

AGRABILITY QUARTERLY



Promoting Success in Agriculture for People with Disabilities and Their Families

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Easter Seals, Inc.

Determination and flexibility describe this New Hampshire farmer

Over 85 years ago, the Putnam's farming tradition began near Piermont, New Hampshire. Bill Putnam grew up on a registered Holstein dairy farm and became part of the family's agricultural heritage by farming full-time after graduating from high school in 1974. Today, the Putnams milk 110 cows from their herd of 200 and raise alfalfa, corn, and grasses on 250 acres.

In the early 1990's, Bill began to experience migraine headaches and a tingling sensation on the left side of his body. Concerned that he may have a pinched nerve or even worse, may have had a stroke, Bill went to the doctor. His doctor was able to rule out a pinched nerve or stroke, but was unable to determine the underlying cause of Bill's symptoms. For 18 months, Bill worked with several doctors to determine the cause of his symptoms which included tremors and difficulty using his left hand and leg. In 1993, a specialist finally delivered the diagnosis to the 37-year old farmer — Parkinson's Disease. Bill began treatment immediately to slow the disease's progression and continued farming with his wife, Cindy, and their three children: Timothy, Carrie, and Dan.

As time passed, the disease affected Bill's balance, coordination, and walking speed, caused fatigue, stiffness, and heat sensitivity, and had an impact on his speech and mood. These symptoms made milking and driving a tractor extremely difficult and dangerous. By 1998, his tremors and other



Bill Putnam working on his 250-acre dairy farm near Piermont, New Hampshire.

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Client Story

Bill Putnam

symptoms had progressed to the point where Bill could no longer use a fork or even write his own name. He underwent pallidotomy surgery in an effort to suppress the disease’s effects on his left side. “It helped tremendously,” Bill said. “It’s really remarkable.”

Bill made a few of his own adaptations around the farm by installing handrails and additional steps to vehicles, before he had heard about the AgrAbility project from previous AgrAbility clients. In February 2004, he contacted the Northern New England AgrAbility Project serving Vermont, New Hampshire, and Maine. AgrAbility staff members, Therese Willkomm and Bill Snow, visited the Putnam farm that spring. After an agricultural worksite assessment, they suggested several ways the family could modify their operation to accommodate Bill’s changing abilities. Recommendations included: a utility vehicle to reduce walking and carrying five-gallon buckets of milk to feed the calves, a railing and cover for the gutter cleaner to prevent slips and falls, zippers for his shoes, and a canopy over his tractor to protect him from heat stress that exacerbated Bill’s other Parkinson’s symptoms. He tried a cooling vest but found the tractor canopy more effective for his situation.

AgrAbility helped coordinate Bill’s case with the New Hampshire’s Vocational Rehabilitation (VR) program. Dee Brown, VR Rehabilitation Technician, said, “It was a joy to work with Bill and get him what he needed. He was very appreciative and requested only items that were necessary.” Five years ago Bill didn’t think he needed any help. But he found the assistance from AgrAbility and VR very helpful and encouraging. “Bill (Snow), Therese, and Dee have been wonderful to work with.”

Bill doesn’t milk the cows anymore. His wife, Cindy, assumes a majority of the milking with help from their daughter, Carrie. Tim, their eldest son, does the feeding



Bill Putnam in utility vehicle outside his feedlot.

and cleaning along with his younger brother, Dan. Bill cares for the calves that are raised in hutches about 1,000 feet from the barn and drives the tractor for crop work. Bill said he always liked milking, but learned that there are a lot of other things he can do equally as well and enjoy. “You just have to be flexible,” says Bill. He credits a supportive family, many good friends and being productive for helping him manage this disease. Bill says “(I simply) can’t say enough how much family has helped out.” ❖

“Bill, Therese, and Dee (Northern New England AgrAbility Staff) have been wonderful to work with.”

*- Bill Putnam,
AgrAbility Client*

Parkinson's Disease

1817 James Parkinson, an English physician, was first to recognize, describe, and write about a group of In progressive symptoms he called Shaking Palsy disease. His contributions to medical knowledge resulted in Shaking Palsy being coined Parkinson's Disease (PD) in the 1860's.¹

PD is classified as a progressive disorder of the central nervous system that occurs when dopamine-producing neurons are damaged, or die, in a part of the brain called the substantia nigra (see figure 1). Dopamine is a chemical messenger in the brain that is responsible for the coordinated functioning of the body's muscles.

