If you have any of the following +Diabetes +Heart Disease +PTSD +Anxiety +Depression +Back Pain + Arthritis +Narcolepsy + Spinal cord injury +Traumatic Brain Injury +Respiratory issues + Amputation +Hearing impairmen +Muscular dystrophy +Post-polio syndrome +Vision Impairment +Cerebral palsy + Neurodivergence

### **NC** AgrAbility can

+Suggest farm or ranch modifications +Identify and coordinate resources + Coordinate community support +Assist with adpating equipment +Assist with finanical counseling and farm business planning + Identify funding sources + Promote farmer advocacy



### NC AgrAbility is a program of the NC A&T Agromedicine Platform as part of NC Cooperative Extension

	CAES GOAL	EXTENSION INITIATIVE	CRITICAL ISSUE
PROGRAM TITLE			
AGROMEDICINE			
North Carolina AgrAbility Partnership (NCAP)	Outreach & Engagement	Enhance program development and evaluation	Enriching youth, family, and community well-being
Agromedicine Applied Research	Research & Innovation	Enhance program development and evaluation	Improving plant and animal agricultural systems
			Enriching youth, family, and community well-being
Agromedicine Coordination and Partnership with FCU and NC State	Outreach & Engagement	Enhance program development and evaluation	Enriching youth, family, and community well-being
with Leo and the state		* * * * * *	

COOPERATIVE EXTENSION





### Problem:

In regenerative agriculture, three groups of producers and potential producers remain radically underserved:

- Regenerative farmers wishing to age in place and remain in production
- Alter-abled Veterans and others wishing to enter into regenerative farming but lacking the access to capital or the timeline to wait for capital for more technologically intensive solutions currently focused on ATV, UTV, and tractor use in the conventional AgrAbility farmer/client space
- Facilities training farmers/producers needing to have accessible low-cost solutions and facilities for assisting a wide range of potential producers including the alter-abled, for training and trials in regenerative production agriculture.

Sustainable agriculture + accessibility literature is limited, though the internet abounds with farmers and aspiring farmers looking for accessible + affordable solutions, e.g.

https://www.backyardchickens.com/threads/how-about-a-new-thread-for-those-of-us-in-wheelchairs.893225/ https://backyardpoultry.iamcountryside.com/chickens-101/disabled-and-keeping-chickens/

For example:

https://www.backyardchickens.com/threads/has-anyone-thought-about-building-handicap-accessable-coops.578079/ https://www.backyardchickens.com/threads/how-about-a-new-thread-for-those-of-us-in-wheelchairs.893225/ https://backyardpoultry.iamcountryside.com/chickens-101/disabled-and-keeping-chickens/

Accessible garden beds to scale: <u>https://www.youtube.com/watch?v=e3HFRIrQxH4</u> <u>https://www.instagram.com/cambrykay/</u>

Farm hacks group on FB: https://www.facebook.com/groups/284558915371058/

https://www.motherearthnews.com/homesteading-and-livestock/self-reliance/farming-disabilities-zm0z22fmzram/

Alternative Production Systems AgrAbility https://www.youtube.com/watch?v=\_17SX0vIW-I

https://practicalaction.org/our-aims/farming-that-works/?gad=1&gclid=Cj0KCQjw0tKiBhC6ARIsAAOXutmP0JmZth2tS7pITwbVSp\_RuljF0jJJWI52ON2wqLtg1GzabjDkbsaApmDEALw\_wcB

https://www.goimonitor.com/story/organic-way-deal-disability

https://www.nature.org/en-us/what-we-do/our-priorities/provide-food-and-water-sustainably/food-and-water-stories/veterans-next-missionsustainable-farmers/

https://www.edf.org/ecosystems/resilient-agriculture/precisionagriculture?gad=1&gclid=Cj0KCQjw0tKiBhC6ARIsAAOXutmpZjMZwGSZzwsD4tzjq2shKdw8ndwIAYs4lvoHBznySxCoBUbIDsaAtGrEALw\_wcB&gclsrc=aw.ds&utm\_campaign=edf\_markets\_upd\_dmt&utm\_id=1531920218&utm\_ medium=cpc&utm\_source=google



