

# Creature Comforts in the Packshed

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**Agricultural**  
ENGINEERING 

Andy Chamberlin  
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VVBGA Growers



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# INTRODUCTION

**What makes farming easier and more fun?**

**What boosts morale and comfort?**

*- Simple improvements can make a big difference -*

Let's look at some (mostly) simple things that make work a bit less painful and a bit more fun

**TAKE NOTES, THINK ABOUT YOUR FARM**



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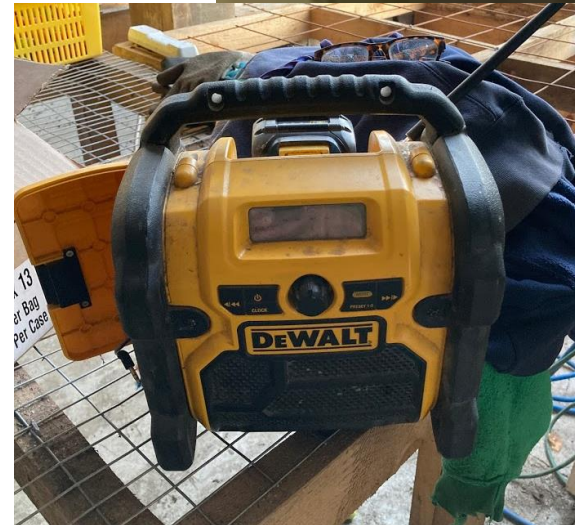
# Quick Wins



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# TURN UP THE TUNES!

- Remove the silence!
- Either rock out, dance it up or chill out
- Minimize the news
- Old stereo's, boom boxes, jobsite radios







# Magnetic Knife Holder



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# Magnet Clips



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# Dress for the Weather



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# What's do you see here?





# Wire Racking

- Shelves
- Spray Tables
- U-boats/dollies
- Cart





# “EVERYTHING ON WHEELS!” – Danielle Allen, Root 5 Farm



[go.uvm.edu/root5farm](https://go.uvm.edu/root5farm)



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# Diggers' Mirth – Hilary Martin

“We can't imagine life without wheels now--we are so into our tote dollies and Uboats, and we have a stainless-steel table that we use for sorting and bagging that is also on casters. We love keeping things off the ground AND moving them easily around.”





# Wheels

Ergonomics

Quality

Eases mobility for:

- Loading/Unloading
- Relocating
- Cleaning
- Multi-use dollies
- Carts



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# Sawhorses



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# Building Features



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# Employee Space





# Employee Space



# Mighty Food Farm Farm – Lisa MacDougall

“Once you have a crew of more than three people, you really need to provide a dedicate break area.” She also wanted a clean and comfortable place for customers to visit for retail purchases and CSA pickup. The western third of the new building serves these needs. “The wash/pack has really become ‘the hub’ for the farm.”





# Heaters



# Heaters





# Good Floor – Smooth & Drained



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# Open/Covered Floor Space



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# Drain Shovel/Buckets



[go.uvm.edu/drains](https://go.uvm.edu/drains)



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# Avoid Bare Wood, Liquid Water & Condensation



# Smooth and Cleanable Materials



Trusscore is not cheap but Silas worked the numbers and noted, “Based on labor savings it seemed to come up on top.” – Silas Doyle-Burr, Last Resort Farm







# Bright Lighting



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# Footprint Farm – Taylor Mendel

“Natural light through large windows and everything painted white with tall ceilings make it a bright and cheery place to work.”







# Natural Lighting



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# Quick and Easy Lighting



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# Dock/Covered Space



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# Dock Leveler



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# Choosing The Right Equipment



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# Stock Tanks and Sinks



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# Spinners



[go.uvm.edu/greensspinner](https://go.uvm.edu/greensspinner), .../conversionguide