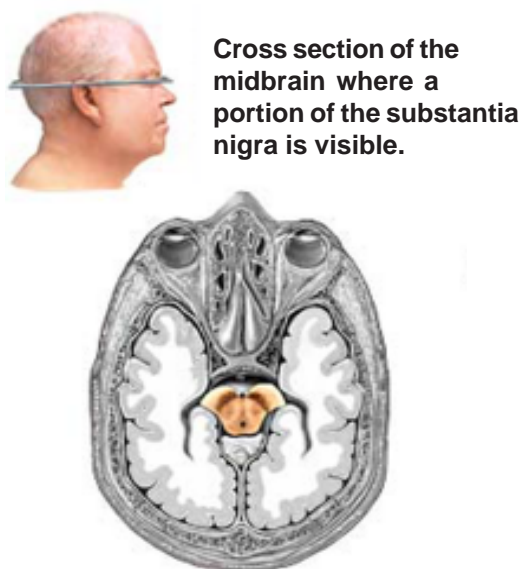


Fig. 1: Cross section of the midbrain with the substantia nigra area highlighted in the center.

There are four primary symptoms associated with PD: tremors, slow movements, stiffness, and balance problems. People are affected differently by the disease and may exhibit other signs or symptoms, such as small, cramped handwriting, stiff facial expressions, raspy or soft speech, depressive symptoms, pain, or loss of smell.²

In the United States, it is estimated that 60,000 new cases are diagnosed each year, adding to the 1.5 million Americans who currently have Parkinson's Disease. The average age at which Parkinson's Disease is diagnosed is 60; however, 10 to 20 percent of those diagnosed with

Parkinson's Disease are under age 50, and are referred to as "young-onset" Parkinson's Disease. Both men and women can develop Parkinson's and there is currently no cure for the disease.³

Causes of PD are unknown and researchers believe there may be several possible contributing causes, including a complex interaction between environmental and genetic factors. Increased risk for acquiring PD has been associated with demographic or intrinsic factors, environmental exposures and infectious diseases.⁴ Since no diagnostic tool currently exists, a final diagnosis of PD is made through clinical observations and a rather lengthy process of eliminating other possible disorders.

Treatment for PD symptoms include: medication, surgery, and restorative or experimental therapy. Several medications are available which affect the production of dopamine in the brain. The most commonly prescribed is Levodopa. Long-term use of levodopa-containing medication can lead to "off" episodes where symptoms return. At this point, other medications may be used in combination with Levodopa.

For persistent or severe symptoms surgery may be an option for some individuals. The most commonly performed surgeries are Pallidotomy and Deep Brain Stimulation (DBS). Pallidotomy uses a small electric probe to create a lesion to correct abnormally discharging nerve cells located in the part of the brain called the globus pallidus. DBS provides small electrical impulses to the brain in order to block the impulses that produce PD symptoms. Because many people with PD may have extreme fluctuations in motor control, the main benefit of DBS surgery is that it smoothes out these fluctuations. DBS has also been helpful in reducing tremors, slowness, stiffness, and involuntary movements. Restorative therapy, which is experimental and highly regulated, tries to increase the dopamine produced in the brain through stem cell transplants. For more information about common medications and surgical procedures currently used for PD, the National Parkinson's Foundation offers a summary of treatment options.⁵

Continuing to farm with Parkinson's Disease

The episodic and progressive nature of Parkinson's Disease can greatly affect carrying out farm chores and activities of daily living. As Parkinson's Disease progresses, patients may need to evaluate what they can realistically continue to do and what needs to be altered. Learning the most efficient methods to perform routine tasks is the first step in managing symptoms.

The symptoms of PD may result in decreased fine and gross motor skills, mobility, difficulty communicating, and lapses in memory. Increased fatigue, weakness, temperature sensitivity, depression and anxiety are also common issues. A combination of changing work responsibilities, a flexible schedule and simple adaptations to work areas or assistive technology products are methods to consider.

Changing work responsibilities and a flexible schedule may require the support of family or hired assistance. Exchanging work responsibilities with other family members can result in less labor intensive or time sensitive work activities. Having a flexible schedule which would allow for periodic rest periods may help with fatigue and anxiety and allow muscles to rest for subsequent work demands. The following paragraphs offer potential assistive technology solutions to meet individual needs.

