have handles that fit the person's hand
  - Rule of Thumb
  - Pistol Grip vs. Straight Handle

Container and Raised Bed Gardening
**“Raising Up” Your Garden**

**Problem:** Tall steps and a lack of grab bars can cause stress.

**Solution:** Adjust the height of your step so it is lower to the ground and add grab bars.

**Problem:** A lack of mirrors can result in pain due to constant turning and straining to see.

**Solution:** Adding mirrors can help maintain a clear field of vision and eliminate twisting and turning.

**Problem:** A high or uncomfortably placed control panel can result in stiff, painful joints.

**Solution:** When buying or replacing equipment, look for comfortable, natural positioning of controls.

**Problem:** Hitching and unhitching heavy implements can cause joint stress and pain.

**Solution:** Ask for assistance or investigate automatic systems.

**Problem:** Front end weights can cause pain when changing.

**Solution:** Seek assistance when needing to adjust weights.

**Problem:** An uncomfortable seat can cause back, neck and leg stress.

**Solution:** Consider purchasing an ergonomic seat that reduces pressure and vibration.

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**Assistive Technology**

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**Assistive Technology**

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**TRACTOR SIMPLE SOLUTIONS**

- **A:** Tall seat and a lack of grab bars can cause stress.
  - **Solution:** Adjust the height of your seat and add grab bars.

- **B:** A lack of mirrors can result in pain due to constant turning and straining to see.
  - **Solution:** Adding mirrors can help maintain a clear field of vision and eliminate twisting and turning.

- **C:** A high or uncomfortably placed control panel can result in stiff, painful joints.
  - **Solution:** When buying or replacing equipment, look for comfortable, natural positioning of controls.

- **D:** Hitching and unhitching heavy implements can cause joint stress and pain.
  - **Solution:** Ask for assistance or investigate automatic systems.

- **E:** Front end weights can cause pain when changing.
  - **Solution:** Seek assistance when needing to adjust weights.

- **F:** An uncomfortable seat can cause back, neck and leg stress.
  - **Solution:** Consider purchasing an ergonomic seat that reduces pressure and vibration.

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**THE TOOLBOX**

The Toolbox: Agricultural Tools, Equipment, Machinery & Buildings for Farmers and Ranchers with Physical Disabilities is a resource that contains assistive technology solutions for farmers, ranchers, and other agricultural workers with disabilities.

**Examples of Recent Toolbox Additions:**
- Maxi-Vac Pasture Vacuum
- Scaff-O-Ladder Platform Ladder
- Porta-Grazer Slow Hay Feeder
- Custom-Made Accessible Saddle
- Split It Four Way Hose Splitter
- SmartDrive Wheelchair Power Assist
- Non-Electric Auto-Fill Waterer

[http://www.agrability.org/Toolbox/index.cfm]
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- Assistive Tools pamphlet for Farmworkers
- Spanish Fotonovela— ¿Será la artritis la causa de mi dolor? (Is arthritis causing my pain?)
- Rural Arthritis Curriculum Resource- Youth Lessons

Prevention of Early Onset Osteoarthritis (OA) in Farm Youth

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Agriculture is one of the most hazardous industries in the nation.

- An estimated 1.04 million children and adolescents under 20 years of age resided on farms in 2009, with about 990,000 of these youth performing work on the farms.
- In addition to the youth who lived on farms, an additional 307,000 children and adolescents were hired to work on U.S. farms in 2006.
- Estimated 15,876 injuries to youth who lived/worked/visited a farm in the US in 2009
- Estimated 3,601 injuries performing farm work—highest rate is from livestock work
  - What will the 2012 Census Data show?
  - The number of injuries on farms is decreasing, but is arthritis being considered as one of the injuries when researched?

SOURCE: Agricultural Safety: 2009 Injuries to Youth on Farms - USDA, National Agricultural Statistics Service
SOURCE: 2007 Census of Agriculture - USDA, National Agricultural Statistics Service

WE KNOW...
Over 1/3 of US farmers have a diagnosed form of arthritis.
AND...
The average age of the US farmer is 57 years old.

