

The background features abstract, overlapping green geometric shapes, primarily triangles and polygons, in various shades of green, creating a modern and dynamic visual effect.

Getting Down on the Farm: Assistive Devices for Physical and Mobility Impairments

Presenters



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Objectives

- ▶ Identify three (3) equipment modifications that can be used in a farming setting.
- ▶ Recognize two (2) alternative vehicles that can be used to support farm mobility.
- ▶ Name three (3) additional assistive devices that can support physical impairments that farmers may face.

1 in 5 Farmers has a Disability

The number one type of disability among farmers is a physical disability (i.e., having serious difficulty walking or climbing stairs).

PHYSICAL	DISABILITIES
Back Injury	Spinal Cord Injury
Joint Replacement	Stroke
Osteoarthritis	Traumatic Brain Injury
Amputation	Other Medical Conditions



Manual Farming Tasks

- ▶ Hauling feed buckets
- ▶ Moving salt blocks
- ▶ Transporting hay
- ▶ Loading fertilizer
- ▶ Cleaning fence rows
- ▶ Repairing fences
- ▶ Carrying tools and supplies
- ▶ Climbing onto equipment
- ▶ Tending to animals
- ▶ Herding animals
- ▶ Gathering eggs
- ▶ Collecting animal waste
- ▶ Moving poultry coops
- ▶ Watering livestock
- ▶ Operating farm machinery
- ▶ Hitching implements

Case Study 1

Mr. Norrod is in his early forties. He sustained a C-6 spinal cord injury in an ATV accident. He maintains functional use of both upper extremities. He utilizes a manual wheelchair for mobility.

He works full time assisting on his family farm along with his aging father. His father is unable to proceed with the needed retirement due to Mr. Norrod's lack of independence to manage many farm tasks. The tasks include managing the 300 + acres, maintenance of fences and property, tending to livestock, maintaining pastures for horses, processing hay and accessing the farm equipment. Terrain consists of muddy areas with inclines, grassy yards, pastures, gravel driveways, creek and tree lines.

Needs:

- ▶ Ability to access the farm pickup and tractor
- ▶ Dedicated farm vehicle to navigate fence lines, pastures, hilly terrain, access animals

Tractor / Truck Modifications

- ▶ Hand controls and spinner knob (truck)
- ▶ Hand controls (tractor)
- ▶ LifeLift by Life Essentials
- ▶ Transfer board



Tractor / Truck Lift Video



Trac Chair

- ▶ TRAC FAB gasoline powered Trac Chair
 - ▶ 35 miles per tank of gas
 - ▶ Configuration with holder for extra gas can or other
 - ▶ Roll cage



Case Study 2

Mr. B sustained a spinal cord injury. He maintains limited ambulation using mobility devices for assistance and is a fall risk. He has poor bilateral hand control. His mobility is extremely limited on the hilly terrain.

He has a history of working as a truck driver, raising horses, and bailing hay.

Needs:

- ▶ Improved general mobility
- ▶ Outdoor mobility for access around the farm
 - ▶ Tend to horses boarded as a primary part of business
 - ▶ Safe travel from house to barn and around farm property
 - ▶ Check fences
 - ▶ Monitor creek water levels

Action Trackchair

- ▶ Action Trackstander TR 2020
- ▶ Snowplow attachment



Case Study 3

Mr. Stapleton is a 72-year-old veteran of the Vietnam War. He has residual spinal and back impairments, including degenerative joint and nerve disease. Mr. Stapleton also uses a cane and foot braces due to foot drop and recently had a knee replacement, making his ability to walk unsteady and dangerous on the hilly, uneven terrain of his 25-acre farm. He uses a manual wheelchair indoors, as well as a stair lift.

Due to his recent health decline, Mr. Stapleton sold the majority of his livestock due to his inability to access areas of his farm, climb on his tractor, repair his fencing, and carry items from place to place. The farm features 10 gates and extensive fencing.

Needs:

- ▶ Dedicated farm vehicle to carry tools and supplies
- ▶ Lift from the ground to his tractor seat

Utility Task/Terrain Vehicle (UTV)

Mr. Stapleton uses his UTV on the hilly, uneven terrain of his farm. He can reach areas of the farm that need attention, such as the wooded area or fencing at the far end of the property. He is also able to carry any tools and supplies he might need.

