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*The National  
Grant Program  
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University of  
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Cooperative Extension

Easter Seals

## AgrAbility for Pennsylvanians Helps Maurer Get Back on Track

In 1966 Richard and Beth Maurer bought Richard's family's farm. Maurer never considered doing anything other than farming. "I grew up with it [farming], liked doing it, and stayed with it," he said. Maurer's current farm operation includes 450 acres, a 60-cow herd of Holsteins, 60 head of heifers, and 125 steers.

Five years ago, at age 56, Maurer had a stroke. He spent a total of 59 days in the hospital and rehabilitation. During his time in rehabilitation he said his mind was on relearning everyday tasks, not on farming. "The last week in rehab they told me I could possibly go home at the end of the week and then it hit me," Maurer remembered.

For the first year after the stroke, which affected his right side, he was unable to do much inside or outside the house. Gradually, as he recovered, he made his way outside with the use of a cane. As Maurer walked around the farm he would, "try what I could and couldn't do. The doctors told me I would be starting over. One day, I went to run out feed and all the switches looked the same [to me]. I took time and thought about it and it came back to me," he noted.

A short time after he got home from rehab, his sister-in-law read about [AgrAbility for Pennsylvanians](#) in a farm magazine. She called Pennsylvania State University (PSU) to find out more about the program. AgrAbility for Pennsylvanians is a partnership between PSU Cooperative Extension and Easter Seals Central Pennsylvania. AgrAbility staff worked with Maurer suggesting a variety of modifications for his operation. Staff connected Maurer with the Pennsylvania Office of Vocational Rehabilitation (OVR), which provided financial assistance that made it possible for him to make the needed improvements in his milking system.



Maurer using the monorail track for moving milking units between cows.  
Photo courtesy AgrAbility for Pennsylvanians.

## Facts About Strokes

Strokes are the third leading cause of death in the United States. The National Stroke Association reports that for 160,000 of 730,000 Americans who have a stroke annually, the stroke is fatal. A stroke is a life-altering event for the survivor. In the rural setting, strokes affect everyone connected with the survivor and his/her life, work, and farm/ranch business activities.

**Definition:** A stroke is a brain injury caused by an interruption of the blood supply to the brain. (Family Caregiver Alliance, 1999.)

### Causes:

(1) *Thromboses* account for 60% of all strokes. A thrombosis is a gradual narrowing and eventual blockage of a brain or neck artery where fatty deposits and cholesterol have built up.

(2) *Embolisms* cause about 20% of all strokes. An embolism is a blockage of the brain or neck artery by an “embolus” or clot. Clots can form in the heart or other parts of the body, or they can be fatty deposits in the linings of the arteries that break off and travel to other parts of the body.

(3) *Hemorrhages* cause about 20% of all strokes. A hemorrhage is a rupture of an artery in or on the surface of the brain. A hemorrhage can be caused by an aneurysm, a thin, weak area on an artery wall, or a congenital malformation of the brain’s circulatory system. (Family Caregiver Alliance, 1999.)

**Warning Signs:** Transient ischemic attacks (TIAs) sometimes precede a stroke. TIAs are temporary interruptions of blood flow within or leading to the brain. A stroke happens when the blood flow is permanently cut off to or within the brain.

Even if the symptoms are painless and disappear, the following are warning signs that a stroke may soon occur.

1. Sudden numbness, weakness, or paralysis of the face, arm, or leg, especially if these symptoms are on one side of the body.
2. Unusual blurred or decreased vision in one or both eyes.
3. Difficulty understanding simple statements or speaking.
4. Loss of coordination or balance or dizziness especially if other symptoms are present.
5. Sudden unexplained severe headache with localized pain.
6. Difficulty swallowing.

Dial 911 for help if any of these symptoms occur. Every minute counts. The longer a stroke goes untreated, the greater the damage. Emergency medical care should be sought for a stroke as quickly as it is sought for a heart attack. (Mayo Foundation for Medical Education and Research, 1996-1997)

**Effects of a Stroke:** The after effects of a stroke depend upon many variables (e.g., location and extent of the stroke, how quickly the body repairs the blood supply to the brain, and how soon other areas of brain tissue can take over the work of the damaged cells). Usually, a stroke involves one side of the brain. The effects may be significant if a large portion of the brain is damaged; effects maybe slight if a small portion is affected.