How do these facts affect the working dynamic of the farming culture across generations?
How do these facts affect the working dynamic of the farming culture across generations?

- Are more farm youth taking over tasks that they are not physically fit for?
- Are they capable of handling those tasks?
- Are there other factors in their life that may affect their joint strength?
- Are they (or their families/employers) familiar with the FLSA Child Labor Laws?
- Would the proposed changes have decreased the risk of OA in farm youth?

Common Causes of Osteoarthritis in Youth

- Sports Injuries
- Repetitive Joint Use
- Unbalanced Diet, Obesity
- Stress, Outside Factors
- Genetics, Age
- Illness, Infection

What puts youth at a higher risk for Osteoarthritis?

- Youth often have a lack of practical experience
- Youth are often unfamiliar with the work
- Youth enthusiasm outweighs judgment
- Youth are risk-takers
- Youth are driven to prove themselves
- Youth are reluctant to ask questions

How can we make sure youth workers are uninjured, safe, and comfortable, as well as productive?

- Find the best fit between worker and job.
- Ergonomically, determine the:
  - physical capabilities of the youth worker
  - tasks to be completed
  - tools to be used
  - job environment
- Redesign the tools or redesign how the work process is completed.
- Injuries are prevented as a natural result of improved work posture, reduced force, or less repetition. Put ergonomic changes into operation along with training on how to work safely.

Sources of Joint Stress and Modification Suggestions

- Driving tractors, hitching implements
- Throwing, stacking hay
- Riding horses, roping
- Working on trucks and machinery
- Milking cows
- Feeding livestock, carrying heavy buckets
- Building, fixing fence
- Hundreds of other tasks!

- Educate on the dangers of jumping off of wagons and out of machinery
- Encourage use of mounting aids or steps
- If age permits, provide utility vehicles, or carts to prevent carrying heavy loads
- Provide adjustable seats/stools for working at tool benches
- Educate on livestock awareness, keeping clear working areas and pathways, and danger in chutes
- Encourage use of anti-fatigue mats and wearing proper footwear
- Teach proper mounting and lifting techniques
- Provide additional mirrors, adaptable handles and controls, or other needed tools

Prevention & Education Methods

- Educate about the facts related to arthritis.
- Educate about the principles of ergonomics, physical limitations and body mechanics, and proper use of tools and equipment.
- Stress staying at the youth’s recommended weight (less chance of osteoarthritis in the weight-bearing joints: hips and knees).
- Encourage exercise to keep the muscles around joints strong, especially the thigh muscles that support the knee (less chance of injury or pain from overuse).
- Urge them to “Watch and Learn”... recognize the difficulty their parent or grandparents may be having doing routine chores, take their parent’s advice and adopt practices that will reduce repetitive movements while they are still young.
- Demonstrate the ways to modify work situations, or display forms of assistive technology that are safe for use by farm youth.
Gardening with Effective Arthritis Management: Don’t Let The Dirt Hurt!

An overview of the tasks related to gardening and the relationship between arthritis management and maintaining a productive garden.

Gardening with Effective Arthritis Management

- Gardening is one of America’s most popular hobbies. According to a recent Greenhouse Management Online study, nearly 164 million homeowners in the US (49%) gardened in the past 12 months. In addition to the enjoyment it brings, gardening is also a great activity for maintaining range of motion, bone density and strength, joint flexibility, and overall quality of life.

- However, many people feel they have to give up this popular pastime because of arthritis pain. Arthritis is the number one disability-causing disease in America, with nearly 50 million American’s having a diagnosis of at least one form of arthritis.

Benefits of Gardening

- Gardening can be a stress-relieving exercise.
- Gardening can also be good physical exercise. Movement is Medicine!
- The most important gardening tool is the body!
- With proper body mechanics, well-designed gardening tools, and frequent rest breaks, anyone can remain a healthy gardener despite arthritis pain.

