

April 2004
Vol. 4, No. 3

In This Issue...

Client Feature
pages 1-2

Focus & AT Notes -
Feed Carts
page 3-5

State Project Feature -
Mississippi AgrAbility
pages 6-8

The National
Grant Program
of the
AgrAbility Project
is a joint effort of

The USDA Cooperative
State Research, Education
and Extension Service

University of Wisconsin-
Cooperative Extension

Easter Seals, Inc.

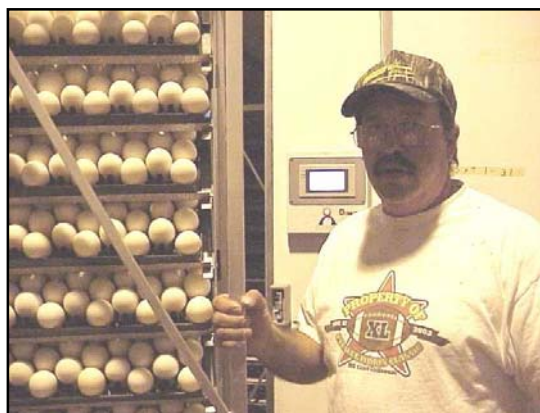
Special Feed Wagon & Magnified Touch Screen Help Mississippi Farmer Accommodate Vision Loss

In 1969, Paul Carruba began raising ducks on the 12-acre farm that has been in his family since his grandfather worked the farm. Over the years his operation has increased in size and complexity. He started by raising a small flock of ducks to sell to local stores and individuals. Currently, Carruba runs a hatchery that produces



Paul Carruba tending his flock of ducks.

5000 to 6000 ducks per year and over 400 eggs each day. He markets the eggs to local stores and individuals and to other hatcheries as far away as Missouri and Ohio. In 1970 Carruba was diagnosed with retinitis pigmentosa, a condition that ultimately results in blindness. The condition advanced relatively slowly over the next 30 years. Today he has about five percent of his peripheral vision left.



Mr. Carruba with touch screen controls beside his incubator.

In 1999, to accommodate his declining vision, Carruba purchased a much-needed new incubator with touch screen controls for monitoring and adjusting its environment. As his vision became more and more compromised, he found it difficult to see the settings on the screen. He contacted the state division of vocational rehabilitation (VR) to ask for assistance.

Continued on page 2

Client Feature

Carruba worked with Francis Lee, his VR counselor. They determined that he needed to modify the incubator's touch screen control panel in order for him to read it. During one of their first discussions, Ms. Lee referred him to the Mississippi AgrAbility Project. Lee says that she is thankful for the assistance of AgrAbility. Without it, she is not sure Carruba would have found a way to continue his poultry operation.

AgrAbility staff learned that in addition to limited vision, Carruba has chronic pain and diminished lifting strength as a result of a 2002 car accident in which he sustained a ruptured disk between his fifth and sixth spinal vertebrae. Although surgery to fuse the disks would likely eliminate chronic pain and make it easier for him to lift heavy objects, it would also make it much more difficult for him to turn his head, which he needs to be able to do in order to make use of his limited vision.

AgrAbility staff discovered that every two weeks, Carruba ordered six tons of feed for the ducks, which came in 50-pound bags. Given his limited strength, the bags were difficult for him to maneuver. AgrAbility staff suggested that he install bulk feed bins and use a feed wagon to distribute the feed. The feed bins selected were commercial units from Polydome (see right) made of high-density polyethylene plastic. Bins of this type were chosen because they permit minimal corrosion, leakage, and sweating inside them. In the humid Gulf region, these factors are important considerations. The feed wagon he chose is one that can be hitched to the back of his tractor, pulled up to the Polydome bins, filled, and then driven to the feeding areas. It has a round tank with a bottom auger to move feed into individual feeders in the yard. Carruba will be able to carry out the feeding



Paul Carruba collecting eggs.

using this system without straining his back. He is pleased with the help he received from Mississippi AgrAbility staff, and says, "I didn't know the range of possibilities that were available until AgrAbility [staff] showed me."

In addition to helping Carruba find an appropriate feeding system, the AgrAbility staff helped him find a way to modify the touch screen on his incubator. They explored the use of a Jordy (a small, closed-circuit TV magnification system that requires use of a headset) but it did not effectively meet Carruba's needs. The Jordy requires the user to have some central vision to see the item being magnified, and Carruba has only his peripheral vision. After trying several modifications of the Jordy system, they settled on using a commercially available camcorder set up in front of the touch screen. The image will then run through a closed circuit 13" color TV. The set up will be placed on a rolling tripod system so that Carruba can move it in and out of place when he needs to access the door to the incubator.

