

SEEDS Farm

Rachel Kitze, Allie Mastny, Rebecca Spur, Audrey Webb
with Rebecca Carlson



Food Shelf

Sharing Plot

The food shelf at the Northfield Community Action Center distributes food to over 400 families per month. Last year SEEDS farm created the Sharing Plot, a volunteer-farmed garden dedicated solely to the production of produce for the food shelf.

To plan this year's Sharing Plot, we met with the coordinators of the Northfield food shelf and determined the types of produce most popular with its clients. The new Sharing Plot is designed specifically to suit the demands of the food shelf, and includes lots of tomatoes, peppers, lettuce, and squash. SEEDS, along with many other Northfield farmers, is hoping to keep up a continuous supply of healthy and fresh produce to the food shelf throughout the growing season.

Visit Day

In the works is a mid-July visit day to the farm for Community Action Center families. The aim of this event is to connect more people to SEEDS, share information about local and sustainable agriculture, and have fun! Activities will be child-friendly and include a farm tour, some weeding and harvesting, playing with the chickens and goats, and sharing recipes that incorporate SEEDS produce. Stay tuned!

Farm to School

SEED's mission to foster experiential learning and discovery finds a natural extension in the farm-to-school program beginning to take root in the Northfield School District. Since the adoption of the National Farm to School Initiative in 2007, the Northfield School District has become increasingly supportive of locally produced and sourced food products as public unease over rates of child obesity, malnutrition, and food safety scares has grown. Through its collaboration with the farm-to-school program, SEEDS farm wishes to become a source of healthy, sustainably grown food as well as an educational tool for the nearly 3, 709 students in the Northfield School District.

Throughout this semester, we researched the crux of the Farm-to-School initiative. We researched its origins, the benefits and the challenges of FTS programs, and the relative successes and failures of various attempts. In addition, we learned to ask the right questions as we endeavored to initiate a partnership between SEEDS farm and the district food coordinator, Pam Haupt. Still yet to be determined is the quantity of food to be supplied to the school district, a relative time line to guide the school's menus, and asking prices for SEEDS produce. As the SEEDS website states, the evolution of the farm is still unfolding.



Value Added Products

To create a value added product, farmers take their raw produce and process or prepare it in some way to increase the value of the final product. The SEEDS farm is looking to develop one or several value added product(s) that could be sold at the Riverwalk Farmers Market in Northfield.

In order to create and sell a value added product, there are some laws and regulations that farmers should be aware of. Certain products that they create and sell will be exempt from licensing and regulations, while others will involve a host of complex statutes and laws and involvement with the regulatory agencies in Minnesota.

Exemptions

Chapter 28A of the Minnesota Statutes lays out exemptions for licensing. Farmers are exempt from regulations if they are selling the products of their farm that is occupied and cultivated by them. [1]

The *Pickle Bill* also exempts farmers from regulations if they are selling products that have an equilibrium pH value of 4.6 or lower and are home-processed and home-canned in Minnesota. [2]

Regulatory Procedures

For products that are not exempt, farmers will be required to obtain a license. The SEEDS farm is interested in the licensing process to sell an item such as a breakfast burrito.

The first steps of acquiring a license are to develop a menu and estimate the volume of food to be stored, prepared and sold. It will be necessary to contact the local food inspector to acquire an application, and to review the application and equipment.

Depending on the food to be sold, different types of equipment will be required. Mobile Food Units and Seasonal Temporary Food Stands are self-contained units that have the required sinks, cooking equipment, and hot and cold holding equipment to safely serve food. A licensed food cart on the other hand is not fully self-contained and requires a Commissary. This is a kitchen that is licensed and has the equipment to allow you to safely store the food supply and prepare the food. Food cannot be stored or prepared in a private residence. [3]

