Arthritis and GARDENING

A Guide for Home Gardeners and Small-Scale Producers

AgrAbility
Cultivating Accessible Agriculture

Arthritis Foundation℠

Arthritis and GARDENING

Produced by
National AgrAbility Project
Breaking New Ground Resource Center
Purdue University
225 South University Street
West Lafayette IN 47907-2093
800-825-4264
www.agrability.org

The National AgrAbility Project is supported by USDA/NIFA Special Project 2012-41590-20173.

Photo credits:
Cover: (top right), Mississippi State University Extension Service
p. 5: Maine AgrAbility Project
p. 11: (top) The Wright Stuff, Inc.
p. 11: (bottom) Lee Valley Tools Ltd.
p. 12: Lee Valley Tools Ltd.
p. 13: Yard Butler
p. 16-17: Arthritis Foundation
p. 21: Forester Shop

AgrAbility
Cultivating Accessible Agriculture

Arthritis Foundation℠

Arthritis and GARDENING

Gardening is one of America's most popular hobbies. In addition to the enjoyment it brings, gardening is a great activity for maintaining one's range of motion, bone density and strength, joint flexibility, and overall quality of life. It has also been shown to relieve stress, anxiety, and depression. Getting outdoors to soak up the sunshine and fresh air can help your mood, giving you a chance to relax and get your mind off the problems of the day.

Many people with arthritis pain or limitations may think they have to give up this popular pastime. However, with a little education, the right tools, and an open mind, you should be able to garden actively while reaping the benefits gardening provides.

WHAT DOES THIS BOOKLET COVER?

This booklet contains information about arthritis, how it can impact your ability to carry out gardening activities, and what might be done to minimize its effects while gardening. Following a brief discussion of the disease, its prevalence, and symptoms, the focus will be on ways to overcome the limitations arthritis can impose on the gardener, including:

- Preplanning your garden and activities
- Selecting gardening tools to help minimize pain and stress
- Preparing your body for gardening activities
- Managing arthritis discomfort while in the garden

On a larger scale, gardening can be a significant source of food for family and friends, an income generator, or even a career. With the growing popularity of venues like farmers markets, flower and vegetable production may be a viable option for some. Therefore, this booklet can also be useful for those involved in large-scale gardens or small-scale agriculture enterprises. It also provides suggested sources of additional information on a variety of garden topics.

WHAT IS ARTHRITIS AND HOW DOES IT AFFECT ME?

The term arthritis refers to the inflammation of a joint and the surrounding tissue. It is used to refer to over 100 diseases that are characterized by problems in and around joints. Arthritis is the number one disability-causing disease in America, affecting nearly 50 million people. It can impact one's home life, job, and hobbies, including gardening.

Several risk factors are involved with the onset of arthritis. Some are out of your control, such as age, gender, and genetic family history. However, other risks like obesity, certain types of athletic activity, and occupational hazards can be modified to help prevent or manage the disease. Thus, an accurate diagnosis is important. It is highly recommended that you see a health care provider if you

have any of the following signs or symptoms that appear to be joint-related: persistent pain, stiffness, swelling, redness/heat, difficulty flexing the joint, fatigue, weight loss, or nausea.

Gardening provides many physical and mental benefits. But tasks like bending, kneeling, pulling, lifting, and carrying can cause joint stress and pain for those with arthritis. Before beginning any strenuous activities, check with your health care provider to make sure you are physically fit for such activities.

HOW CAN PRE-PLANNING HELP MY GARDENING?

While some gardeners may dream of acres of vegetables, fruits, or flowers, this may not be possible or practical if arthritis or other physical limitations are involved. Therefore, it is wise to first determine your needs and desires, and to identify your abilities and limitations. Among the things to consider are garden type, size, and location; plants to grow; and, based on those decisions, the necessary tools and accessories. A good time to plan your garden is in the winter when you can take the time to assess your wants and needs. Begin looking online or through flower and vegetable seed catalogs to determine what you would like to plant. You may soon find that even a small plan can expand in size until it becomes too much work. Winter is also a good time to look into gardening classes. Most local Extension offices will have information on gardening resources and programs, as well as the Master Gardener volunteer training program.

Type of garden

While traditional gardening usually refers to raising plants in a ground-level plot, other types of gardens can be advantageous for those with arthritis. These include raised bed, tabletop, container, hanging basket, and tower or trellis gardens. Growing plants in these

alternative settings can minimize having to reach, bend, or kneel, which can reduce strain on the back, knees, shoulders, and arms. They usually are lower maintenance, requiring less weeding and watering when mulched and allow for easier harvesting. Also, they are not subject to as much soil compaction, because most raised beds are not walked on, which means better drainage and more aeration.