Fine motor skills

Typical farm or ranch tasks involve the repair or maintenance of farm equipment and buildings. Fine motor skills are needed to manipulate hand and power tools. Ergonomically designed tools may reduce the stress to joints, use less energy and reduce unusual work positions. A ratcheting driver has an ergonomic, multi-position handle which provides maximum torque reducing fatigue (see figure 2). It is also more portable and less expensive than power equipment.



Fig. 2: A ratcheting driver with an ergonomic, multi-position handle.

Strength and endurance

Pneumatic tools reduce the force and energy necessary to complete tasks. The Palm Nailer® is easily held in the palm of the hand and allows the user to nail in any position, and in places a standard hammer cannot be swung (see figure 3). Hammering action begins with a light pressure on the nail and stops when the nail is set as desired.



Fig. 3: Palm Nailer®

Try BEFORE you buy!

Prior to purchasing a tool marketed as ergonomic, the buyer should test the tool to see if it meets their need. Not all tools labeled as ergonomic perform as described.

Activities of daily living

Lacing up work boots requires fine motor skills. Service zippers available through such companies as Magnum manufacturing or Red Wing Shoes make this task quicker and easier (see figure 4). By overlaying the service zipper on the eyelets of existing footwear, the service zipper is laced onto the footgear. The service zipper can be used with other shoes of similar eyelet holes.



Fig. 4: Magnum Service Zipper

Heat sensitivity

For some people with PD, the stress of working in the sun can cause fatigue and aggravate their symptoms. A sun canopy, hard or soft-side, can be added to a tractor or utility vehicle to reduce heat stress (see figure 5). The choice of canopy depends on the vehicle and on individual needs.



Fig. 5: Curtis Cab 4510 Hard-side for John Deere.

Mobility

Gross motor limitations, slow movements and fatigue experienced by many people with PD can make walking around the farmstead or between buildings difficult. A utility vehicle can help with mobility, save time and reduce fatigue. A number of tip sheets on choosing and comparing utility vehicles may help the farmer choose what would meet his/her specific needs. Tip sheets are available under utility vehicles on the AgrAbility assistive technology webpage and include comparisons of utility vehicles on a number of features and options. For this information go to:

<http://www.agrabilityproject.org/assistivetech/>.

Using a variety of strategies and agricultural assistive technology to reduce the symptoms of Parkinson's Disease will help the farmer remain in production

agriculture. A willingness to adjust to changing needs and to accept the support of others will hopefully make living with PD easier. ❖

Resources

- ◆ American Parkinson's Disease Association. <http://www.apdaparkinson.org/user/index.asp>
- ◆ Michael J. Fox Foundation. <http://www.michaeljfox.org/>
- ◆ National Parkinson Foundation. <http://www.parkinson.org>
- ◆ Parkinson's Disease Foundation. <http://www.pdf.org/>
- ◆ Parkinson's Health. <http://www.parkinsonshealth.com/>

Figure Credits

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Northern New England AgrAbility Project

During the 1960's the Vermont Rural and Farm Family Vocational Rehabilitation Program was the first and only formal program serving farm families affected by disabilities in the United States. The program has been funded by the Vermont Division of Vocational Rehabilitation for over thirty eight years. Daryl Lowry, the director of this project from 1972 - 1993, conducted presentations around the U.S. sharing the successes of supporting farmers with disabilities.

In its 38 years of existence, the Vermont Rural and Farm Family Vocational Rehabilitation Program has served over

8,000 farmers with disabilities. The program provides multiple services including: financial assistance towards farms, home site modifications, farm site assessments, health restoration, education and training, and cost share for farm labor while recovering from disabling conditions.

In 1991, Vermont received an AgrAbility grant that provided funding to expand its capabilities and improve existing services while establishing a partnership between the Easter Seal Society of New Hampshire and the Vermont Rural and Farm Family Vocational Rehabilitation Program. While the initial grant lasted only four years, services to agricultural producers continued without AgrAbility funds until 2003 when once again the University of Vermont, Extension was awarded an AgrAbility grant. The Northern New England AgrAbility Project provides services to farm families throughout Vermont, New Hampshire, and Maine.

The University of Vermont, Extension is partnering with ATECH Services, a private non-profit disability organization whose focus is on the application of assistive technology to increase independence at home, school, work and play. ATECH provides mobile outreach assistive technology services and has been in existence since 1994.

