



# Root Cellaring In NE Minnesota

June 27, 2020

**A brief introduction to small & large, above or below grade root cellar designs will be followed by a panel discussion with local growers sharing their expertise and experience in designing, building and using homesteading, farm-scale to community-scale root cellars.**



**\*We are recording this presentation & will be posted at <[finalndfoodchain.org](http://finalndfoodchain.org)>**

Moderator: Cindy Hale [cindy.hale@friendsoffinland.org](mailto:cindy.hale@friendsoffinland.org)

Producer Education & Infrastructure Coordinator, Finland Food Chain Project



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## **What to expect today...**

- 15-20 minute introduction of the panelists and different root cellars
- Answering your questions using visual aids as possible!

## **How to interact with us in ZOOM...**

- Type your questions into the Q & A box which we will be monitoring!
- Introduce yourself to the group in the CHAT box
- Keep you microphone muted except when asking a question.

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# Our Root Cellar Overview

There are as many kinds of root cellars as there are creative minds who needed to find ways to preserve food through the cold MN winters. We will look at a few types...

- Concrete, built into hillsides
  - Earthbag, build above grade
  - Repurposed “extra space”
  - Modern, mechanized for large scale production
  - Buried refrigerators and more!
- 
- Please, tell us what YOU have in the CHAT box!



# Our Root Cellar Panelists

**Rebecca Gawboy** & her husband Jim, farm just outside of Tower MN. She has renovated and repurposed of a very large root cellar from the 1940's when northern Minnesota was the largest potatoes producer in the country!



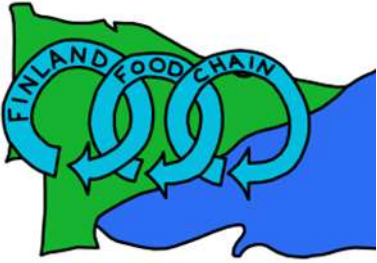




# Our Root Cellar Panelists

**David Abaz of Round River Farm** in Finland Minnesota, will help moderating our question today...they have a basic 10' x 15' concrete box root cellar. It sits on bedrock, under their porch and is accessed by the basement. One vent to cool quicker in the spring





# Our Root Cellar Panelists

**Sherry Rovig** of **Bark in the Dark** farmstead in Duluth Township featuring the construction & use of Earth Bag Root Cellars. She's built two and has a lot to share.





# Our Root Cellar Panelists

**Cindy Hale** of **Clover Valley Farms** in Duluth Township showing how we killed three birds with one stone, by creatively using one building to protect our pump house, provide storage and make a root cellar.







# Earth Bag Root Cellars

-the first one-



Main room is 8 ft diameter, and high enough to easily walk in and out of without bending or crawling...

we all get old, but we still need to eat!