- Raised bed gardens are usually soil-filled wood, brick, or concrete block frames placed directly on the ground or other hard surface such as a patio or roof top. Such beds can raise the garden level from a few inches to several feet above the ground surface depending on the desires of the gardener. Straw bales or wood pallets can also be used to build a raised growing medium.

- Tabletop gardens are generally large wooden or plastic boxes placed on legs to raise the garden surface to table level or an appropriate height for the user. These are especially useful to those who use a walker, wheelchair, or scooter, or those who must sit or stand up while gardening.

- Container gardens can consist of pots, boxes, barrels, or any other portable container that is filled with a growing medium. However, it is important to use only containers that have never held toxic substances. Container gardens can be placed at various heights or hung on a wall, and they are especially useful for smaller spaces such as a front porch or patio.

- Tower and trellis gardens can be placed either on the ground or in containers. Many commercial kits are available for such gardens, or they can be fabricated from common materials, such as PVC pipes or bamboo canes. Towers and trellises can also be used in combination with containers for such purposes as hydroponic production (i.e., growing plants in water or other solutions, but without soil).

Size of garden

Whether you are gardening as a hobby or as a source of income, it is very important to plan out the size and scope of the garden. Taking the time to study each type of plant's growing requirements, space needs, and amounts of harvest will help to balance the physical tasks needed to grow those plants. In vegetable gardening, it is important to consider whether the crops produced will be for personal consumption only, or if they are being grown for an extended family, a farmer's market, or road-side stand. One tomato plant will yield several pounds of tomatoes while sweet corn typically often only produces one ear per plant. If melons, pumpkins, or sweet potatoes are being grown, more space will be needed to accommodate their long vines and larger produce. If containers or raised beds are going to be used, there are more variations and uses of space available than if a ground garden is tilled and planted. However, the size of the garden is determined by the size of the beds or containers and a limit the number of plants that can be grown.

Another item to consider is the length and width of the rows in a garden. Rows need to be wide enough for walking, carrying baskets and operating cultivating tools such as tillers. Wider row widths can also be mulched to help control weeds. Long rows require more walking, which may be difficult for some, especially when carrying heavy containers. If the rows are very long, consider placing a bucket or bale of straw half-way down for resting.

As mentioned before, if you are a beginning gardener, think small and grow your garden size as you gain experience and determine which produce you enjoy, and benefit from, the most.

Location of garden

Another important planning decision is where the garden (especially a traditional one) should be situated relative to natural drainage, exposure to the sun, storage shed, water source, and perhaps a

processing station (e.g., for vegetable washing). Locating the garden near water sources and storage will reduce the time and energy needed to haul tools back and forth, carry watering cans, drag a hose, and handle the harvested crop. If it has to be a considerable distance from the water source, think about an in-place irrigation system. Examples include dripper/soaker hoses and frost-free hydrants installed next to the garden. If walking is difficult, the use of a utility vehicle could be helpful.

In and around the garden itself, plan for paths that are wide enough to move around with your tools, equipment, and accessories. Paths should to be kept smooth with regular maintenance because walking on uneven soil and rocks is stressful on feet, ankles and knees. Uneven paths can also increase the risks for trips and falls. Some gardeners use small gravel or mulch to create easy paths to and from the garden and along the edges. The paths can be made of materials like coarse tree bark, mulch, or decorative stone pavers. Ideally, a garden path should be 18- to 24-inches wide or, if needed, wide enough to accommodate a wheelchair or walker. Avoid sharp turns and steep inclines to reduce the stress on the knee and hip joints. Plastic netting/sheets can aid in creating walking surfaces

What plants would be best to grow?

Whether growing fruits or vegetables for eating or flowers for their beauty, it's important to consider what to produce in light of the amount and type of work you're physically able to do. Often, selecting lower-maintenance plants can make gardening more enjoyable. Some types call for a lot of attention, while others require minimal care until ready to harvest.

Herbs like basil, chives, cilantro, mint, oregano, and dill can be easily grown in containers. Some are either perennial or self-seeding so they can easily grow in a garden plot year after year. Radishes are small, fast growers that are easily seeded and harvested. Greens such as lettuce, spinach, and kale are cool-weather crops and can be planted and harvested several times at the beginning and end of the growing season. However, some of these crops require ground harvesting in a conventional setting, which requires stooping or kneeling. Consider planting these crops in containers, raised beds, or even hanging baskets.