Each year ATECH assists over 4,000 individuals throughout New Hampshire. The mobile outreach unit provides on site assistive technology evaluation and exploration services. Small assistive technology equipment is loaned to agricultural producers for a trial period in order to determine the most appropriate and effective solutions.

The University of Vermont, Extension staff who work on the AgrAbility project include Brett Chornyak, principle investigator, and Bill Snow, outreach specialist. Project staff at ATECH Services includes Therese Willkomm, Ph.D., ATP, rehabilitation technology consultant; Susan Shaw, occupational therapist and rural rehabilitation specialist; and Jane Bell, coordinator of AgrAbility Services in Maine. ❖

Get to Know New England Agriculture

Vermont, New Hampshire, and Maine

Vermont: 6,400 farms
New Hampshire: 3,400 farms
Maine: 7,200 farms
Average size: 180 acres

Among states in the US, New England ranks first in number of maple trees tapped and wild blueberries harvested.

Northern New England AgrAbility Project

Serving Vermont, New Hampshire, and Maine

University of Vermont Extension, Rural and Farm
Family Vocational Rehabilitation Program
655 Spear Street
Bioresearch Laboratory
Burlington VT 05405-0107

Phone: 802-656-5433 or 800-571-0668
Fax: 802-656-5422
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Web site: <http://www.uvm.edu/~farmfam/>

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Northern New England AgrAbility Project Staff

Brett Chornyak is the principle investigator and co-project director with the Northern New England AgrAbility Project. Brett received a master's degree in Rehabilitation Services at Florida State University and has been the coordinator of the Vermont Rural and Farm Family Vocational Rehabilitation Program at the University of Vermont, Extension since 1996. He has been with the AgrAbility project for 9 years.

Bill Snow, the AgrAbility outreach specialist, worked at the University of Vermont, Extension for 34 years in a variety of positions including dairy herd management specialist, regional specialist, county agent, and 4-H agent. Bill has been with the Northern New England AgrAbility Project for 1.5 years working in Vermont.



Northern New England AgrAbility University of Vermont Staff (Pictured from left to right, Bill Snow and Brett Chornyak).

Therese Willkomm is executive director of ATECH Services, an assistant professor in the Occupational Therapy Department at the University of New Hampshire, co-director of the New Hampshire Technology Partnership Project and the Northern New England AgrAbility Project as well as an assistive technology specialist with the National

AgrAbility Project. She holds a Ph.D. in Rehabilitation Technology from the University of Pittsburgh and has over 22 years experience in providing/managing assistive technology services.



Northern New England ATECH Staff (pictured from left to right: Jane Bell, Sue Shaw and Therese Willkomm)

Sue Shaw serves as the rural rehabilitation specialist for the Northern New England AgrAbility Project and is an occupational therapist with ATECH. The majority of her work experience has been in an acute rehabilitation setting focusing on neurological impairments, neuromuscular diseases and orthopedic related injuries. Sue has been with the Northern New England AgrAbility Project for nearly a year.

Jane Bell is the rural rehabilitation specialist for the Northern New England AgrAbility Project in Maine. She is an elected member of the Farm Services Committee and an information specialist for the Autism Society of Maine. ❖

Mark your Calendars!

2005 National Training Workshop in Burlington, Vermont
November 7-10, 2005

This year, the National AgrAbility Project, in partnership with the Northern New England AgrAbility Project, is hosting the annual education and training workshop at the Wyndham Burlington on November 7-10, 2005. Please visit the National AgrAbility Project website for more information about the 2005 National Training Workshop at <http://agrabilityproject.org/>

Parkinson's Disease continued from page 3

Living with PD

A chronic, progressive disease produces an unknown sense of the future. The level of control over the course of the disease may be limited, but the person's attitude, how they adapt to the disease and how they manage the symptoms and limitations will affect the quality of their life.

Living with PD will gradually require adjustments to normal home and work routines. Eating a balanced diet high in fiber and fluids, taking calcium, and avoiding excessive amounts of protein will help manage the symptoms and the side effects of treatment. ⁶ Daily exercise will help keep bones and muscles strong and flexible and will improve overall functioning.❖

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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, Inc.
700 Thirteenth St., NW, Suite 200
Washington, DC 20005
800-914-4424 or 202-347-3066

<http://www.agrabilityproject.org>

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