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# Barrel Washers



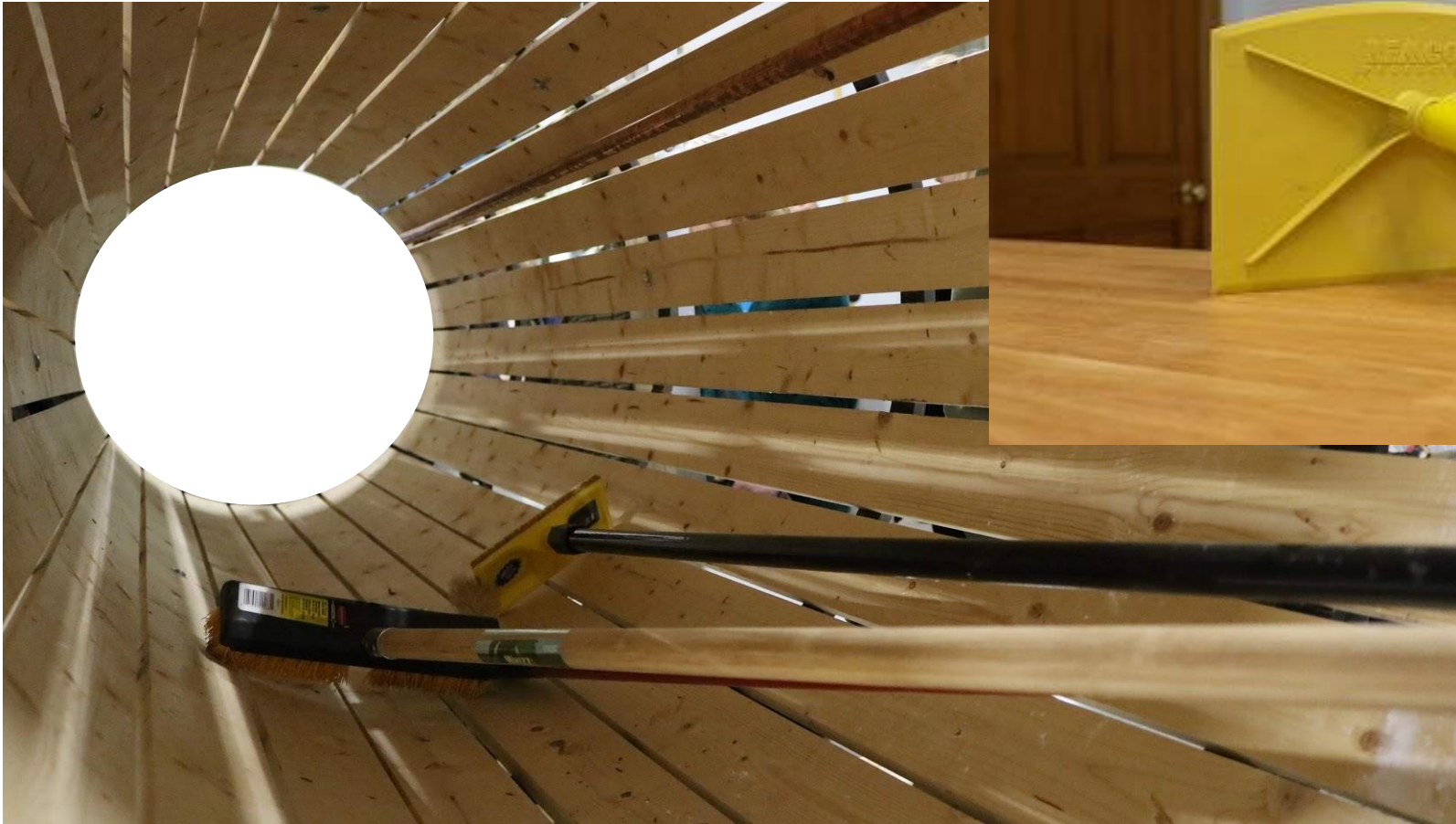
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# Food Hoe



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# Willsie Root Washer



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# State of The Art Root Washers



AZS Brusher Equipment | Univerco



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### STAGE 3

Low Pressure Final Spray  
(Plastic Hose with Plastic Nozzles)

### STAGE 2

High- Pressure Spinning Spray Bars  
(Stainless Pipe with Metal Nozzles)

### STAGE 1

Low-Pressure High-Volume  
Rinse  
(White PVC pipe with drilled holes)

Product Out

Control  
Panel

Product In

Recirculation  
Tank

Recirculated  
Water Line

Pumps

# Rinse Conveyor

 [go.uvm.edu/rinseconveyor](https://go.uvm.edu/rinseconveyor)



# Containers: Totes, Lugs, Cartons, Bins, Boxes

- What crops?
- Drain holes or a solid bottom?
- Vented sides?
- Cleanable?
- Durability
- Can you easily label?
- Light blocking and UV resistance
- Stacking/Nesting?
- Different colors?
- Is the container ergonomic?