Vegetables such as tomatoes, peppers, and cucumbers can be staked to raise the growing and harvesting level up to a comfortable height. Peas and pole beans grown on trellises are easier to pick than beans growing low to the ground. In addition to the decreased need for kneeling or bending for these plants, raising the crops up can reduce disease and make pest management easier.

Perennial plants are good options for low maintenance gardening because they only need to be planted once. Your selection of flowers depends on the growing environment as well, but a few hardy perennials to consider include hostas, cone flowers, peonies, and irises. Gardeners need to be careful not to choose a high maintenance perennial that will need a great deal of pruning, shaping, or debris removal. For those interested in fruits, there are many cultivars of dwarf fruit trees that are ideal for small backyard gardens. They can often be kept pruned to less than five feet while remaining productive. With the right care, fruit can be produced for many years without the need to climb ladders.

WHAT KIND OF TOOLS AND ACCESSORIES CAN HELP ME?

For gardeners with arthritis, it is essential to do tasks in the safest way possible, while minimizing the physical impact on the back, knees, shoulders, arms, wrists, and hands. Ergonomic garden tools have features designed to keep one's body in a natural, neutral, comfortable position. The term "ergonomic" simply means that a tool is designed to minimize physical effort and discomfort while maximizing efficiency. These tools should be carefully selected to meet the physical limitations and abilities of the user.

Tools should fit the individual user. Consider such things as the tool's weight, handle size and shape, overall length, and gripping surface. Choose one that's the lightest weight option yet is sturdy enough to do the job. Although a fatter handle perhaps feels comfortable to the wrist, it may fatigue the hand more quickly; the thumb and forefinger should meet when wrapped around the handle. (Keep in mind that the size of human hands varies considerably with the individual.) A tool with a curved handle may help reduce the amount of wrist bending during a gardening task. The handle

should have a textured, non-slip surface to minimize the gripping strength or should be covered with a soft, pliable material to provide cushion for comfort, firmer grip, and minimal slippage.

Small hand tools

The best hand tools have handles designed to keep the wrist straight, which is a more natural position in which to do garden work. This allows for greater gripping strength while lessening the stress on hand joints. Some hand tools have forearm braces that let your arms do more of the work, reducing stress on the wrists. Others feature spring-assist handles, swivel grips, and ratcheting gears for pruning, thus making them easier to hold and requiring less hand and shoulder strength. A proper-sized grip may reduce hand fatigue and doesn't have to be squeezed as hard. Consider modifying tools that are already available. Talk to other gardeners to gather their thoughts on which tools work the best for those with arthritis.

Long-handled tools

Long-handled or telescoping tools permit the gardener to work standing up or sitting without having to reach, bend over, or kneel, thus reducing strain on back, hips, shoulders, and arms. They also provide more leverage and can be used with a two-handled grip, which tends to distribute the work load to the larger muscle groups. Adding an extra handle and/or a forearm brace to a long-handled tool makes for easier work from the shoulder and elbow.

Sitting/kneeling tools

Creating a place to sit and rest while working in your garden may relieve stress on the lower back, hips, and knees. A seat could be as simple as a large overturned bucket. Several types of rolling garden carts can be used to pull tools to the garden and provide a seat. Carts with larger tires are less likely to become stuck in loose

soils, preventing excessive pulling. Working directly on the ground should be avoided if possible, but if you must do so, use knee pads or a cushioned kneeling pad to support your knees and hips. Some kneelers come equipped with side rails that can aid in standing back up and flip over to serve as a seat.

Specialty tools

There are many types of specialty tools and equipment being developed to make gardening easier for everyone. For instance, there are seeding tools with interchangeable plates to directly plant seeds, even small ones like carrots and lettuce. Powered planting augers for setting flowering bulbs reduce the need for hand digging holes. Using sling-like harvesting containers that are worn over the shoulder, or using wheeled containers to carry produce can reduce the stress of lifting heavy, and sometimes awkwardly shaped, containers. These types of specialty tools are numerous and need to be considered in one's initial planning decisions.

Manufacturers have developed a line of tools that are especially designed for women. The tools are generally lighter and are equipped with smaller diameter handles. They may have broader applications, especially for individuals with arthritis.