*A stroke that involves the right hemisphere/side of the brain can cause difficulties on the left side of the body including: weakness (hemiparesis); paralysis (hemiplegia); lack of coordination of the arm, leg, and face; lack of sensation in the left side of the body; an overall lack of peripheral vision; problems judging distances; and an inability to think clearly.*

*A stroke that involves the left hemisphere/side of the brain can cause difficulties on the right side of the body including: weakness, paralysis, lack of coordination of the arm, leg, and face; lack of sensation in the right side of the body; aphasia (e.g., slurred/distorted speech; difficulty listening, writing, reading; difficulty understanding numbers and others' speech); and slow, cautious, or disorganized behavior. Other effects of a stroke can include difficulty controlling emotions (e.g., unexplained crying, anger, laughter, or inappropriate emotional outbursts); depression; sleep or appetite disturbance; difficulty with adjusting to any lifestyle changes; and difficulties with bowel/bladder control. (Mayo Foundation for Medical Education and Research, 1996-1997)*

**Recovery and Treatment:** Researchers have found that immediate medical intervention and individualized treatment within the first hours after a stroke can reduce the extent of brain damage. After the stroke survivor's condition is fully stabilized, their rehabilitation can begin. Each stroke survivor's symptoms are unique. A rehabilitation plan may include retraining in speech, mobility, activities of daily living, and how to use assistive technology, and in regaining perception of body placement and muscle function.

**Controllable Risk Factors:** Controllable risk factors include high blood pressure, obesity, diabetes, stress, lack of exercise, poor diet, smoking, drinking, unnecessary drug use, and elevated cholesterol. (National Stroke Association, 1999)

**Support Groups:** After rehabilitation many farmers/ranchers/farm workers or their family members and caregivers need support. Such support can be found through state AgrAbility Projects and their peer support networks. Other community support may be available through hospitals, independent living centers, senior citizen centers, disability service providers, or county human and social services. Resources and support groups can also be found on the Internet.

## References

- Family Caregiver Alliance, 1999, Fact Sheet: Stroke.
- National Stroke Association, 1999, *Stroke Facts: Brain Attack Statistics*.
- American Heart Association, 1999, Stroke (Brain Attack).
- Mayo Foundation for Medical Education and Research, The Division of Cerebrovascular Diseases 1996-1997. (See resource section on page 6.)

## Organizations

### American Heart Association

National Center  
7272 Greenville Avenue  
Dallas, TX 75231  
Phone: 214-373-6300  
800-552-6321 (Stroke Connection)

<http://www.americanheart.org>

AHA affiliates often sponsor stroke programs, clubs, or support groups.

### Easter Seals

230 West Monroe Street Suite 1800  
Chicago, IL 60606  
Phone: 312-726-6200 or 800-221-6827

<http://www.easter-seals.org/resources/edu/stroke.asp>

provides information about strokes and <http://www.easter-seals.org/services/medsup.asp> provides information about stroke support groups.

### National Stroke Association

96 Inverness Drive East, Suite I  
Englewood, CO 89112-5112  
Phone: 303-649-9299 or 800-STROKES (787-6537)  
<http://www.stroke.org>

**Assistive Technology Solutions for Farming/Ranching After a Stroke**

Assistive technology (AT) solutions can benefit many farmers and ranchers affected by a stroke. Solutions vary depending upon the severity of the stroke and the areas of the farm/ranch that require access. Modifications to the farm or ranch home may become the first priority in order to allow the farmer/rancher recovering from a stroke to live comfortably. Other modifications and AT may be added to the farmstead/ranch to allow the farmer/rancher access to or the ability to work on the farm/ranch, in work areas (e.g., the shop, grain storage sites, livestock housing), and with farm/ranch implements and self-powered equipment (e.g., tractors, trucks, and combines).

Some of the lasting effects of a stroke (e.g., paralysis, weakness, lack of sensation, forgetfulness, loss or difficulty with speech and writing) create situations for the farmer/rancher that are similar to those for the farmer/rancher with amputations, back injuries, severe arthritis, aging, or cerebral palsy. AT ideas regarding tractors and machinery, utility vehicles, and livestock feeding and care systems are available in the Fall 2001 AgrAbility Quarterly on Arthritis, found on the National AgrAbility Project web site at [www.agrabilityproject.org](http://www.agrabilityproject.org). This AgrAbility Quarterly, therefore, will focus on AT suitable for the farm/ranch home.