With the assistance of his wife, Sharon, and two teenage sons, Paul Jr. and Alex, Carruba is able to continue running the operation.❖



PolyDome bulk bins come in various sizes and are designed to handle high-moisture shelled corn, soybeans, and other granular materials. For more information on these products visit [PolyDome's Web site, www.polytankco.com/bulk_bins.html](http://www.polytankco.com/bulk_bins.html)

Feed Carts

Focus

Whether your operation includes poultry, hogs, horses, or cattle, all livestock require daily feeding. When fully automated feeding systems are not available or cost prohibitive, other options might be appropriate. A large self-unloading feed wagon or push/powered feed cart are two such options. While typically associated with unloading feed from a silo (e.g., silage), they can be used to transport just about any kind of bulk feed (e.g., small grains, pellets, concentrate)

Large self-unloading feed wagons are commonly used in free stall cattle operations, where the cattle have access to lengthy indoor or outdoor feed bunks. The self-unloading feed wagons might be filled with silage taken out of a bunker silo using a front-end loader, or might be filled using a conveyor system fed from a conventional upright silo. Once filled, the self-unloading feed wagon is pulled by a tractor to where the cattle are located and unloaded into a feed bunk or along a fence row. Very little physical effort is required to handle the feed when using a self-unloading feed wagon.

Farmers or ranchers often need to feed animals housed in an existing structure (e.g., barn, pole shed) that was not designed for tractors and other powered machinery, such as the self-unloading feed wagon, to enter. For these situations, push/powered feed carts may be the best means by which to feed livestock. Push/powered feed carts are available in many sizes. Some factors to consider when deciding whether or not a push/powered feed cart is the best piece of equipment for the job are the amount of feed, the number of animals to be fed, and the physical ability needed to push/operate the feed cart. Properly used, a push/powered feed cart can ease the physical requirements needed to haul feed to your animals in just about any situation. With these factors in mind, the next section outlines some of the differences in push/powered feed carts and how they might best be used.

Assistive Technology

Push Feed Carts

Many styles and sizes of “push” feed carts are available. A push feed cart requires the farmer or rancher to manually push and empty the cart. Depending upon the type of feed and how it is to be fed, the cart might be unloaded all at once (e.g., by dumping) or emptied gradually (e.g., by shoveling or scooping the feed out). Many local farm feed stores carry at least one brand of push feed carts. When feeding small grains or pellets, a push feed cart with sloped ends, which makes shoveling the feed easier, should be considered. If the terrain where the feed cart will travel is rugged, using a push feed cart with larger diameter wheels will make pushing it easier. Most push feed carts are manufactured from durable plastics, such as U.V. stabilized polyethylene, which clean easily and are less prone to rot/rust than the older or home-built wooden or metal feed carts. Some push feed carts have a single front center wheel that swivels, while others have wheels on all four corners making them more stable.

*Continued on page 4
April 2004*

Assistive Technology

Feed Carts

Some of the physical effort needed when feeding livestock can be reduced by hauling larger quantities of feed in “easy-to-push” carts. Depending upon the weight of loaded feed carts, push feed carts require farmers or ranchers to have the strength to push with their legs, to control the direction of shovels, or to scoop the feed from the carts using their upper bodies. Therefore,

push style feed carts might be recommended for people with mild back injuries/pain or mild arthritis in their knees, hips, or lower legs. Push-style feed carts, however, may not be good choices for people with a severe back injuries/pain, severe arthritis in their knees, hips, lower legs, or any type of disability that affects walking, coordination, and fatigue level (e.g., multiple sclerosis [MS], stroke).

Push Feed Carts



Push Feed Cart with large rear wheels, (lowered opening on both ends for easy access for shoveling/scooping feed)



Push Feed Cart with single front pivot wheel.



Silage Push Feed Carts (lowered opening for removing silage on one end only)

Powered Feed Carts

If the farmer or rancher cannot push a feed cart, perhaps a “powered” feed cart is the solution. Some of the larger and more expensive powered feed carts have electric motors and a rechargeable battery that propels the feed cart. Other powered feed carts use a small gas engine to propel them. A battery-powered feed cart should be quieter and produce less exhaust fumes than a feed cart propelled by a small engine. However, batteries that require recharging can be expensive to replace. This is one factor to consider when purchasing a powered feed cart.

The steering or maneuvering mechanism of powered carts is a consideration when mobility issues must be addressed. Some powered carts allow the operator to ride along with or sit on the cart and maneuver it with a small steering wheel. For a farmer or rancher with significant mobility issues, the ability to ride on the cart while hauling and unloading feed might be a welcome feature. Operators, however, should understand that the stock seats are not very comfortable. While not always the case, adding a seat to the feed cart might make the cart itself longer, and thus more difficult to fit or maneuver within some existing alley or aisle widths. Other powered carts allow the operator to maneuver the cart with a pivoting-style lever while walking along behind the cart.

