



## Low-Tech Assistive Technology at Home and Abroad

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# Assistive Technology Needed

Assistive technology (AT) is a device, a method, or modification to a tool that enables a person with a disability to accomplish a necessary task.

Farmers with disabilities nationwide and around the world face the challenge of how to access AT so they can keep working.



# High-Tech Assistive Technology



Complex, specialized components, much training needed, costly to purchase and maintain. Marvelously helpful!





# What is Low-Tech Assistive Technology?

Low-tech Assistive Technology has readily **available** parts, **simple** to use with minimal training, **inexpensive** to create, and is **practical** for farm tasks. Marvelously helpful!



Roll over image to zoom in



Ternence Flynn Fruit Picker Harvester Basket,with Cushion to Prevent Bruising (Pole not Included) Strong Steel Forceps Grasp Fruits

by Ternence Flynn

Price: **\$13.29** & **FREE Shipping**

**Coupon** ☐ Save an extra \$1.00 when you apply this coupon.  
Details

Color: **Red**

- **EASY PICKIN'S** - Easily reach and harvest luscious fresh fruit! This incredible fruit picking tool is specially designed with finger-like prongs to reach gently over fruit to pull apples, peaches, and more clean off the branch.
- **GENTLE PROTECTION** - A deep vinyl coated basket with foam cushion catches and protects the fruit at it falls so the delicate meat and skin won't be bruised.
- **STRONG STEEL Forceps Grasp Fruits** - Easy to use, you can pick fruits without climbing ladders, picking fruits is convenient and practical.
- **POLE CLAMP INCLUDED**- Fruit picker basket attaches easily and securely onto most any pole using the included adjustable clamp.
- **EXTENSIVE USE** -Applicable to home gardening, orchards, parks, farms, gardens, etc.

<https://www.amazon.com/Ohuhu-Light-Weight-Aluminum-Telescoping-Equipment/dp/B0171HVXG0>



# Why is Low-Tech Assistive Technology Important?



These concepts can be created with **local materials**, from Indiana to Ireland. When AT is not available for purchase, or costs too much, low-tech AT can be built.



# Peter Gohery in Ireland

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Peter Gohery

Feed Pusher  
No more forking





# Sheer grab in action







I'm not able  
for this  
Forking



## Simple to make

---

- 8" channel iron
- 4" X 10" on top
- Feed does not come in over the top







Easy to attach  
and detach



# Easy to install

No pins or clips needed.



No  
More  
forking





# Tire changing AT



Redline Heavy Duty Truck Tractor Tire Wheel Dolly

Lifting and moving heavy tires and wheels can be done with a Tire Jack to avoid back pain and strain. Many truck and tractor wheels on farm equipment weigh well over 100 pounds. The many wheels on farm equipment are changed from road tires to floatation tires for different uses. Farmers wrestle the wheels on and off by hand, with great difficulty. The tire jack rolls under the tire, then lift while the bolts are removed from the truck wheel. The wheel can then be rolled to the storage location with no manual lifting. Cost \$1400.00

[https://www.redlinestands.com/catalog/shop-equipment-c-327/automotive-c-327\\_328/automotive-dollies-c-327\\_328\\_356](https://www.redlinestands.com/catalog/shop-equipment-c-327/automotive-c-327_328/automotive-dollies-c-327_328_356)



# Dual Tire Changer

## DUAL TIRE CHANGER BUCKET OPTIONS



With the Dual Changer MAX you can pick up a dual rim & tire from storage, transport it, and mount it on your tractor in minutes, making it a ONE man job.

<https://www.loaders.com/Attachments/Bucket-Options/Dual-Tire-Changer> \$557.00

# Tire lifter tongs



<http://www.biermansales.com/Product/EZDualChanger>

\$425

# Low Tech Tractor Cab Controls



Harlan Temple has mounted Gearshift and Throttle Lever Extensions on both his John Deere 4650 and his International Hydro tractors. On the 4650, two extensions were added to the gearshift lever so it can be conveniently accessed when in various gears, and one extension was added to the PTO lever. (The clutch and brake are not used because the tractor has power-shifting capabilities).

[www.agrability.org/toolbox/?solution=551](http://www.agrability.org/toolbox/?solution=551)



# High Tech Tractor Cab Controls



Temple's International Hydro tractor also has Toggle Switch-Controlled Internal Hydraulic Cylinders, which raise and lower the three-point-hitch arms, operate all the loader bucket functions, activate the PTO shaft, and release the automatic hitching mechanism to hook and release wagons.