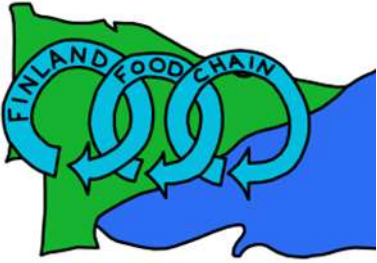




# Earth Bag Root Cellars

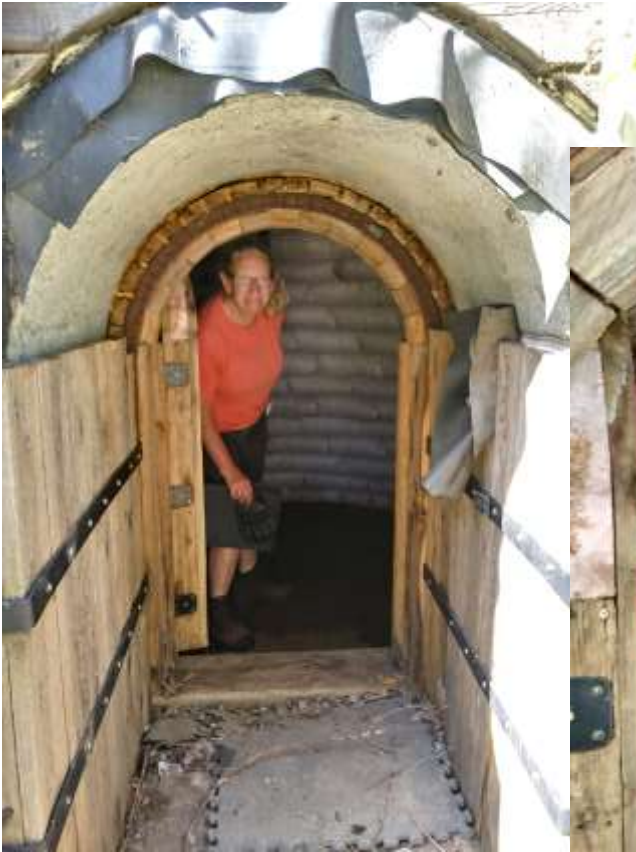
-the first one-





# Earth Bag Root Cellars

-the first one-







# Earth Bag Root Cellars

## -the first one-

The exterior provides a range of growing habitats including a nice dry spot for strawberries up top!







# Earth Bag Root Cellars

## -the second one-

Some new tricks to make the process easier & better...



Sew a gusset in the corners of the bags to make them more “brick-like” when they are full  
a bag filling rack and plate for sliding the bag into place!





# Earth Bag Root Cellars

-the second one-







# Earth Bag Root Cellars

-the second one-



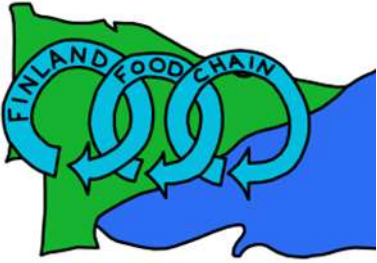




# Earth Bag Root Cellars

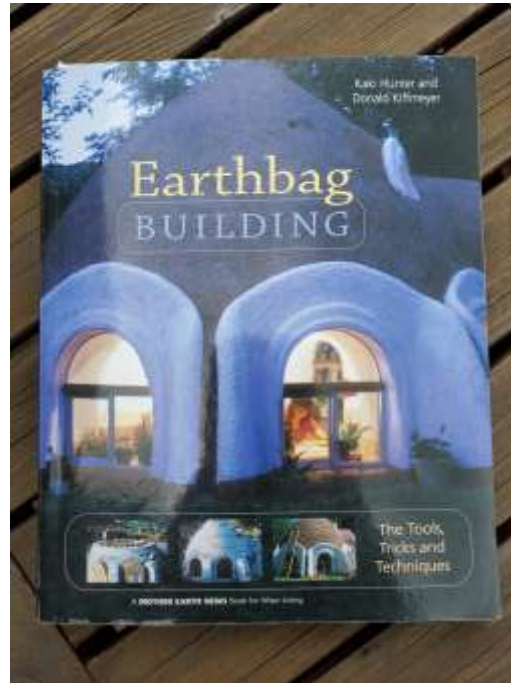
-the second one-





# Earth Bag Root Cellars

-the second one-







# Earth Bag Root Cellars

## -the second one-



### Expenses:

Lumber - \$400

Hardware and supplies - \$365

Barbed wire - \$87

Foam board - \$550

Vent pipe - \$30

Electrical supplies - \$120

Straw - \$75

Burlap – \$161

Sand - \$150

Road base and skid steer - \$4,000

Polypropylene sand bags – 310 @ \$0.215/each = \$67

**Total - \$6,005**

Labor = 2 months of  
part-time 1-3 people  
We usually finished a  
course in a day.

### Specifications:

Interior diameter – 10'

Exterior diameter with bags – 12' 2"

Exterior diameter with soil – 36'

Wall height – 6'

Doorway rough opening 33 x 72

Volume – 475 cu. Ft.

Vent pipe – 4" i.d.





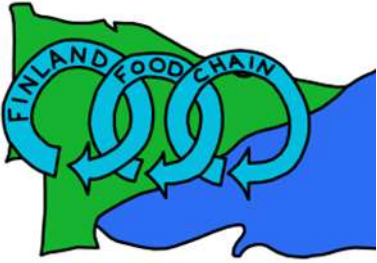
# Creating a Root Cellar out of empty space

**Four problems...**

- **Needed more storage**
- **Pump house protection**
- **Short-term storage of LARGE apple crops**
- **overwintering of trees**

**...one solution**





# Creating a Root Cellar out of empty space



View from west



View from west





# Creating a Root Cellar out of empty space







# Creating a Root Cellar out of empty space





# Root Cellaring Questions!



I have an old root cellar on my property, what do I DO with it?