*Continued on page 5
April 2004*

Assistive Technology

Feed Carts

Powered feed carts can save farmers or ranchers considerable physical effort by allowing them to haul larger quantities of feed in powered or self-propelled carts. Powered feed carts also self-unload, saving farmers or ranchers additional physical exertion. Powered feed carts might be recommended for people with severe back injuries, severe back pain, severe arthritis in their knees, hips, lower legs, or any type of disability that might affect walking, coordination, and fatigue level (e.g., MS, stroke). Two other important factors to consider prior to purchasing powered feed carts are the size, (will the feed carts fit within the alleys or aisle widths) and the maneuverability (can the farmers or ranchers walk behind the feed carts or do they need to ride on the feed cart).

Alley or Aisle Width

Whether the operator rides, walks behind, or pushes the feed cart, the cart must fit within the available alley or aisle width. More importantly, the feed cart must be able to be maneuvered around any corners or turns within the feeding area. Often times the barn alley or aisle widths are fixed and cannot easily be changed. Therefore, alley or aisle width might become the deciding factor in choosing a specific feed cart size and style. A typical feed cart brochure diagram showing alley or aisle width limits and cornering requirements is shown below. To choose the properly sized feed cart, you should measure your alley or aisle widths, including the corners, and compare the measurements with those recommended in the brochure (i.e., see alley or aisle width measurements required as indicated by the letters “A”, “B”, and “C” in the diagram below) for each style/size of feed cart. ❖

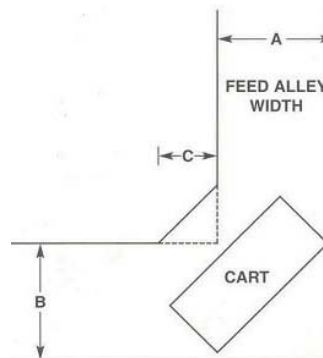
Powered Feed Carts



Powered Feed Cart, walk behind



Powered Feed Cart with seat and steering wheel



Typical picture of feed alley width as seen in feed cart brochures.

Resources:

www.google.com, search on “feed carts”

National AgrAbility Assistive Technology Product Database (ATPD),

www.agrabilityproject.org/search/index.cfm

Dairy freestall housing and equipment, W.G. Bickert [et. al.], Seventh Edition, 2000 “MWPS-7”

Overview of Mississippi AgrAbility Project

Mississippi has a diverse mixture of agricultural occupations, thus bringing an equally diverse group of clients to the Mississippi AgrAbility Project. From the Delta over to the hills and down to the coast, we have helped those working with numerous agricultural commodities and varied operations, such as cattle, bait supply (worms), turf grass, poultry, ducks, soybeans, cotton, custom hay, power-take-off safety cover manufacturing, and logging. Our clients deal with retinitis pigmentosa, diabetes, amputations, various levels of back injuries or paralysis, vision impairments, complications from stroke, cerebral palsy, and cancer.

Our partnership—the Mississippi State University Extension Service (MSU), the T.K. Martin Center for Technology and Disability (TKMC), and the MS Department of Rehabilitation Services (MDRS)—provides clients with an array of resources to meet their varied needs. The county Extension personnel are key in soliciting local donations of materials and labor when assisting a client; and Extension state specialists provide further help with financial planning, production management, and equipment modification. The TKMC staff provides case management and evaluations for seating, driving, and various types of assistive technology. MDRS offers assistive technology evaluations and provides most of the funding to help the client achieve his/her occupational goals.

The TKMC joined the AgrAbility team as the non-profit partner at the beginning of the second four-year grant. Several of its staff, however, had already worked with AgrAbility clients. The Center provides comprehensive, multi-disciplinary evaluations to remove limitations through the application of assistive technology, allowing individuals to participate in educational, vocational and leisure activities to the fullest degree they choose. The comprehensive nature of the services offered ensures that the correct solutions are achieved

efficiently and effectively, with needs being met in a one-stop shop.

In 1997, at the beginning of the initial grant period, Mississippi AgrAbility entered into a Memorandum of Agreement with MDRS; their Office of Vocational Rehabilitation (OVR) joined the AgrAbility staff as subcontractors in 2001. Services offered by OVR are designed to assist eligible individuals in overcoming the limitations imposed by physical or mental disabilities while maximizing their potential for employment. Local vocational rehabilitation counselors have been a vital source of referrals for AgrAbility.