<http://www.agrability.org/toolbox/?solution=552>

# Low-tech Hand Control Levers



No moving parts. Minor welding and bolts.  
<http://www.agrability.org/toolbox/?solution=545>



# Low-tech Hand Control Levers



An occupational therapist designed a Lever Gripping Splint for Aplington, IA, farmer Ken Sents to use for gripping his tractor's hand-control brake levers. The hand portion of the splint was heated and molded around a short section of 1-inch PVC pipe, which slips over the control lever handles. The splint is held to Sents' wrist by Velcro straps.

<http://www.agrability.org/toolbox/?solution=544>



# Walker Cart: mobility & carrying



A Walker Cart enables workers to carry loads around the farm and lean on the cart for balance at the same time. This walker cart can also be modified with a lowered seat cushion on the cart to sit and 'pull' along as needed. Produce, plants and small loads of other materials are often picked up and moved. Carrying such loads is impossible to do with poor balance. These materials can be loaded onto the cart and then pushed to the destination with much less effort than carrying.

<https://www.amazon.com/dp/Boo87oEJJS>

# Ramp for Equipment Access



The Mounting Ramp allows a person in a wheelchair to be rolled up to saddle height for a more convenient transfer from chair to horse. This also gives access to small tractors parked by the ramp.

<http://www.agrability.org/toolbox/?solution=259>



# Ramp for Equipment Access



The four-wheel-drive Mobility Quad Wheelchair-Carrying UTV is accessed via fold-down ramp on one side, with horizontal piping on the other and multi-pipe ROPS for protection. The vehicle comes with a winch to assist in loading, if needed. (The Mobility Quad can be customized so a wheelchair user can do the driving.)