- Assess it's condition
- Assess your needs
- Section it off as needed
- Potential business enterprise by renting to other farms?





# Root Cellaring Questions!

Ok, panelist...what do you see in Tracey's root cellar??







# Root Cellaring Questions!

What can I store in my root cellar?





# Root Cellaring Questions!

Do I have to have separate spaces for different things?

- Apples
- Potatoes
- Carrots
- Winter squash
- Others?





# Root Cellaring Questions!

How do you manage moisture and heat/cooling?

- **Dirt floor vs. concrete floor**
- **Venting vs. no venting**
- **Bucket of water trick (using phase change energy!)**
- **Others?**



# Root Cellaring Questions!

## How do you store different produce?

- Apples – loose?
- Potatoes – loose?
- Carrots & Beets – dry sand?
- Winter squash – loose?
- Anything that needs special treatment?





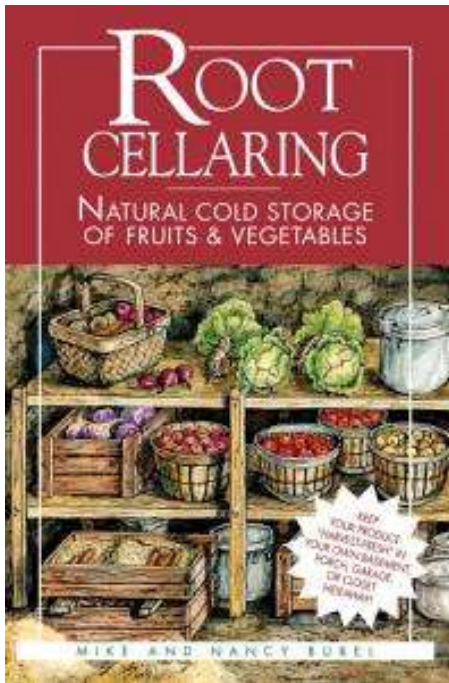


# Selected Root Cellaring Resources!

## **Cold Cellars for Year-Round Local Food and Farming**

January 2009. by John Biernbaum, MSU

<https://www.canr.msu.edu/hrt/uploads/535/78622/RootCellars-PowerPoint-6-per-page-14pgHandout.pdf>



## **Root Cellaring – Natural Cold Storage of Fruits & Vegetables**

By Mike & Nancy Bubel

The most referenced source of root cellar information. First published 1979 and revised 1991. A good deal at \$15.



# The Food Farm Root Cellar!

First Root Cellar in 2000, below Janaki's parents house. The cost (\$35,598) and some of the design aspects of this first Food Farms Root Cellar can be found at UMN extension <https://smfarm.cfans.umn.edu/root-cellar>

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It was SOO successful, they quickly knew they needed more space...

They broke ground for the new root cellar (a \$300,000 project) in 2015. It is truly an amazing system and the current gold standard for large scale root cellaring. <https://foodfarmcsa.wordpress.com/root-cellar-kickstarter-project/>

As an "Open Source Farm" the original blueprints are here...<https://farmhack.org/wiki/modern-root-cellar>

YouTube – FoodFarmCSA <<https://www.youtube.com/channel/UCVFPARMPePHZhTE2ZIWYURA>>

- Food Farm – Building a Better Root Cellar – June 9, 2015 [https://www.youtube.com/watch?v=B80B\\_ACn4a0](https://www.youtube.com/watch?v=B80B_ACn4a0)
- Farmer to Farmer Podcast episode 114 (1.5 hr podcast!) <https://www.youtube.com/watch?v=hURG1fFKSUE>
- Virtual Food Farm Root Cellar Tour – Nov 20, 2019 <https://www.facebook.com/watch/?v=419308352079072>





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**Not long ago, our local region produced a surplus of food...**

We have been handed down a proud tradition of growing, raising, hunting, and fishing for our food. But over the past 50 years, local agriculture has seen a dramatic decrease, and it has become very difficult for local people to access local foods. **We hope to see the return of our local food economy. After all, wouldn't rather support local people with your dollars?**



**This slide show and the recorded ZOOMinar will be posted on The Finland Food Chain website <finlandfoodchain.org> Learning tab.**

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