Constructing and Using Root Cellars

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A root cellar is an attempt to create conditions similar to those which exist underground. Except it is more convenient.

- Dark
- Damp
- Cold, but not freezing
## STORAGE REQUIREMENTS FOR COMMON VEGETABLES

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Temp. (°F)</th>
<th>Relative humidity</th>
<th>Average storage life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beets</td>
<td>32</td>
<td>95%</td>
<td>1-3 months</td>
</tr>
<tr>
<td>Brussels sprouts</td>
<td>32</td>
<td>90-95%</td>
<td>3-5 weeks</td>
</tr>
<tr>
<td>Cabbage</td>
<td>32</td>
<td>90-95%</td>
<td>3-4 months</td>
</tr>
<tr>
<td>Carrots</td>
<td>32</td>
<td>90-95%</td>
<td>4-6 months</td>
</tr>
<tr>
<td>Cauliflower</td>
<td>32</td>
<td>90-95%</td>
<td>2-4 weeks</td>
</tr>
<tr>
<td>Celeriac</td>
<td>32</td>
<td>90-95%</td>
<td>3-4 months</td>
</tr>
<tr>
<td>Celery</td>
<td>32</td>
<td>90-95%</td>
<td>2-3 months</td>
</tr>
<tr>
<td>Chinese cabbage</td>
<td>32</td>
<td>90-95%</td>
<td>1-2 months</td>
</tr>
<tr>
<td>Dry beans</td>
<td>32-50</td>
<td>65-70%</td>
<td>1 year</td>
</tr>
<tr>
<td>Endive</td>
<td>32</td>
<td>90-95%</td>
<td>2-3 weeks</td>
</tr>
<tr>
<td>Garlic</td>
<td>32</td>
<td>65-70%</td>
<td>6-7 months</td>
</tr>
<tr>
<td>Horseradish</td>
<td>30-32</td>
<td>90-95%</td>
<td>10-12 months</td>
</tr>
<tr>
<td>Jerusalem artichoke</td>
<td>31-32</td>
<td>90-95%</td>
<td>2-5 months</td>
</tr>
<tr>
<td>Kale</td>
<td>32</td>
<td>90-95%</td>
<td>10-14 days</td>
</tr>
<tr>
<td>Kohlrabi</td>
<td>32</td>
<td>90-95%</td>
<td>2-4 weeks</td>
</tr>
<tr>
<td>Leeks</td>
<td>32</td>
<td>90-95%</td>
<td>1-3 months</td>
</tr>
<tr>
<td>Onions</td>
<td>32</td>
<td>65-70%</td>
<td>5-8 months</td>
</tr>
<tr>
<td>Parsnips</td>
<td>32</td>
<td>90-95%</td>
<td>2-6 months</td>
</tr>
<tr>
<td>Peppers, dry</td>
<td>32-50</td>
<td>60-70%</td>
<td>6 months</td>
</tr>
<tr>
<td>Peppers, sweet</td>
<td>45-50</td>
<td>90-95%</td>
<td>8-10 days</td>
</tr>
<tr>
<td>Potatoes</td>
<td>38-40</td>
<td>90%</td>
<td>5-8 months</td>
</tr>
<tr>
<td>Pumpkins</td>
<td>50-55</td>
<td>70-75%</td>
<td>2-3 months</td>
</tr>
<tr>
<td>Rutabaga</td>
<td>32</td>
<td>90-95%</td>
<td>2-4 months</td>
</tr>
<tr>
<td>Salsify</td>
<td>32</td>
<td>90-95%</td>
<td>2-4 months</td>
</tr>
<tr>
<td>Sweet Potato</td>
<td>55-60</td>
<td>85-90%</td>
<td>4-6 months</td>
</tr>
<tr>
<td>Tomatoes, mature green</td>
<td>55-60</td>
<td>85-90%</td>
<td>2-6 weeks</td>
</tr>
<tr>
<td>Turnips</td>
<td>32</td>
<td>90-95%</td>
<td>4-5 months</td>
</tr>
<tr>
<td>Winter radishes</td>
<td>32</td>
<td>90-95%</td>
<td>2-4 months</td>
</tr>
<tr>
<td>Winter squash</td>
<td>50-55</td>
<td>70-75%</td>
<td>3-6 months</td>
</tr>
</tbody>
</table>
Traditional Root Cellars Could be Things of Beauty
This is the old root cellar in Buffalo Valley, Pennsylvania, that got us started collecting root cellars.
Outside the Knier root cellar.
Of course, root cellars needn’t be elaborate buildings.

If anything, root cellars are practical.