[go.uvm.edu/totes](https://go.uvm.edu/totes)



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# Mechanics Tools

## Wrenches, screw drivers, etc.

- Separate from postharvest activities
- Readily available
- Specialty tools
- “To-go” kit





# Field & Harvest tools



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# Harvest Tote



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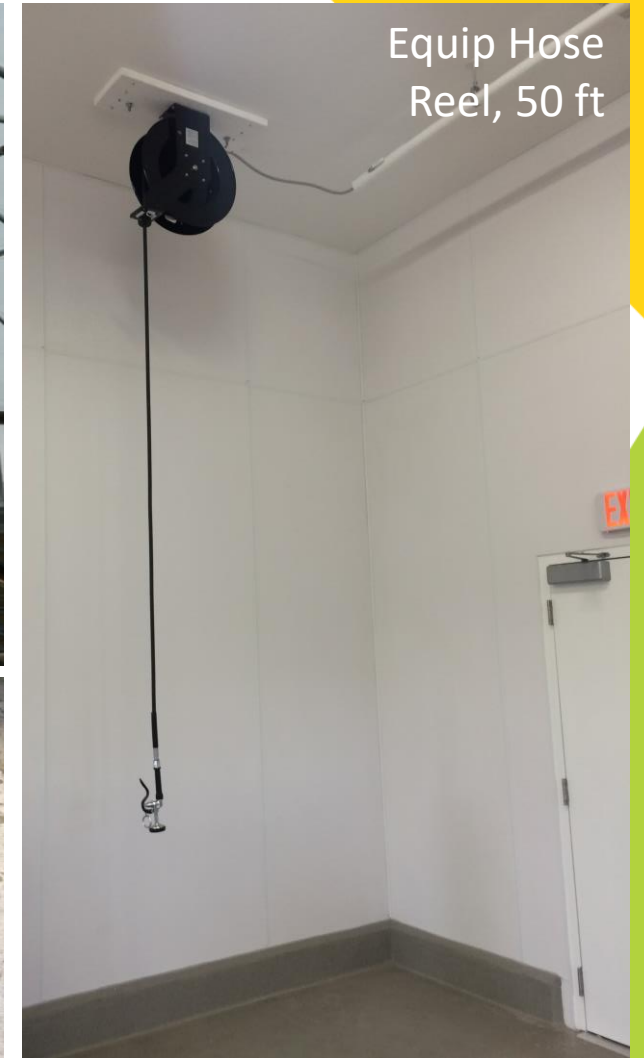
# Diggers' Mirth – Hilary Martin

"The hose trollies are so wonderful. The hoses are never on the ground, and they are never tangled. Placing them strategically so that each zone of the wash station has its own hoses is a dream. It used to be all "hey, which hose are you using? Can you use this other one so I can reach this one?" And then we'd spend 5 minutes untangling. SUCH NONSENSE!!"



# Hose Reels & Trolleys

- Helpful to have multiple hose drops/spigots
- Aim to keep hoses off the ground
- Routing/location



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# Hoses & Water Drops



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# Hoses & Nozzles

- Consider quality for point of use
- Hose diameter/Flow Rate
- Use of Quick Connects





# Cleaning tools

- “*What are you cleaning?*”
- Tools should be cleanable
- Consider color coding
- Easily accessible
- When to replace?



# Squeegees

- Water happens
- Drying is important
- Aides in drying
- Slip/trips/falls





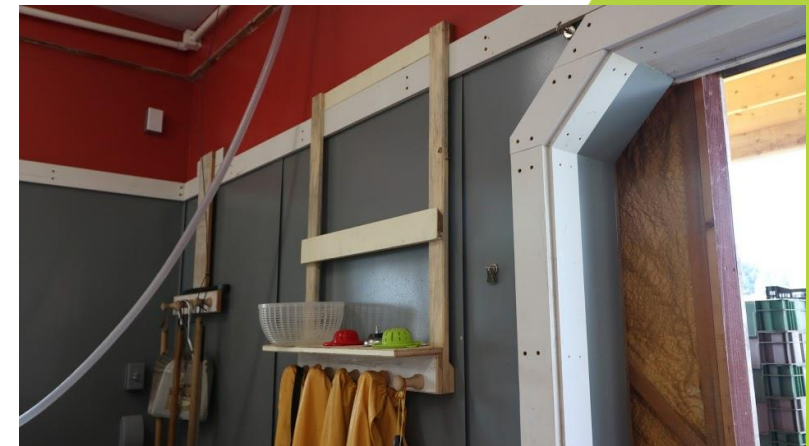
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# Hook Sticks