<http://www.agrability.org/toolbox/?solution=1534>

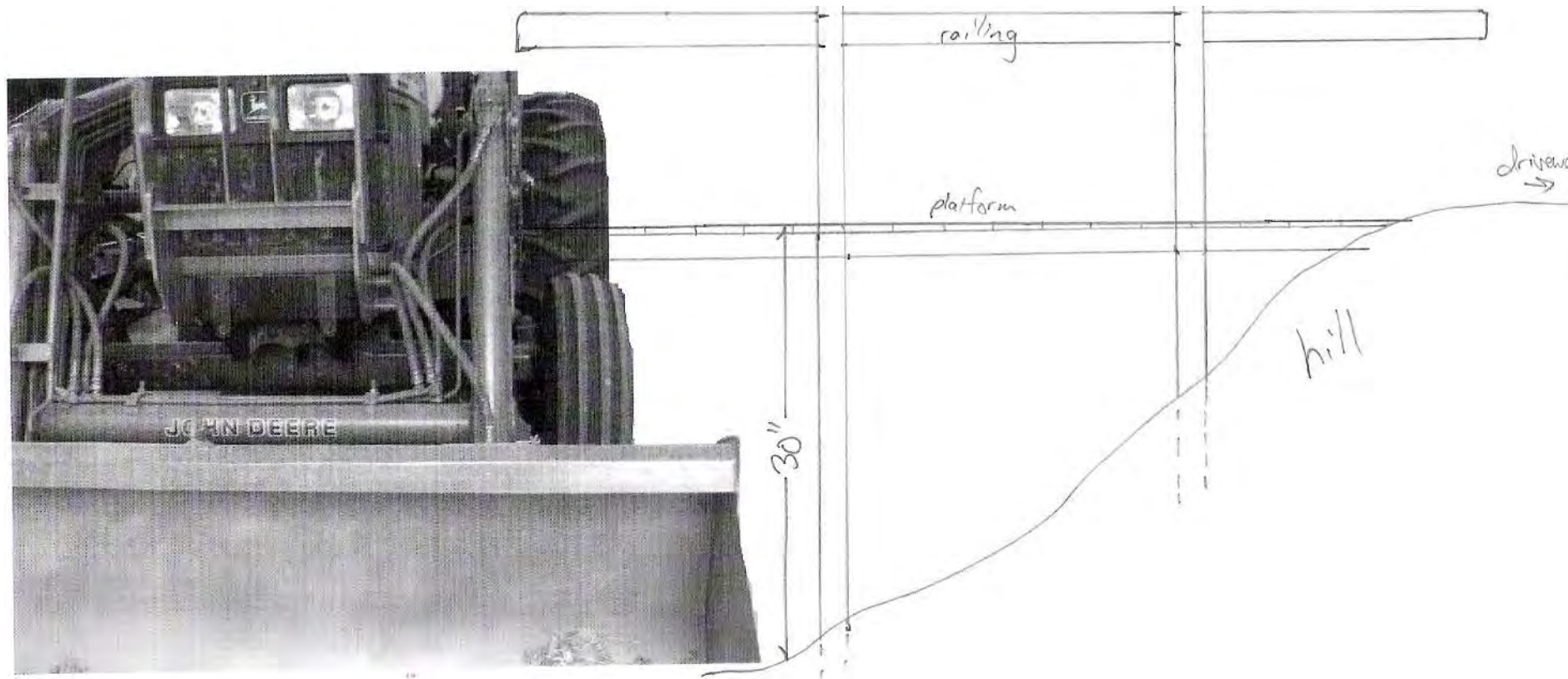


# Ramp for Equipment Access



From the precursor to the Toolbox on page A.7.3! Make ramp slope up 1-inch for each 1-foot of length.

# Deck for Equipment Access



When you have a hill, make a bridge!

# Hydraulic Cylinder Manlift



The concept development stage. Consider the necessary task, the worker's abilities, and brainstorm solutions.



# Hydraulic Cylinder Manlift



Build and test the concept. User training. Common materials and parts that farmers work with. Square steel tubing 3" and 2.5". Bar grate for the step. Hydraulic cylinder and 1/2" hoses. Bolted onto existing step mount holes in the cab frame. \$1000 materials + 20 hours in the farm shop.

# Hydraulic Cylinder Manlift



Same concept duplicated for a larger tractor because it worked so well. A square tube with platform attached slides inside a slightly larger tube and is pulled up with a common hydraulic cylinder. The 12V hydraulic pump is located in the toolbox between the lift and the tractor frame.