#### How to build a MASSIVE Raised Garden - For Wheelchair Users!







Local solutions Be able to make or build with locally available materials be able to build it or get it built know the parameters of use before investing \$ or time

#### Farmers and farm partners identified these needs

- High tunnels
- Chicken tractors: VFNC model for the disabled-friendly, moveable, chicken tractor for meat bird production, and the trailer model for layer production
- Chicken/poultry processing: hacking the process from set-up to break down/cleaning for less fatigue on the body
- Mushrooming: Addition of a bagging system to reduce hand-bagging actions for substrate into bags, grow rooms that are ADA compatible, and staging of all equipment needed properly for ease of access i.e. design considerations
- Composting/compost production: small motorized devices to turn the compost either via barrel-type or via row composting. A concrete mixer + a loading device
- Beehives (affordability/ease of build: tilting hives, NUC lift system for swarms, super lifting devices, and bottling systems that keep hand action to a minimum to reduce fatigue) + trailers for moving
- Aquaponics
- Portable shelters: IBCs, shelters on skids
- Mobile fencing-hack how to manipulate and move-design a prototype for assistance
- Animal handling systems
- Garden beds in actual production scale-maybe U-shaped, longer beds with more edge for more yield.
- Sinks
- Black Soldier Fly production pods to made accessible
- Bale grazing to be made accessible
- Mobimat piloting for accessible U-pick operations and other wheelchair and mobile use on farms
- + what does it take physically and in \$ to build or set up any of these DIY or adapted systems??? What physical skills do you need to do these?

















![](_page_20_Picture_0.jpeg)

Two partner nonprofits

Nine partner farmers

# Physical Therapists familiar with farming & Assistive Technology

Outputs:

### Outputs:

- Open source plans, evaluations, evaluation criteria for prototypes developed with assessments of combinations of efficacy: farmer satisfaction + yield + ease of build + regenerative impact +.
- DIY videos/publications for ease of concept, materials, cost estimates, time needed, ability levels needed.
- Videos, plans, and lay publications

# Similar issue: Farmworkers

![](_page_23_Picture_1.jpeg)

# SARE Farmworker Grant Objectives

Assistive Technology (AT) for farmworkers Producer site tool libraries for major tools AT farmworkers can have and take with them Produce simple training sheet on ergonomics for community health workers/farmworker trainers Produce laminated hand-out for trainers 600 magnets with simple ergonomic suggestions (in Spanish and English)

# Concerns/Constraints given

- Community health workers said farmworkers are highly unlikely to use AT during harvest—more likely during planting
- Farmworkers will want something they can take with them from place to place
- Farmworker will NOT want site visits of any sort—best to go through third party
- If AT available at a producer, it should be available to all the farmworkers—so no difference is made between the struggling and the not

![](_page_26_Picture_0.jpeg)

![](_page_26_Picture_1.jpeg)

Regenerative agriculture references:

Magdoff, F., & Van Es, H. (2021). *Building Soils for Better Crops: Ecological management for healthy soils*. Sustainable Agriculture Research and Education Program. (https://www.sare.org/resources/building-soils-for-better-crops/)

Rodale: https://rodaleinstitute.org/why-organic/organic-basics/regenerative-organic-agriculture/

Charnley, F., Lemon, M., & Evans, S. (2011). Exploring the process of whole system design. *Design Studies*, 32(2), 156–179.

Hamidi, Foad, Patrick Mbullo, Deurence Onyango, Michaela Hynie, Susan McGrath, and Melanie Baljko. "Participatory Design of DIY Digital Assistive Technology in Western Kenya." *Proceedings of the Second African Conference for Human Computer Interaction: Thriving Communities*, 2018.

# Glad to be in touch!

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**Veterans to Agriculture Field Agent** 

![](_page_28_Picture_11.jpeg)

![](_page_28_Picture_12.jpeg)