



How to do a Beekeeping Worksite Assessment



Ned Stoller, Michigan AgrAbility
Adam Ingrao, Heroes to Hives







Human Activity Assistive Technology Model (HAAT)

- Model to identify appropriate assistive technology (AT)
- Accounts for the human, the context and the activities
- AT is any item or product system used to improve or maintain capabilities of an individual with a disability

SMILE!

Prioritize accommodations based on

- Safety, both yours and your co-workers',
- Money, increased profit potential,
- Independence doing the most important farm tasks,
- Liking the tasks you do, and
- Expense to make the improvements.

Successful Beekeepers



Successful Beekeepers

- Successful beekeepers inspect their hives regularly for bee health, pests, feeding, and honey production.
- Functional activities include:
 - mobility across rough terrain to access the hives,
 - lifting and unstacking the hive bodies (weighing up to 90-pounds), and
 - gripping, prying, and pulling out frames.



Physical Challenges

- Common beekeepers' medical conditions include arthritis, back injury, carpal tunnel syndrome, and musculoskeletal injury
- Impaired activities are mobility to the hives, bending over to inspect frames, lifting hive bodies, grasping frames, moving hives, gripping hand tools



Beekeepers Back



Ergonomics



Ergonomics



- Rest at regular intervals & sit on a stool.
- Alternate repetitive, awkward, & strenuous tasks.
- Use proper workstation height.
- Keep commonly used items within 17 inches of the worker's body.



Visual inspections



Equipment Options

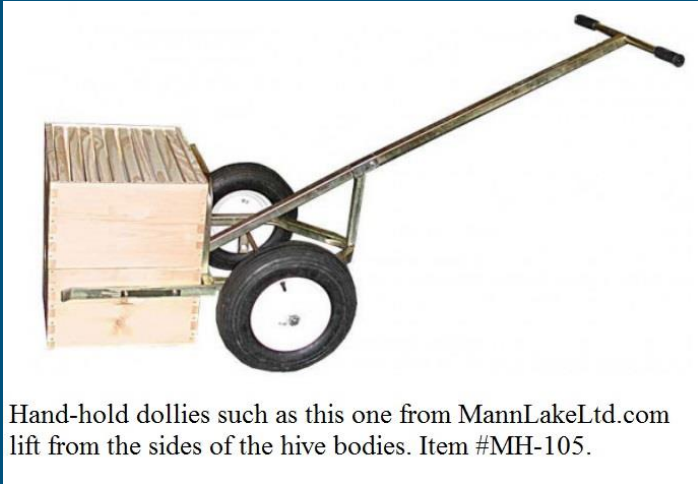


Lighten the Load: 8-Frame and Shallow Hive Bodies



<http://www.bushfarms.com/beeseightframemedium.htm>

Whole Hive Moving



Hand-held dollies such as this one from MannLakeLtd.com lift from the sides of the hive bodies. Item #MH-105.



Fork Hand Truck

Item# HTK-2351



This hand truck from HandTrucksRus.com would move whole hives.

Individual Hive Body Lifts: 2-Person Carrier



The two-person hive carrier is a low-cost accommodation that divides the weight in half. It is item #935C at BrushyMountainBeeFarm.com.

