Washing, Packing, Post Harvest

Michael Kilpatrick
Kilpatrick Family Farm

In The Field

Consultants
To get the slides!
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Harvest and Post-harvest
Its all about material handling
Chris Blanchard’s Harvesting Rules

• Drag containers rather than pushing them

• keep the container near the hand that the product ends up in, and never cross your body with your hands

• keep supplies like twist ties and rubber bands next to the hand that grabs them.

• don’t set tools down, learn to work while holding knife (rubberbanding, twist tying)

• Keep tools sharp, if you feel it when you cut yourself, it isn’t sharp enough

• Track progress week to week, share with crew for a reinforcing feedback loop

purplepitchfork.com/blackbelt.
equipment storage

Crate storage

stairs to storage

cooler 2

record 5

metro rack

cooler 1

rotary table

Root washer

apron for bin washing

mechanical

record 5 table

hand washing

milk Hay sink

metro rack

apron to keep dirt out; possible overhang in future to keep sun out.
Cement slab floor will cost between 200-250 per square foot - necessary for smooth operation. Folding tables can be added or broken down as needed for temporary work. 1 sq = 1 ft

cooler wall has a whiteboard along the entire wall
Rosecreek Farm

- Screen table
- Rolling cart
- Spinner
- Spinner
- Bubble washer
- Packing shelf
Hudson Valve
Barrel washer from Grindstone Farm
www.grindstonefarm.com
For Root crops
Vari-Speed
8'x30" barrel
Clear plastic barrel
Price $4100
PA RB65 Washdown Gun
Pressure Wash Components / Spray Guns
HEAVY-DUTY WIRE CARTS

Tough maneuverable carts move large loads.

- Recommended for labs, food service, offices and hospitals.
- Easy to clean; won't collect dirt.
- Adjustable shelf height.
- 5" lockable swivel casters.
- Optional Wire Shelving Accessories available.
SILENT AIRE AIR BLOWER

ORDER: AS-610U
MODEL: 994-55002-7A-S
SERIAL: 130701 556411

1.0HP 115V/4.5A 230V/2.4A
1.5HP 115V/6.2A 230V/3.1A

UL RECOGNIZED BLOWER
Cooling requirements

Most crops do best between 32° and 35°

several do best around 50°

if sweet potatoes go below 55° damage can occur.

at 45°, shelf life is 1/2 that of 32°- keep produce cool

http://www.ba.ars.usda.gov/hb66/contents.html
Fresh produce is Alive
Sanitation

- Use stainless steel, concrete, FRP board, or plastic for walls, floors, doors

- use an approved sanitizer:
  - Peroxyacetic Acid (PPA) Trade name (Sanidate, Tsunami),
  - Clorine, (Allowed in organic only as a cleaner)
  - Quaternary Ammonium Compounds (Quats) (not allowed in organic production)

http://www.biosafesystems.com
# Storage Conditions/Temperatures

<table>
<thead>
<tr>
<th>Optimum conditions for vegetables with 30+ days storage life</th>
<th>32°F and 90–100% humidity</th>
<th>32°F and 65–70% humidity</th>
<th>40–50°F and 90% humidity</th>
<th>55–60°F and 85–90% humidity</th>
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<td>sweet potatoes</td>
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[http://blog.uvm.edu/cwcallah/crop-storage-resources/](http://blog.uvm.edu/cwcallah/crop-storage-resources/)
Root Celler

- 40 x 8 x 9 insulated shipping container
- Movable, no need for building around it
- $15 thousand invested - holding $60 thousand in product.
- 3 HP condenser - 2 evaporators
Inside the root cellar

- note stainless walls
- slatted floor
- to keep the humidity up (90%), we hose down bags
- crops are stacked on pallets to keep them organized
laying out the root cellar

beets
## Root Cellar Inventory

Last edit was made 37 days ago by Keith.Drinkwine

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possibilities.....
Insulating Trucks?

- above 15 degrees and under 2 hours doesn't seem to be a problem
- roots on bottom of stacks
- just insulate very well
- www.webasto.com
- open flame heaters NOT a good idea-
using natural cooling

Thermostat measuring outside air (set for heating)

thermostat measuring inside air (set for cooling)

Fan (in window bringing in cold air)
HOW IT WORKS

Outside Air System

Louver to let air circulate

Inside air thermostat

Outside air thermostat

Fan
Root Pits
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