Powered garden tillers make working the ground much easier than doing it by hand. Some tillers can even help to prepare raised

rows or beds. However, they can also expose the user to excess vibration and stress to the shoulder and elbow joints, especially in hard or rocky soils. A rear-mounted tiller is generally easier to operate. If you use a tiller, take frequent breaks and wear cushioned or anti-vibration gloves, as well as supportive shoes with good traction. When working in compacted soil it is best to take short, narrow passes to reduce the vibration or stress on the joints.

HOW CAN I PREPARE MYSELF FOR GARDENING ACTIVITIES?

With your planning decisions made, there are still some things that deserve your consideration before starting your gardening tasks. Key decisions are:

- the appropriate weather conditions and best time of day for gardening
- apparel that provides both comfort and protection
- pre-gardening exercises to get your body ready for action

Weather conditions/time of day

While you may enjoy getting outdoors to garden, sometimes weather can hamper that enjoyment. High temperatures and exposure to intense sunlight, even for a short period of time, may lead to serious health risks, especially for individuals taking certain types of medication. Check your prescription medication regarding sun exposure. If you're going to work when it's hot, plan on drinking plenty of liquids (but not sugary or caffeinated drinks), and take frequent rest breaks in shaded areas. Eat healthy foods to keep yourself energized. Consider gardening in the early morning or late afternoon when the sun's rays are less intense and it is generally cooler.

To help you maintain a good working pace, schedule your gardening activities around the time of day when you feel your best and when the weather is most pleasant. However, no matter what time you choose, listen to your body. Promise yourself that if what you are doing starts to stress your joints, you're going to stop and rest BEFORE you start hurting. If the job becomes too much to finish on your own, ask for help. Family and friends are usually happy to pitch in if it means reducing your pain. It also provides you an opportunity to share the produce from your garden.

For gardeners who run a fruit or vegetable stand or a farmers market booth, the schedule may be more difficult to control while still remaining profitable. Adverse weather and long work hours can significantly affect joint stress and pain. Be prepared for the day with plenty of liquid to drink, a shade tent, chair or stool, and appropriate clothing.

Apparel

Protect yourself from the sun by wearing a hat and applying sunscreen (SPF 30 or more) to exposed skin, reapplying every two hours. Plan to wear gloves, which not only provide protection for the skin, but can reduce stress to the hands when lifting, carrying, and gripping. Preferred gloves have a non-slip surface and extra padding. When choosing your clothing for gardening, long sleeves and pants can protect your skin from injury, but may make you hot, so choose light-weight clothing items. Some pants have reinforced knee patches or padding as well. Proper footwear is very important: wear solid closed-toe shoes with good soles for traction and grip, or boots that provide ankle support. Other protective items include insect repellant, sunglasses to reduce the glare from the sun and protect the eyes from foreign objects, and hearing protection when working with power tools like tillers.

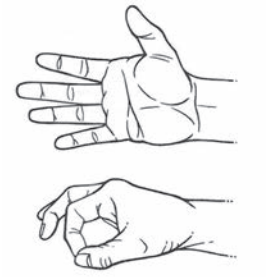
Pre-gardening exercises

It's always a good idea to warm up and cool down by stretching before and after you garden. Stretching lubricates the joints to reduce inflammation and protects those joints while working. Make sure you stretch all the major body parts likely to be used during gardening, especially the legs, back, and shoulders. Exercise slowly and for only a few repetitions instead of trying to accomplish a large number. The following figures show a few good stretching exercises that will help increase joint strength and flexibility. They can be done standing or sitting, depending on your mobility. Ask your healthcare provider to suggest exercises that would be right for you and your activities.

THE ARTHRITIS FOUNDATION RECOMMENDS A MINIMUM OF 4 REPETITIONS OF EACH EXERCISE

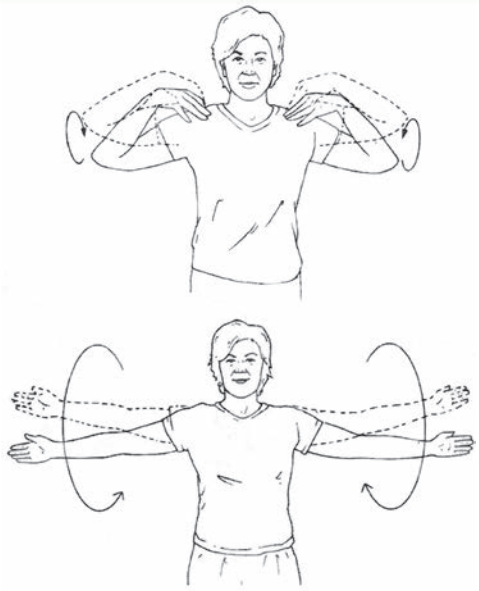
Trunk Rotation

- Cross hands or place them on hips.
- Twist trunk (at waist) to look over one shoulder.
- Repeat in opposite direction.