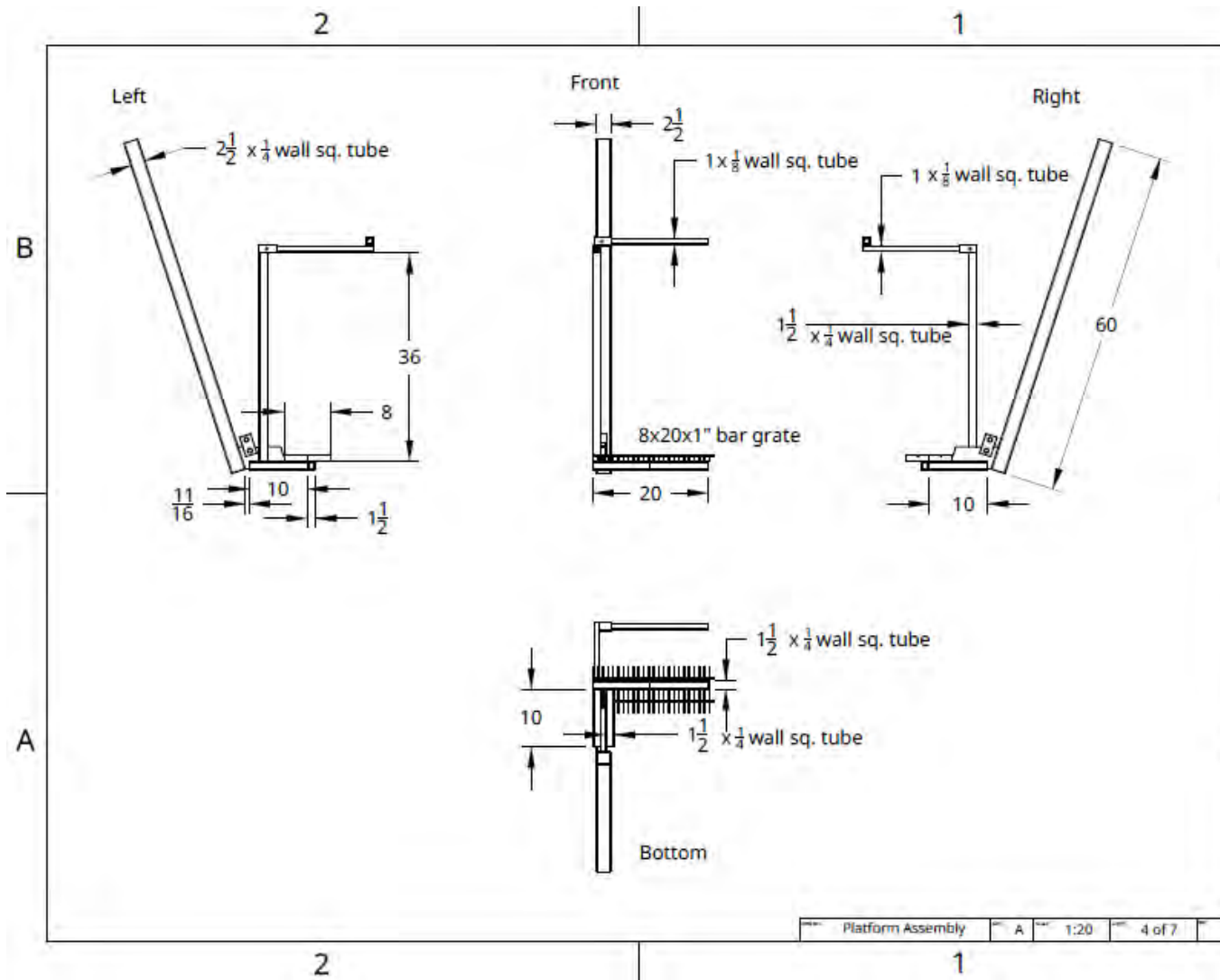
# Hydraulic Cylinder Manlift



Same concept of a hydraulic cylinder pulling up a tube within a tube. Grab bars beside and behind the user were added when installed on a combine.



# Hydraulic Cylinder Manlift



John Deere 7720 hydraulic manlift plans. Surplus Center and Magister Hydraulics are great places for all needed hydraulic components.

IS THIS LOW TECH????

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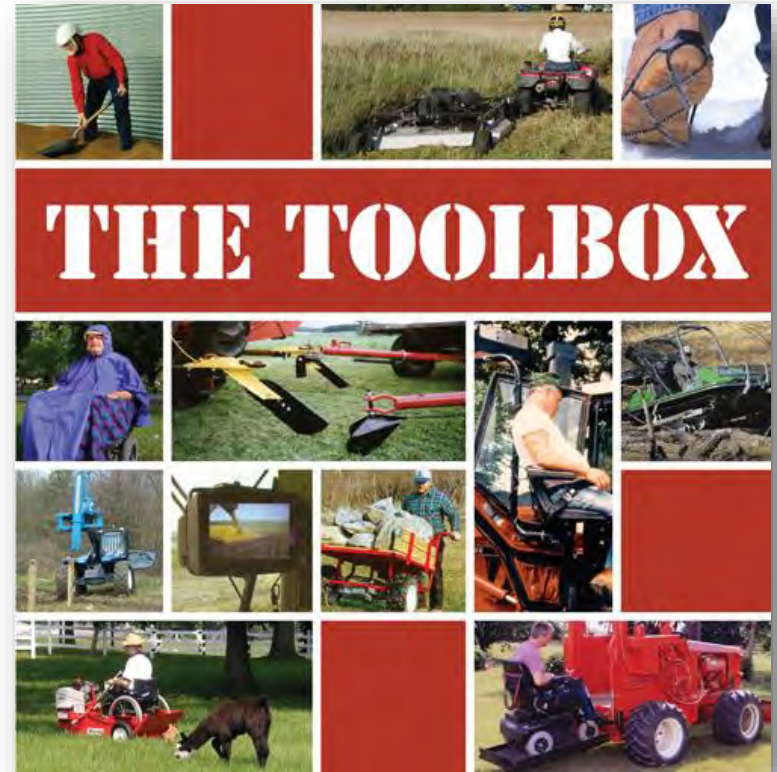


<http://www.agrability.org/toolbox/?solution=233>



# The Toolbox Assistive Technology Database

- Print, CD, and web versions  
[www.agrability.org/Toolbox](http://www.agrability.org/Toolbox)
- More than 1500 products to help farmers and ranchers with disabilities