Features:

- ▶ 2,500 Lb. Towing Capacity & 1,000 Lb. Box Capacity
- ▶ Large Steel Bumper with Plow and Winch Integration
- ▶ Polycarbonate Front and Rear Windshield
- ▶ Roof to protect from sun, heat, rain, and weather.
- ▶ Electric Dump Kit or Electronic Cargo Box Lift
- ▶ Rear Hitch
- ▶ Mounted Lights
- ▶ Mirrors
- ▶ 11-gallon tank, 12-15mpg



Tractor Platform Lift

Mr. Stapleton transfers onto the platform of the lift, and the powered lift moves to the operator's seat of the equipment. Unlike a seat lift, Mr. Stapleton stands to move to the seat of the tractor. The lift and hand controls are mounted directly onto the equipment.

It features:

- ▶ Lift Capacity: 400 lbs.
- ▶ Hand Holds
- ▶ Optional Radio Remote Controls
- ▶ Optional Seat Rest Available



Platform Lift Video



Case Study 4

Mr. C is a 53-year-old man who has a herniated disc, bulging discs, and fractured vertebrae from a past traumatic injury. In addition, he has developed arthritis in both knees and carpal tunnel syndrome. Performing various farming activities involving extensive manual labor is difficult. Mr. C does not currently use any devices to aid in mobility over short distances but does wear a brace on his left knee for added stability. He uses an ATV for farm activities, though it is becoming more difficult for him to get on and off of the ATV. Mr. C farms about 50 acres with cattle and poultry, as well as hay. Much of the acreage is forest terrain, with sloping from 20% to 45%.

On the farm, Mr. C transports 50-gallon grain bags and water to various field locations. He is currently lifting the 16'x20' poultry coop to move it daily. Having rollers on the coop would help but would raise the coop and allow the birds to escape or be injured in trying. The gap would also allow predators to enter the coop.

Needs:

- ▶ Dedicated farm vehicle to carry tools and supplies
- ▶ Feed bin with auger
- ▶ Portable grain bin feeder
- ▶ Automatic feeder mounted to UTV
- ▶ Portable water tank
- ▶ Handrails and added steps to his tractor

Feed Bin with Auger

A feed bin allows Mr. C to store larger amounts of feed at a time, reducing the amount of lifting that he has to do daily. This can also help to alleviate continued or future repetitive motion injury.

Features:

- ▶ Various capacities
- ▶ Allows loading into portable feeder
- ▶ Increased efficiency and safety
- ▶ Protects feed from weather and pests



Portable Feed and Water Options

Having access to portable feed and water options offers Mr. C a reduction in the physical effort needed to get nourishment to the cattle and poultry across his farm.

Features:

- ▶ Various capacities
- ▶ Can be carried in the back of UTV or towed behind
- ▶ Decreases physical strain
- ▶ Convenient dispensing of feed or water
- ▶ Limited need for manual labor



Extended Steps and Handrail

Having the ability to decrease the step height to get on the tractor is a huge benefit for Mr. C in consideration of his back and knee issues. Having the handle added improves safety when getting on and off the tractor.

Features:

- ▶ Metal for durability
- ▶ Bottom step can be flexible
- ▶ Options for number of steps
- ▶ Increased safety
- ▶ More ergonomic



Additional Vehicle Modification Options

- ▶ Valet seat
- ▶ Specialized truck conversions
- ▶ Truck bed lift
- ▶ Running board lifts
- ▶ Low tech solutions



Added Considerations in the Field

- ▶ Automatic gate openers



- ▶ Hitch systems



- ▶ Hay bale handling



Other Considerations for the Shop

- ▶ Anti-vibration gloves



- ▶ Gripeze gloves



- ▶ Magnetic parts dish



- ▶ Magnetic pick-up tool



- ▶ Tool management system



Lawn and Garden Tools

- Raised beds



- Ergonomic tools



- Weed remover tool



- Extended fruit picker



- Hand rakes



- Pecan gatherer



Specialty Enterprises-Beekeeping

► Beehive lifter



► Tilttable Horizontal Beehive



Questions



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