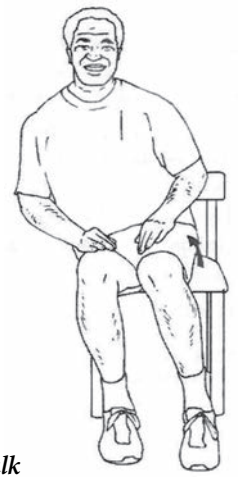
Finger O

- Touch tip of thumbnail to tip of index fingernail making an "O" shape.
- Open hand widely after each "O".
- Repeat with each finger.



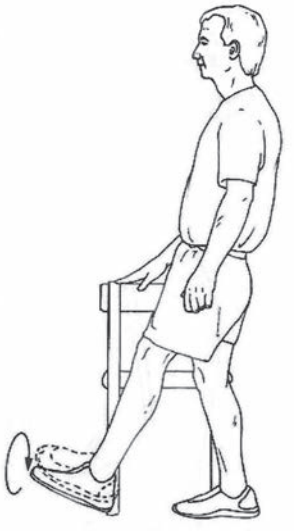
Arm circle

- Rest hands on shoulders, elbows pointed out.
- Make circles with elbows varying size and direction of circles.
  - Increase intensity by positioning arms outward at shoulder level.



Hip walk

- Sitting up straight on a chair, "walk" forward to edge of chair by lifting one hip up and moving forward, then the other hip.
- "Walk" back, alternating with one hip up and the other on the chair.



Ankle circle

- While sitting or balanced on one leg, move foot around in a slow, large circle.
- Repeat with other foot.

HOW CAN I MINIMIZE ARTHRITIS DISCOMFORT WHEN I AM GARDENING?

Pain management is something gardeners with arthritis should understand. When the muscles are used for gardening work or exercise, the blood flowing to the muscles increases while oxygen decreases, which can cause the muscles to get sore. Joint pain can occur from overuse of that joint or other inflammation in the body. It's also important to remember that some muscle soreness may be delayed, so you may not feel any pain until after you are finished gardening. In this case, be prepared to give your body a rest before returning to work. No matter what, as you are gardening, it's important to be observant of what your body is telling you. Some key points to minimizing inflammation and pain are:

- maintaining proper posture
- pushing, lifting, carrying, and digging correctly
- alternating gardening tasks and taking breaks when needed

Proper posture

Keeping the back as straight as possible, especially when lifting, can lessen the stress on ligaments, tendons and joints—and thus decrease the chance of injury. Proper posture can also reduce muscle pain and fatigue. If you find yourself slumping, straighten up and get back into a good straight-back posture position. Don't twist or rotate the lower back when moving about or gardening. Twisting the lower back, especially when combined with bending, is a major cause of back injury. Minimize the time working in the same posture by frequently changing the position in which you stand or sit. If kneeling or sitting to garden, bend forward at the hips in order to help keep the back straight. Eventually, all these habits will become natural.

Try to avoid kneeling if at all possible. However, if you have to kneel, use one knee only. Kneeling on both can cause you to stretch

your back, leading to more back pain. Avoid lowering yourself to the ground without using some type of support such as a shovel handle. A kneeling bench with supports on each side to hold on to can provide support for gently lowering and rising when you're finished, as well as a cushion for the knees.

Pushing, lifting, carrying, and digging

Good body mechanics includes letting the stronger parts do the majority of the work. When lifting or pushing heavy objects, make sure to use your hips, thighs, and knees instead of your lower back. This is done by bending the knees while keeping the back straight and then using your leg muscles to raise the object. When lifting or carrying, keep the arms and object as close to your body as possible to protect the back and shoulders. When digging with a shovel, first lift the soil then turn the entire body before dumping the soil. Avoid twisting the body, and don't try to throw soil or mulch that's wet, heavy, or sticky.

Alternating tasks and taking breaks

Consider changing your garden tasks every 20 minutes or more often as needed. This helps ensure that you use different parts of your body and different muscle groups. Varying your gardening activities minimizes the repetitive stress placed on the spine, joints, and muscles.