Individual Hive Body Lifts - Kaptar

<https://www.countryfields.ca/products/kaptar-lift-electric>

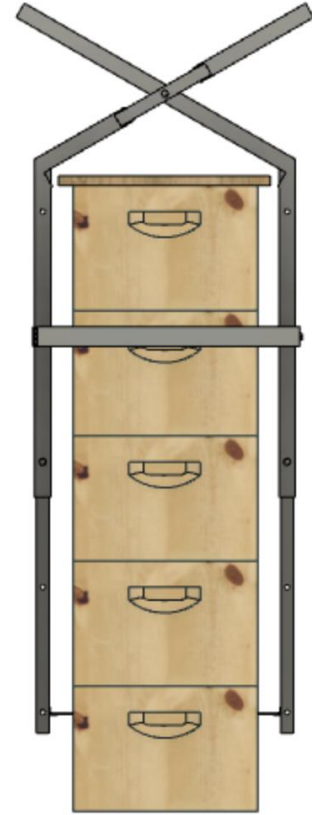


Individual Hive Body Lifts: DIY

<https://www.youtube.com/playlist?list=PLVvPW9G-aLYgPxttbmLemQwm8W4jC1LLP>



Individual Hive Body Lifts



Individual Hive Body Lifts



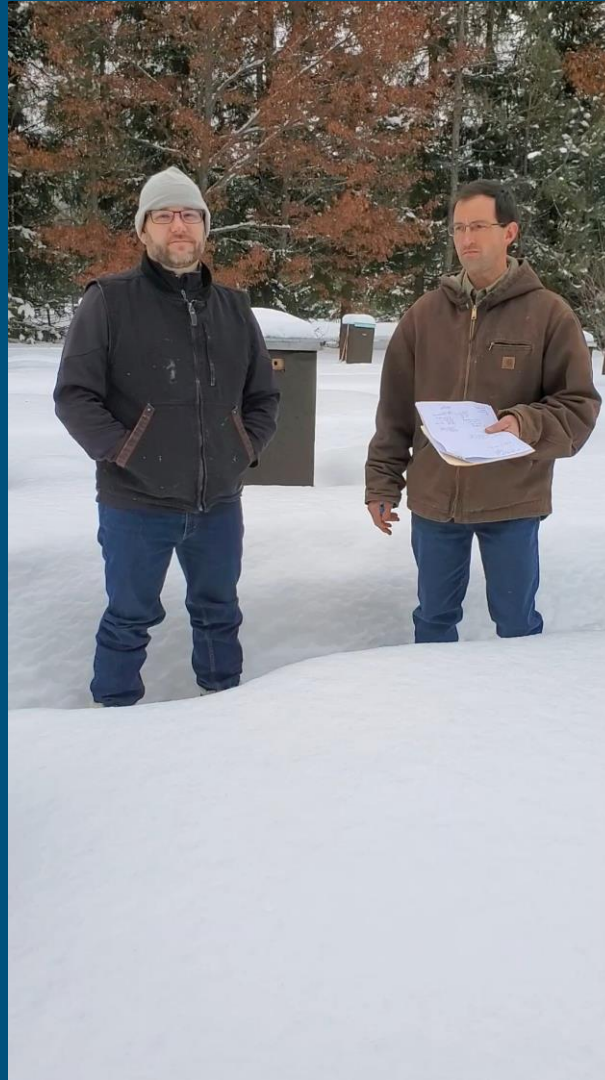
Hand Tools



Hand Tools



Bee Yard Mobility



Bee Yard Mobility



Woody Glover's bee yard (Stephen Clay McGehee)

<http://volusiabeekeepers.org> ~\$250
<http://www.greenhousemegastore.com/product/5902>



<http://burghbees.com/> ~\$800

Bee Yard Mobility



~\$3000

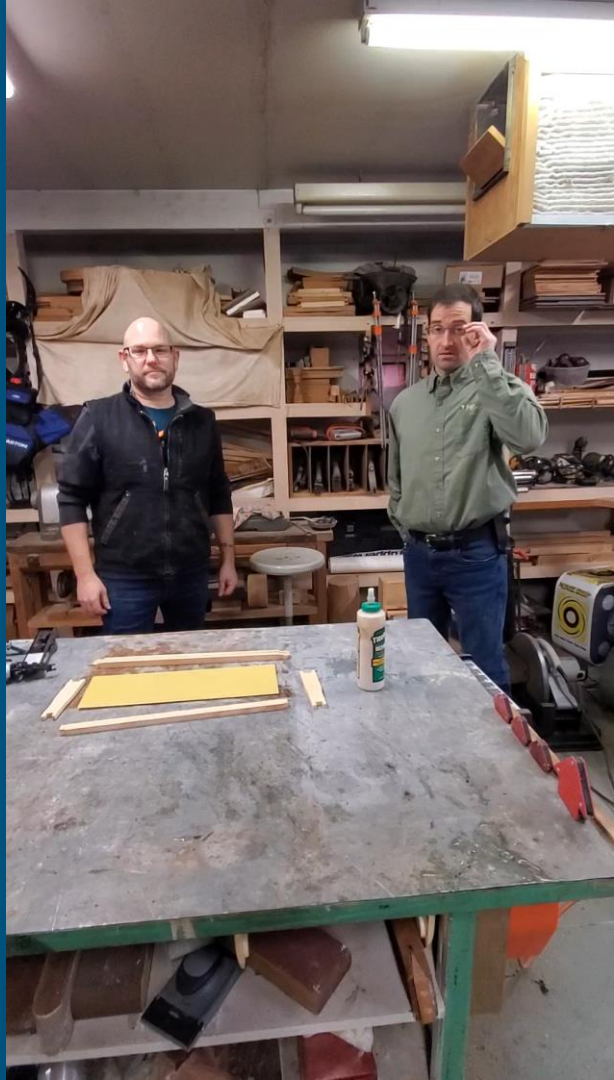


Beehive Access



Beehive Access





Workshop

- Heat
- Seat
- Table
- Floor
- Ergonomics!



Honey Room



Honey Room



<https://www.dadant.com>

<https://www.betterbee.com>



AT second thoughts



Checklists:
don't forget



Summary

Farmsite Recommendation	Estimated Cost	Frequency	Longevity	
	\$ (for quantity shown)	Uses per year	useful years	
Ergonomics & Secondary Injury Prevention		1000+	Life-long	
Lifting Hives	\$75 to \$5000	450	10	
Hand Tools	\$85	1000+	10	
Bee Yard Mobility	\$300-\$3000	50	3 to 20	
Beehive Access	\$200-\$10,000	50	5	
Workshop	\$970	1000+	10	
Honey Extracting	\$1000	800	20	

Conclusion

Assistive technology in the apiary will increase the likelihood of success for a beekeeper with medical impairments. Beekeeping is a very satisfying enterprise, and can be done by workers with medical impairments. Modified tools and equipment enable tasks that would otherwise be impossible or unhealthy for the worker.



Questions and Discussion