**Farm/ranch home**

If a farmer/rancher recovering from a stroke requires the use of a walker, powered three-wheel cart, or wheelchair for moving around, a ramp may be required for him/her to get into and out of the home. Doorways may need to be widened and should have less than a 1/2" threshold to accommodate someone who uses a wheelchair. If the farmer/rancher has weakness in an arm/hand and lacks grip strength, standard doorknobs can be replaced with lever handles or simple doorknob turners for ease of use. A motion-activated outdoor light can be installed to illuminate an area without someone having to reach for and operate a switch.

Inside the home, main traffic areas should be kept clear of obstacles and widened for accessibility. Low maintenance hard floor surfaces or low-pile carpets are the easiest on which to maneuver a walker or wheelchair. If the farmer/rancher has difficulty with walking or balance, consider adding handrails on both sides of stairs, hallways, and other walking paths. Also remove loose rugs, mats, and carpets from stairs. For added visual clarity, install more lighting, paint steps an easily seen color, or apply a visible strip of anti-slip tape on stair steps. For a tactile marker, apply textured thread tape on stair step edges.



Scooters, such as this model from Amigo Mobility International, may help improve an individual's mobility around the home and farmstead.



A simple door-knob extender can make opening a door easier.



Adding anti-slip tapes to steps, landings, thresholds and angled surfaces can improve visibility and traction.

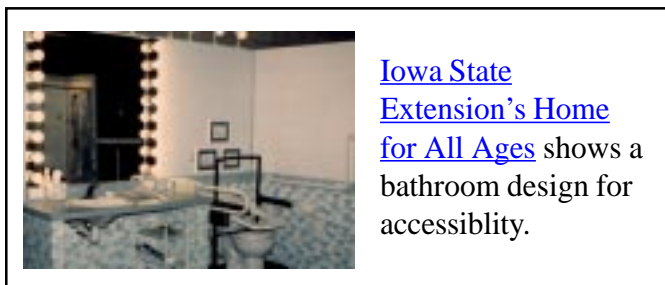


**Assistive Technology Notes**

**Strokes**

Light switches and electric outlets may need to be modified for someone using a cart or wheelchair. Consider pull switches, rocker or button switches, motion sensor switches, or voice activated environmental controls. If the farm/ranch home has multiple levels, a chair lift or simple elevator may be needed. Another option may be to convert a first floor room into a bedroom. Sometimes, by rethinking the overall home layout or living patterns, useful changes can be identified that are inexpensive. A good reference to review for examples is the “Modest Home Makeover Program.”<sup>1</sup>

The bathroom is important for personal independence and should be made as accessible as possible. The Americans with Disabilities Act Accessibility Guidelines (ADAAG) set standards for wheelchair access and placement for grab bars/handrails around a toilet and in the bathroom in general. Installation of a thermoscopic (i.e., temperature controlled) hot- and cold-water mixing valve may be important, especially in the shower, for a farmer/rancher who has lost sensation on one side of his/her body due to a stroke.



[Iowa State Extension’s Home for All Ages](#) shows a bathroom design for accessibility.

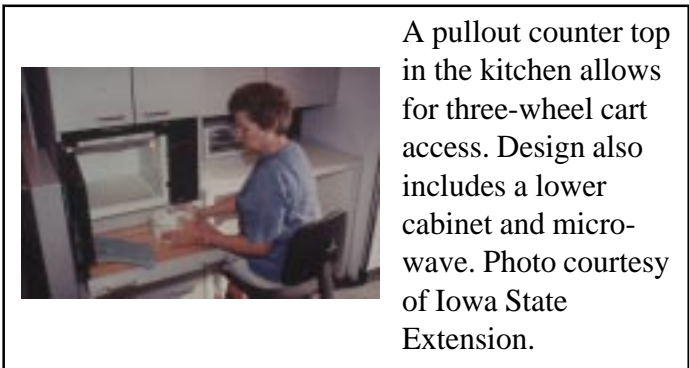
When evaluating the farm/ranch home’s accessibility, remember the farmer/rancher’s everyday activities/needs, like using the telephone and reaching items in the kitchen cupboards or in

bedroom closets. A voice-activated or large button telephone, which allows easy button access for dialing, or a speakerphone, which allows hands-free use while talking, may greatly assist a farmer/rancher who has limited coordination and arm strength.