Define Your Role

- Is your garden your hobby, or is it a form of income?
- Does your gardening require more hours than you can easily give?
- Does your hobby garden ever become a chore?
- Has arthritis pain ever taken away the joy of hobby gardening, or the productivity of your operation?

Perfecting Your Posture

- Poor posture can lead to pain, fatigue, and strains
  - some garden carts actually perpetuate worse posture
  - the upper back has limited movement, the lower back needs to be able to flex forward and backward, it should NOT twist
- Additional stress on the back, hips, and legs, in addition to the vibration on the shoulders, elbows and wrists, from riding mowers, weed-eaters, and rototillers, can have an affect on comfort and posture as well.

- Avoid staying in one position too long, and avoid repetitive tasks for long periods of time.
- Use the strongest and largest joints and muscles for the job.
- When weeding, use a kneeling pad or bench to avoid excess pressure on the knees and hips.
  - Avoid twisting at odd angles to protect the hip joints.
Support Your Joints

- Proper footwear is crucial to supporting the ankles and knees.
- Be aware of carrying heavy loads using your wrist as the main joint.
- With physician approval, wear braces to support repetitive and stressful movements, such as hand pruning, weeding, and dropping seeds.
- Wear gloves to support the wrists and finger joints.

Low Maintenance Reminders

- Consider all options for the garden/container location
  - Near a water source, near tool storage
  - Access from all sides
- Consider all options for weed control
  - Mulch or black plastic
  - Chemical use
- Consider all options for plant choices
  - Maintenance, water needs, space and growing medium
  - Young plants vs. seeds
- Consider all watering options
  - Hand watering, soaker hoses or sprinkler systems
  - Rainwater collection

Garden Mobility

- Pathways can prevent excessive walking and movement around the perimeter of a garden. It is also helpful to have clear entrances to the gardening area.
- How wide do you need it? Wide enough for passage - garden carts, utility vehicles, walking, mobility vehicles
- Well drained, and slightly sloped - not too much of a grade that it is difficult to make your way back up, but enough for water run-off to prevent loss of traction, deep mud, etc.

Container Gardening

- Decorative pots - be creative!!
  - Window boxes, Terrariums
- Hanging baskets
  - Trellises - Uses for vegetables as well as flowers!
“Raising Up” Your Garden

- Elevated beds
- Terracing and retaining walls

Easy Straw Beds

- Elevated off the ground
- Well-aerated, disease-free growing medium, cost efficient
- Perfect for growing vegetable (tomatoes, peppers, squash, cucumbers and melons)
- Older bales that have started to rot work best, grass mix
- Use a fertilizer mix to form a bed on the top of the bale before planting

Buzz Word: Ergonomics!

Careful tool selection can make gardening easier, while protecting you from unnecessary and unwanted stress, strain, and injury.

Some tools are made specifically for women, with lighter materials and smaller grips.

Benefits:
- Neutral joint positions
- Minimize stress, maximize power
- Appropriately sized, soft padded handles
- Reduction of vibration and slipping
- Thumb rests and proper diameter grips
- Spring-loaded or power-assist tools that increase leverage

Ergonomic Hand Tools

- Tools should have handles that fit the person’s hand
  - Rule of Thumb
  - Pistol Grip vs. Straight Handle

Long Handle Tools

- Two handed grip is better
- Light weight
- Enlarged, foam, soft handle
- Reduce resistance with smaller surface
- Shorter length to reduce stretching and twisting
- Telescoping Tools
- Stabilized Wrist Supports

Modified Tools

- Powered Hand Tools (Bulb Planters)
- Bag Carrying Handles
Other Assistive Tools

- Wheeled Carts
- Shovel Step
- Auto-Locking/Lever-Action Nozzles

Other Assistive Tools

- Handled Weed Carriers
- Gardening Aprons
- Pot Lifters

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