

Things to Keep in Mind

When modifying tractors, trucks or other machinery, remember that changes should not interfere with the ability of other people to use the equipment.

Cutting and welding should be minimized when possible so as not to decrease the tractor's resale value.

Reference

Prather, T. (2002). *Adaptive controls for tractors and machinery*. Knoxville, TN: University of Tennessee Agricultural Extension Service.

Loan Library

Many of the products mentioned in this fact sheet are available for short-term loan from the West Virginia AgrAbility loan library. Call 800-841-8436 to see what is available for borrowing.

Need More Information?

To learn more about any of these tractor modifications, including do-it-yourself tip sheets or a list of vendors, call West Virginia AgrAbility toll free at **866-262-2875**. You can also view the National AgrAbility Project's assistive farm technology database at www.agrabilityproject.org/search/index.cfm.

Working together, we can find the equipment modification resources you need to meet the changing needs of your farm . . . and you.

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Extension Service
West Virginia University

NWVCIL

Breaking Barriers...Bridging Paths to Independence



Individuals with arthritis, lower body weakness, amputations, balance difficulties, or decreased grip strength may have trouble:

- *Safely climbing on and off a tractor*
- *Operating controls or*
- *Turning to see behind them*

There are no universal solutions for these issues. But there are a lot of options, and none of them have to involve the expense of a new tractor.

Tractor Modifications for Changing Lives



Commercial Resources for Modifications

Bubco, Inc.
800-474-2532
www.bubco.com
Manufactures the Triangle Quick Hitch.

Deere & Company
800-503-3373
www.deere.com
Deere fabricates a line of "Step-Kits" with integrated hand holds that are available for their 10-55 Series Row Crop Tractors.

Jiffy Hitch Systems Inc.
800-786-2829
www.jiffyhitchsystems.com
The company's web site features a video of the hitch in action.

Life Essentials
765-742-6707
www.lifeessentialswb.com
Designs agricultural platform and pilot lifts, as well as lifts for vehicles and homes. Will custom build to suit individual needs.

K & M Manufacturing
800-328-1752
www.tractorseats.com
Fabricates bolt-on added steps, hand holds and mirrors for some models of John Deere and Case/IH tractors.

The company also makes a variety of replacement tractor seats for all brands that are designed for comfort, support and stability.

Solutions to common problems:

- **Improved seating** for increased comfort by reducing jostling and vibration. Modern seating systems incorporate air, springs, shock absorber suspensions or cushions. Some also slide back and forth on the base, reducing fatigue when operating in rough conditions or at uneven travel speeds. A swiveling base reduces the need to twist in the seat to monitor equipment.



- **Additional or improved steps and handholds** that improve safety when entering and exiting the tractor. A common tractor modification replaces factory steps with a new set, which has a lower bottom step and at least one additional step.

Some tractors have the bottom step as high as 24 inches or more from the ground, which is far too high for most people. A step height of 16 inches is much easier to reach.



When attaching steps and hand holds, steps should be welded or bolted to the tractor frame or existing steps. Steps should be made of steel with non-skid, non-slip tread materials.

- **Lifts** that enable individuals with limited leg mobility to access the tractor seat. Lifts can consist of a simple hydraulic platform (on which the driver stands and is raised) or a chair lift mounted either directly to the tractor or onto a truck/trailer.

The distance of transfer from the lift seat to the tractor seat should be minimal to lower the risk of falling. Transfers should occur on level ground.

Hand controls should be properly padded to minimize potential bumps and bruises during transfer.



- **Quick hitches** that are self-attaching to eliminate the need for getting up and off the tractor when attaching implements. Two popular types are the drawbar 'quick' hitch and the three-point 'quick' hitch, which use adapters on the tractor and the attachment that allow the driver to remain in the seat when hitching.



While many models exist, the Quick Hitch® and the Jiffy Hitch® are some of the most widely available.

- **Extensions for controls** that reduce the effort necessary for operating a tractor. Whether choosing commercial hand controls or designing new hand controls, use ergonomic guidelines that can be recommended by an AgrAbility professional or an occupational therapist.



Reduce vibration, which aggravates joint conditions like arthritis, by wrapping controls in visco-elastic material (from Viscolas or various other grip tape manufacturers) or by wearing vibration-reducing gloves.

- **Additional mirrors** can be mounted inside or outside the cab to increase visibility to the rear and decrease the need to turn the head or twist in the seat to check on what is going on behind the tractor. Another possibility is to use closed-circuit cameras that can be mounted to discs, plows and other implements.



- **Spinner knobs** for better steering control for individuals with arthritis or prosthetic devices. Modern tractors with power steering require little steering effort, but a variety of conditions can make gripping a normal steering wheel difficult. Control handles should be 1.5 to 2 inches in diameter.



Also consider adding a plastic extension to the tractor or truck ignition key to help provide more gripping surface and reduce wrist strain.

M. D. Products, Inc.
800-637-7631
www.md-products.com
Fabricates after-market fenders with steps for two-wheel drive John Deere and Case/IH tractors.

Northern Tool & Equipment
800-556-7885
www.northerntool.com
Manufactures agricultural equipment including quick hitches and jiffy knobs.

The Roho Group
800-851-3449
www.therohogroup.com
Fabricates cutting-edge seat cushions with air filled cells to absorb road vibrations that cause spinal cord compression and lower back pain.

Viscolas
800-548-2694
www.viscolas.com
Manufactures orthotics, gloves, tool wraps and other products designed to reduce the level of harmful vibration absorbed by the body.

Disclaimer: This list does not represent an endorsement by West Virginia AgrAbility, and is provided only as an introduction to the many vendors that produce adapted products.

Please contact West Virginia AgrAbility for a comprehensive list of products and vendors to meet your needs.