Large button phones make dialing easier for individuals with limited vision or lacking fine motor control.

To get items from high shelves or cupboards, a farmer/rancher using a wheelchair could try one of a variety of commercially available reachers. To make kitchen cabinets and hall closets accessible, build in sliding shelves and drawers, lower closet rods, or add height-adjustable electrically controlled cabinets.



A pullout counter top in the kitchen allows for three-wheel cart access. Design also includes a lower cabinet and microwave. Photo courtesy of Iowa State Extension.

The resource section of this Quarterly (page 6) provides web sites with products for self-care (e.g., grooming, dressing, eating). Examples of accessible kitchen designs and features are provided in the “Home for All Ages” and “Independent Living Options”.

<sup>1</sup>“Modest home makeovers to improve farmhouse accessibility: How our AgrAbility team used this fast, affordable alternative to remodeling with the Miller family,” *Technology and Disability* 4 (1995) pp. 49 – 60, M. H. Years, Iowa State University.

## Assistive Technology & Accessibility Ideas For Farm/Ranch Homes

**Family Caregiver Alliance** supports and assists caregivers of brain-impaired adults through education, research, services and advocacy.

<http://www.caregiver.org/factsheets/stroke.html>

The **Internet Stroke Center** is a non-profit, educational service of Washington University School of Medicine.

<http://www.strokecenter.org>

The **Division of Cerebrovascular Diseases** website provides information to both patients and physicians on the Division of Cerebrovascular Diseases, its research activities, staff, education programs, and more.

[http://www.mayo.edu/cerebro/education/stroke\\_warning.signs.html](http://www.mayo.edu/cerebro/education/stroke_warning.signs.html)

### Home Design

Home for all Ages

<http://www.extension.iastate.edu/housing/elderly/hfaa.html>

Options for Independent Living, Showcase Model Home, Take a Visual Tour

<http://www.optionsil.com/Showcase%20Home.htm>

Wheelchair Accessible Homes

<http://www.waccess.org/>

Breaking New Ground Resource Center, Plowshares #19, Making Your Farmhouse Accessible and #11 Guidelines for Construction of Ramps Used in Rural Settings

<http://pasture.ecn.purdue.edu/ABE/Extension/BNG/plowsharelist.html>

### Chairlifts and Elevators

<http://www.silvercross-elevators.com>

**Door Knob Turner & Simple Door Knob Lever Extenders**

<http://www.lifewithease.com/doorturner.html>

### Ramps

ADA Accessibility Guidelines (ADAAG), Section 4.8, Ramps and Section 4.13, Doors

<http://www.access-board.gov/adaag/html/adaag.htm>

Portable Ramps

<http://www.friendlyhome.net/access.html>

### Anti-slip Tapes, Etc.

<http://www.heskins.com/>

### Three-wheeled Carts (Scooters)

*Amigo*, from *Amigo Mobility International*,

<http://www.myamigo.com/>

Journeyman, from *Life Essentials*,

<http://www.life-essentials.net/>

### Portable One-handed Vehicle Controls

<http://www.wheelability.com>

### Wheelchair & Wheelchair Accessories

<http://www.kansas.net/~cbaslock/mobil.html>

### Self-care Aids

<http://www.dynamic-living.com>

<http://www.bindependent.com>

### Kitchen Aids

<http://www.extension.iastate.edu/Pages/housing/agrability/gadgets-kitchen.html>

### Reachers

[http://www.westons.com/hh98\\_09\\_6.htm](http://www.westons.com/hh98_09_6.htm)

### Modified Telephones

<http://www.ameriphone.com/NewNavigation/Default.html>

**Volunteer Efforts Provide Direct Assistance to AgrAbility for Pennsylvanians Clients**

AgrAbility for Pennsylvanians is a partnership between Pennsylvania State University Cooperative Extension (PSU) and Easter Seals Central Pennsylvania (ES). AgrAbility staff report that relationships with several student groups and volunteer organizations have strengthened AgrAbility’s educational and direct client support efforts.