Take frequent breaks so that you can stretch, get a drink of water, and evaluate what you want to do next. Stop altogether if you feel fatigued. Many injuries happen when a person is trying to do that 'one last thing.' If you experience stiffness, soreness, swelling, or pain, apply ice to the tender area for 15-20 minutes. Icing can reduce the swelling and pain. Gentle stretching in that area can also help. If the pain persists or becomes more intense, stop working and call your

health care provider. Medication and therapy are other options for pain management.

SMALL-SCALE FRUIT AND VEGETABLE PRODUCTION

Gardening for oneself is often very satisfying and produces just enough crop for an individual's friends and family. But a small personal garden can grow in size and production to the point where it becomes a small-scale business. Oftentimes, we see gardeners selling their abundance of fruit and vegetables at road-side stands or farmers markets. A small orchard of fruit trees might begin to produce enough that the grower can begin to supply a local store or restaurant. When hobby gardening takes this step into small-scale production, the physical and mental demands on the gardener increase as well.

In addition to the possible increase in working hours and physical tasks related to planting, maintenance, and harvest, gardeners may also be increasing the amount of stress or overuse of their joints. Many of the suggestions in this publication can still be used at this level of production, but some of the tools used may be inadequate.

Before expanding your gardening operation, consult with others who have been successful. You can ask your local Extension educator for more information. Carefully assess what a larger operation will require of you economically, physically, and environmentally. For example, if you are going to expand into growing in a greenhouse operation, weigh the costs of adjustable tables and hanging bars for baskets against the need to constantly bend or stretch when maintaining plants. Using wheeled carts in greenhouses and automatic watering systems can also reduce the work load. Grow your operation at a pace that allows you to adjust for the added demands.

WHERE CAN I FIND ADDITIONAL INFORMATION?

This booklet has covered a variety of topics ranging from physical limitations of the body due to arthritis, assistive tools and accessories, and garden planning. However, because arthritis will affect every individual differently, more information may be needed.

- Arthritis Foundation - www.arthritis.org
- American Chronic Pain Association - theacpa.org
- Centers for Disease Control - www.cdc.gov
- eXtension Master Gardener - www.extension.org/mastergardener
- National AgrAbility Project - www.agrability.org
- National Gardening Association - www.gardening.org
- The Toolbox Assistive Technology Database - www.thetoolbox.info

ACKNOWLEDGEMENTS

Contributing writers:

Amber D. Wolfe
Arthritis Foundation

Bill Field
National AgrAbility Project

Paul Jones
National AgrAbility Project

Steve Swain
National AgrAbility Project

Jon Smith
National AgrAbility Project

Other contributors:

Michele Andwele - Arthritis Foundation
Larry Caplan - Purdue Extension
Lani Carlson - Maine AgrAbility
Fadi Fathallah - CalAgrAbility Project
Karen Funkenbusch - Missouri AgrAbility Project
Kayla M. Funkenbusch - University of Missouri
Jan Johnston - Oklahoma State University
Stacey Bealmear-Jones - University of Arizona
Rosie Lerner - Purdue Extension
Esmeralda Mandujano - CalAgrAbility Project
Gabriel A. Nicolazzi - University of Missouri
Sharry Nielsen - Nebraska AgrAbility
Linda Tarr - Indiana AgrAbility Project
Randy Weigel - University of Wyoming

The Arthritis Foundation is the Champion of Yes. We lead the fight for the arthritis community through life-changing information and resources, access to optimal care, advancements in science and community connections. Our goal is to chart a winning course and make each day another stride towards a cure. Arthritis affects approximately one-third of all adult farm and ranch operators and is considered one of the leading causes of disability in the country. The Arthritis Foundation has partnered with the National AgrAbility Project to provide education and support of agricultural producers and their families who have been affected by arthritis so that they may continue to live a productive life in agriculture.

Arthritis & Agriculture

www.arthritis-ag.org
1-800-783-2342

About AgrAbility

The vision of AgrAbility is to enhance quality of life for farmers, ranchers, and other agricultural workers with disabilities. While the term "disability" often brings to mind conditions such as spinal cord injuries and amputations, AgrAbility addresses not only these but also many other conditions, such as arthritis, back problems, and behavioral health issues.

AgrAbility is sponsored by the U.S. Department of Agriculture (USDA) and consists of a National Project and State/Regional Projects (currently serving 20 states).

For more information about AgrAbility or to locate an AgrAbility Project in your area, visit *www.agrability.org*.

AgrAbility
Cultivating Accessible Agriculture

Arthritis Foundation℠