Over the past seven years, we have worked to develop and strengthen relationships with agricultural organizations and disability service providers. MSU's Alpha Gamma Rho Fraternity has been instrumental in providing volunteer labor. AgrAbility staff members are currently on a state 'tour' of hospitals, presenting AgrAbility to therapists in the rehabilitation units. Two statewide training workshops (in four locations) have been held, primarily targeting Extension and MDRS personnel.

We join the Tennessee and Missouri AgrAbility Projects each year to exhibit at the Mid-South Farm and Gin Show and reach neighboring non-AgrAbility states by setting up the display at the Sunbelt Expo in Georgia. AgrAbility staff will participate in the 2004 Mississippi Rural Health and Safety Summit designed to develop safety and health initiatives and intervention strategies in order to reduce the number of rural injuries and incidents.

The Mississippi AgrAbility Project has helped numerous farmers and their families reach their agricultural goals through equipment modifications and task restructuring. As one client stated, "Disabled does not mean no ability, just different ability." ❖

Mississippi AgrAbility Project Staff

Herb Willcutt, AgrAbility Project Principal Investigator since 1997, is an Extension Professor and Specialist of Agricultural and Biological Engineering at Mississippi State University (MSU). He uses his agriculture and farm machinery systems expertise in assisting clients with design/redesign of hand controls, gaining access with lifts to agricultural machinery, and in advising clients about alternative agricultural enterprises and using additional Extension resources when needed. Herb was born in Tuscaloosa County, Alabama, and grew up on a small, diversified farm. He received both a B.S. and M.S. from Auburn University.

Emily Knight, AgrAbility Program Assistant, has worked with AgrAbility since 1997 and provides outreach and coordination services to the project. Emily grew up on a small farm in north Mississippi and worked in the Agronomy soils laboratory during college and at MSU research station for two summers. She received a B.S. in Agronomy and M.S. in Agricultural & Extension Education from MSU.

Janie Cirlot-New has been at the T.K. Martin Center for Technology and Disability (TKMC) since 1996. As a speech-language pathologist and augmentative communication specialist, Janie established the augmentative and alternative communication program at the TKMC to include evaluation, training, and research. Janie became Director of the TKMC in 2001. She received a B.S. from the University of Southern Mississippi and a M.S. from the University of South Alabama.

Judy Duncan coordinates case management services for the TKMC and for AgrAbility at MSU. She received a B.S. from Mississippi University for Women and a M.S. in Counselor Education from MSU.

Cliff Dedeaux began working at the TKMC in March 2003 where, along with the other clinical staff members, he conducts client evaluations for the appropriate applications of assistive technology. He focuses primarily on evaluations for adaptive driving and vehicle modifications, seating and mobility, and adapted farming; he also provides assistance in evaluations in the areas of home and jobsite accommodation and switch access in relations to augmentative communications. Cliff received a B.S. in Occupational Therapy from the University of South Alabama.



From left: Cliff Dedeaux, TKMC; Jimmy McDaniel, MDRS; Emily Knight, MSU Extension Service; Herb Willcutt, MSU Extension Service



Kris Geroux, MDRS

Not pictured: Janie Cirlot-New, TKMC; Judy Duncan, TKMC; Gary McFadyen, TKMC

Mississippi Project Staff Continued

Gary McFadyen joined the TKMC staff as Senior Rehabilitation Engineer in 1995. Gary’s professional memberships include RESNA, Biomedical Engineering Society, National Rehabilitation Association, and IEEE Engineering in Medicine and Biology Society. Gary received a B.S. in Engineering Science from Trinity University and a Ph.D. in Bioengineering from Texas A&M University.

Kris Geroux is the Interim Assistive Technology Coordinator with the Mississippi Department of Rehabilitation Services (MDRS). He has been employed with the Assistive Technology Division of the MDRS since 1999. Mr. Geroux evaluates clients across the state of Mississippi in the areas of seating and mobility, home modification, jobsite accommodation, vehicle modification, and agricultural accommodation. He received his B.S. in Biological Engineering from MSU and completed the requirements for a Certificate in Assistive Technology from Louisiana Tech University. He is a certified Assistive Technology Provider (ATP).

Jimmy McDaniel joined the AgrAbility team in December 2003. He has been a rehabilitation technologist since 1993 and was a rehabilitation counselor for the blind 18 years prior to that. He began working with MDRS as a social worker, and throughout his career has been awarded *Outstanding Counselor of the Year* several times. He also holds the distinction of initiating the first supported employment job placement in the state of MS. He works from the MDRS office in McComb, MS. Jimmy received degrees from the Southwest MS Community College and the University of Southern MS, and attended MSU.

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, or the AgrAbility Project, and does not imply approval to the exclusion of other suitable products or firms.

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>

The AgrAbility Project is administered by the U.S. Department of Agriculture CSREES. Funding for this document was provided under project number 00-41590-0932.