Three *Engineering Projects in Community Services* (EPICS) teams completed projects in 2001 that benefit AgrAbility staff, clients, and the general public. Two EPICS teams of mechanical and electrical engineering students designed and built remote control lifts on two model tractors. The models are used at agricultural and health events, and client site visits to demonstrate a working lift. Another EPICS team of four mechanical engineering students designed and built a model grain bin and gravity wagon. AgrAbility staff and county Cooperative Extension agents will use the models at state and county events to show the dangers of flowing grain.

For four years, the agricultural fraternities and sororities at PSU-University Park campus have organized and sponsored an Annual Penny War. This event raises money for an AgrAbility farmer. The farmer receives the award at a dinner planned and hosted each spring by one of the participating fraternities.

The Susquehanna Valley Mall continues to support AgrAbility through the ever-growing annual Fall Farm Fun Fest. Each year the mall organizes activities like auctions and scarecrow building contests to raise money for an AgrAbility farmer in their service area.

AgrAbility staff says that working with these organizations has been a win-win opportunity for all involved. “Wins” include additional program resources, educational opportunities for both the public and the volunteers, and financial assistance and information for AgrAbility clients.

**Project Staff**

**Connie D. Baggett**, Ph.D., is an Associate Professor and the AgrAbility Project



Director for the Agricultural & Extension Education Department at PSU. He has directed the project since its inception in 1994 with state funding and 1995 with U.S.D.A. funding. As the Principal Investigator, Dr. Baggett oversees all aspects of AgrAbility for Pennsylvanians.

**Linda Fetzer** is the AgrAbility Project Assistant and Outreach Coordinator for PSU’s Agricultural &



Extension Education Department. Fetzer has worked with the AgrAbility Project for over five years. Her background includes injury prevention education and outreach activities.

**David Troutman** joined Easter Seals Central Pennsylvania in July 2001 as the AgrAbility Case



Manager. Troutman has a degree in dairy science and has been a dairy farmer for over 13 years.

## Client Feature Story

## Strokes

### Continued from Pg. 1

Among the several changes Maurer made to his equipment and operation, those made to his milking system were of the greatest value to him. “The milking system is something we use every day,” he says. About three years after the stroke he decided to purchase automatic detachers for the milking units. The detachers, however, were heavy and made it difficult for Maurer to move the units between cows with his limited balance and use of right hand.

Maurer learned that [DeLaval](#) (a milking equipment company) made a track system (an overhead monorail) for moving milking units between cow stations. With help from OVR, Maurer purchased the new system, which made it easier for him to switch milking units between cows without using energy to carry the units. The DeLaval dealer waited to order the system until a new attachment for the milk-line connector (a one-handed snap-on for electricity and vacuum connection cluster) was available. Given Maurer’s limited use of his right hand, this new feature made

connecting the milking unit to the pipeline easier for him. The new system also made it easier for his wife to help with the milking.

Through his involvement with [AgrAbility for Pennsylvanians](#), Maurer has learned to look for alternative ways to do tasks. “I try different things, mainly things I have to get a hold of with my hands. Try welding with your left hand! You learn to do it whether you want to or not,” he commented. A positive attitude has been a major factor in Maurer’s continued success in farming. He says, “You just have to have a good outlook and keep going. There are days you get extra tired and can’t do something...do the best you can and keep going.”



DeLaval’s one-handed snap-on connection cluster for electricity and vacuum makes milking easier for Maurer.

The **AgrAbility Project** promotes success in agriculture for individuals with disabilities and their families through on-site assistance and educational resources. For additional information on the **National AgrAbility Project** or for a current list of state project sites, addresses and telephone numbers contact:

**University of Wisconsin-Cooperative Extension**  
**460 Henry Mall**  
**Madison, WI 53706**  
**866-259-6280 or 608-262-5166**

**Easter Seals**  
**700 Thirteenth St., NW-Suite200**  
**Washington, DC 20005**  
**800-914-4424 or 202-347-3066**

<http://www.agrabilityproject.org>

*NOTE: Mention or display of a trademark, proprietary product, or firm in text or figures does not constitute an endorsement by the U.S. Department of Agriculture, Easter Seals, the University of Wisconsin-Extension, or the National AgrAbility Project, and does not imply approval to the exclusion of other suitable products or firms.*

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