Lots of options exist to get by until you get the fancy one built.
Garden Row Storage

- 8” or more of mulch
- Hardware cloth or screening
- Carrots
- Row marker
Plant Protection Tent

- String or wire to support plastic
- Plastic sheet
- Stout stake
Clamp or Mound

- straw protrudes for ventilation
- straw packed the long way
- 3"-4" layer of soil
- small internal straw stack for ventilation
- soil
- dig out 12"-18" of soil
- larger trench
- small trench
- mat of leaves or hay
- larger trench
- small trench
- soil over straw
- vent board

Clamp with a Vent Board
Earth Pit

- Old door
- Plastic sheet
- Mulch
- Earth collar
- Drainage trench
- Dry sand or sawdust
- Vegetables
- Dry sand or sawdust
Hay Bale Fortress

old window

hay bales
Storage Trench

layer of straw, leaves or moss
Outdoor Storage Bin

- improvised roof
- straw
- potatoes
- rack
- soil mound
Root Box

- Hardware cloth lining box
- 3” - 4” of straw
- Vegetables
- Bed of straw, leaves or moss
Drain Tile Storage

- old board
- clay drain tile or flue liner
- vegetables in basket
- rocks
- gravel
Storing vegetable crops
Buried Refrigerator

backfill with loose soil after refrigerator is in position

rocks and gravel for drainage
Storage Barrel

- soil
- straw
- retaining board to hold soil
- access board
- 2' soil around barrel
- 45° angle
But a more permanent structure makes life easier!

Sometimes a free-standing building is used.
Harpers’ Root Cellar

- shelves—floor to ceiling
- concrete block walls
- inner door
- ground level
- outer door
Heides’ Root Cellar

- vent
- shingle roof
- stone path
- sodded berm
- heavy inner door

Diagram showing the layout of a root cellar with labeled parts.
Olweilers' Well Cellar

- aluminum roofing
- boards
- $1 \times 8$s
- pump
- stone wall
- pipe 1' above floor
- potato bins
- drain 1'1/2' above floor
- apple baskets
- ladder made of pipes
But, to be handy, nothing beats a root cellar in the cellar!
Besides Dark, Damp and Cold

Good Air Flow is Crucial to a Successful Root Cellar
Good

- warm air out
- cold air in
There is little air motion between the shelves, if the shelves touch the walls. Sometimes this causes the produce to get moldy.
Space between the shelves and walls allows fresh air to circulate around the produce, thus preventing the produce from getting moldy.
Our Root Cellar

• Built in 1982
• NW corner of basement
• No cement on floor, just gravel and sand
• 10’ x 10.5’ in size
• S and E walls are double 2” x 4”, offset
• Polystyrene insulated door
• 6” fan mounted in vent pipe from window
Cooling down the root cellar

- turn on fan on cold nights, turn off during the day
Vegetables to store in root cellar and timing

• Potatoes – Late August, Early September
• Apples – September – October – a little longer term
• Pears – September – October; short term
• Carrots – buried in wet sand– Late October – Early November
• Beets – in wet sand- Late October – Early November
• Rutabagas – Late October
• Parsnips – Late October – Early November
• Leeks – planted in wet sand – Late October – Early November
• Celeriac – similar to beets in wet sand
• Cabbage – short term in late fall
• Sauerkraut – later better than earlier; no earlier than late September; store in fridge before that
• Lacto-fermented pickles – same timing
Things to not store in the root cellar – too wet and too cold

• Squash
• Sweet potatoes
• Onions
• Garlic
Maintenance chores

• Keep the sand floor wet
• Keep the carrots and beets wet
• Monitor the temperature and turn the fan off and on as appropriate; open door if excessively cold
• Removing rotten fruit and vegetables as necessary
Psyching yourself out for using the root cellar all winter

- Even if it is in your basement, one has to put on shoes, track sand all around, possibly put on a coat, or at least a vest in order to retrieve the food stored in a root cellar. Then there is the task of washing those dirty vegetables. Recently I put a mat for scraping one’s feet in our root cellar. I can get out without bringing more sand back into the house. Sometimes I will bring up a weeks worth of filthy carrots and beets, clean them up and store them in the frig.
Resources

• **Root Cellaring**: The Simple No-Processing Way to Store Fruits and Vegetables
  - By Mike & Nancy Bubel
  - Published by Rodale
  - 297 pages
Bubels’ Root Cellar

lower level
upper level

west
east

food cellar

steps down
dirt floor
concrete floor

upper level
on slab

workshop
on slab

lower level
(3 steps down)
on slab
The dirt-floored root cellar in our old house.
Packing carrots in sawdust in a carton is our favorite storage method.
That's All, Folks!