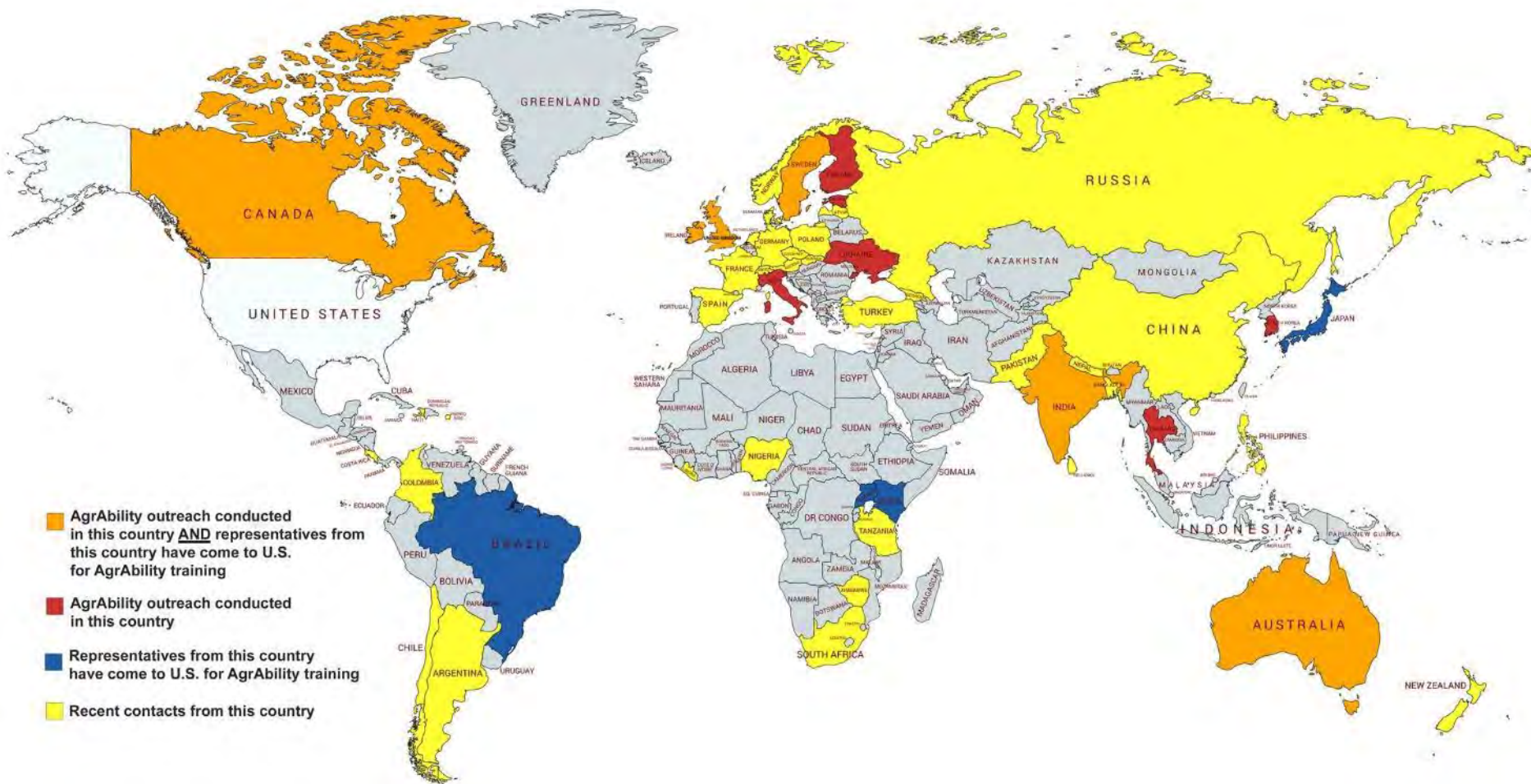


# International AgrAbility Network

NGO's, Projects, and Missions with interest in agriculture and assistive technology

- Free Wheelchair Mission
- Engineers Without Borders
- ECHO International
- International Food Organization
- World Health Organization
- World Food Prize
- Mobility Worldwide
- Wheelchair Foundation
- Wheels for the World
- LeTourneau University Global Initiatives
- Purdue Utility Project

# International AgrAbility Network



Join the International AgrAbility  
Network to learn and share your  
ideas!

Email [agrability@agrability.org](mailto:agrability@agrability.org)  
with subject 'international'

Questions and Discussion