“This one's a Diggers original, invented by my farm partner Elango Dev: hook sticks. A long tool handle (like a hoe handle) with a hook screwed into the end of it. Now with our rolling dollies we don't use them as much in the wash station, but they ride around in every truck, for pulling stacks of clamshell totes out. This way you can stand at the end of the truck and pull the load without crawling all up into the truck.” – Hilary Martin



# Tools for Productivity





# Postharvest Case Studies

Footprint Farm – BarnHouse Construction (\$300k)

[go.uvm.edu/footprint](https://go.uvm.edu/footprint)



Mighty Food Farm – New Construction (\$100k)

[go.uvm.edu/mighty](https://go.uvm.edu/mighty)



Last Resort Farm – Dairy Barn Renovation (\$60k)

[go.uvm.edu/lrf](https://go.uvm.edu/lrf)



Root 5 Farm – Conversion and Expansion of Pole Barn (\$40k)

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# Project Planning for Post Harvest Efficiency, Profitability & Food Safety



## Postharvest Webinar: Introduction (Session 1)

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## Postharvest Webinar: Postharvest & Produce Safety (Session 2)

UVM Extension Agricultural Engineering



## Postharvest Webinar: Flow & Lean (Session 3)

UVM Extension Agricultural Engineering



## Postharvest Webinar: Virtual Tour of Farms (Session 4)

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## Postharvest Webinar: Buildings & Infrastructure (Session 5)

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## Postharvest Webinar: Equipment (Session 6)

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## Postharvest Webinar: Tools (Session 7)

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## Postharvest Webinar: Executing your Plan (Session 8)

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# Resources

- AgEng Blog  
[go.uvm.edu/ageng](https://go.uvm.edu/ageng)
- AgEng Podcast  
[agengpodcast.com](https://agengpodcast.com)
- YouTube Channel  
[go.uvm.edu/agengyt](https://go.uvm.edu/agengyt)
- Social Media - Facebook/Instagram/Twitter  
[@uvmextageng](https://@uvmextageng)
- UVM Produce Safety Portal  
[uvm.edu/extension/produceportal](https://uvm.edu/extension/produceportal)
- CAPS enrollment  
[vbgga.org](https://vbgga.org)
- Your local Extension



## Search the Produce Safety Portal

Content | Images

▼ Show Search Options



### Improving Handwashing Stations

Added by Andrew Chamberlin • Last updated June 12, 2020

AUTHOR: Chris Callahan & Andy Chamberlin

TYPE: Case Studies & Examples; Fact Sheets; Photos & Videos; Tools, Calculators & Pro

TOPIC: Produce Safety Introduction; Worker Health, Hygiene & Training

Handwashing has been shown to be one of the most effective ways to reduce the risk of trans... inconveniently far from the closest wash room and sink. Hand washing stations provide a port... recreational sites. This guide was motivated by a desire to improve current...



### Hanging Hoses

Added by Chris Callahan • Last updated April 27, 2020

AUTHOR: Chris Callahan & Andy Chamberlin

TYPE: Fact Sheets

TOPIC: Agricultural Water (Pre/Post Harvest); Post Harvest Handling & Sanitation

Having water when and where you need it can make a big difference in vegetable wash station... wash/pack buildings.



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# Contact Us

- Questions
- Comments
- New Ideas
- Packshed Innovations
- Put our suggestions to use?

[producesafety@uvm.edu](mailto:producesafety@uvm.edu)

@UVMExtAgEng on Social Media



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# WHAT HAS IMPROVED YOUR FARM?

What are your employees so thankful and excited about?

What do you find yourself saying “I’m so glad we \_\_\_\_\_”

**COMMENT BELOW!**



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