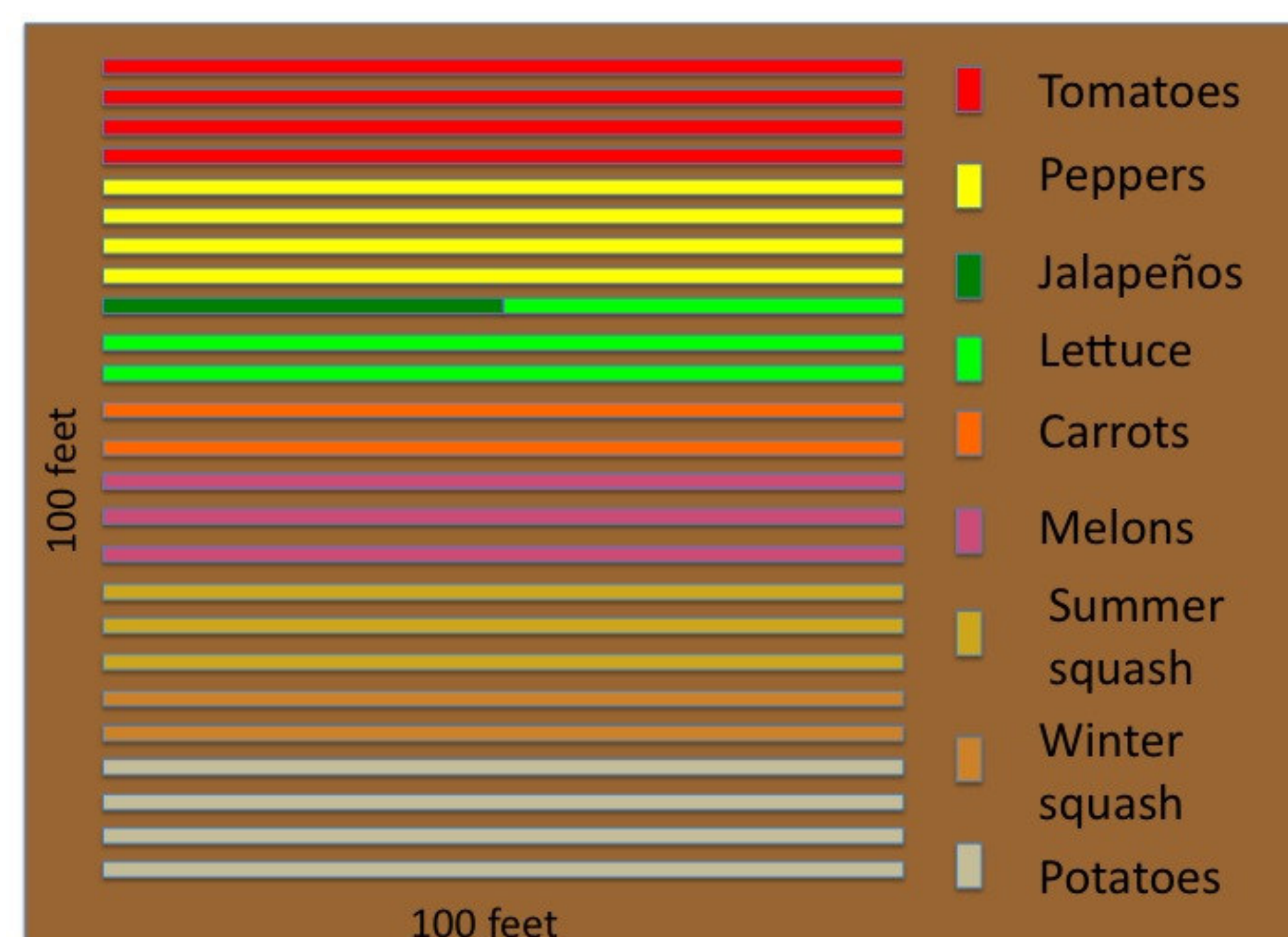
Creating a value added product is often a beneficial way for farmers to diversify their line of goods, appeal to a broader range of consumers' interests, and add to their overall financial viability.

[1] "2010 Minnesota Statutes." Minnesota Office of the Revisor of Statutes. 2010. <https://www.revisor.mn.gov/statutes/?id=28A.15> (Accessed April 20, 2010).

[2] "Pickle Bill Fact Sheet." Minnesota Department of Agriculture. 2011. <http://www.mda.state.mn.us/food/safety/minn-food-code-fact-sheets/pickle-bill.aspx> (Accessed April 20, 2010).

[3] "Plan Review Application – Temporary Food Establishments." Environmental Health Services Section. Minnesota Department of Health. PDF at <http://www.health.state.mn.us/divs/eh/food/license/mfureview.html> (Accessed April 27, 2011)

2011 SEEDS Sharing Plot



Left: Flats seeded with peppers that will be transplanted into the Sharing Plot.

Right: Tomatoes and peppers from SEEDS farm last season.



Website

SEEDS Farm has a new website! Together with the expertise of Robert Croisant, we designed and created a website to capture the vision of SEEDS Farm and portray this mission to the Northfield community.

The website delves into the history and evolution of SEEDS, elaborates upon the organization of the farm and its various plots, and suggests ways to get involved with life at the farm. The website strives to always refer back to SEEDS' overarching mission: to establish and maintain meaningful community connections while pursuing healthy lifestyles.

Check out the site at www.seedsnorthfield.com.

Designing an Orchard and Root Cellar at the SEEDS Farm

Social Entrepreneurship, Environmental Design and Stewardship Farm
2011 Environmental Studies Senior Seminar Academic Civic Engagement Project
St. Olaf College, Northfield, MN

Root Cellar Project

Brittany Faust, Matt Moon, Natalie Warren

What is a root cellar?

A root cellar is an underground, or partially underground, structure used to store vegetables, fruits, and other foods. It can range from a small box in the ground to an elaborate system of rooms with adjustable temperatures for various produce. To increase shelf life, root cellars maintain a temperature of 30-40 degrees and anywhere from 40 - 90 % humidity, depending on the type of produce. Root cellars are generally used at the end of the season to store excess harvest for the coming winter months.

Why we are doing this:

Today the need for energy is gradually increasing while our resources are decreasing. Technology has led our society to believe that we need things like industrial freezers and refrigerators in order to store food when, in fact, people have successfully stored food without those things for ages! Our project is a reminder to the community that there are more cost efficient and sustainable ways to store produce after the busy farming season. Root cellars are easy to build and maintain and should be a common sight at farms and food shelters. We hope to spread the word about root cellars to reconnect people with one of the land's natural services -- an organic refrigerator!

Implications of what you have learned and possible next steps.

- Expansion of cellar capacity and advancement in technologies such as insulation and ventilation / temperature control system
- Increased community knowledge and awareness of what root cellars are and their benefits
- Set an example and resource for other who want to build a root cellar
- Benefit / strengthen local food system in Northfield and surrounding area

What we've learned

- How to effectively communicate with community partners
- Practical knowledge for planning a building project
- Good research tactics
- Crop characteristics and how a root cellar functions

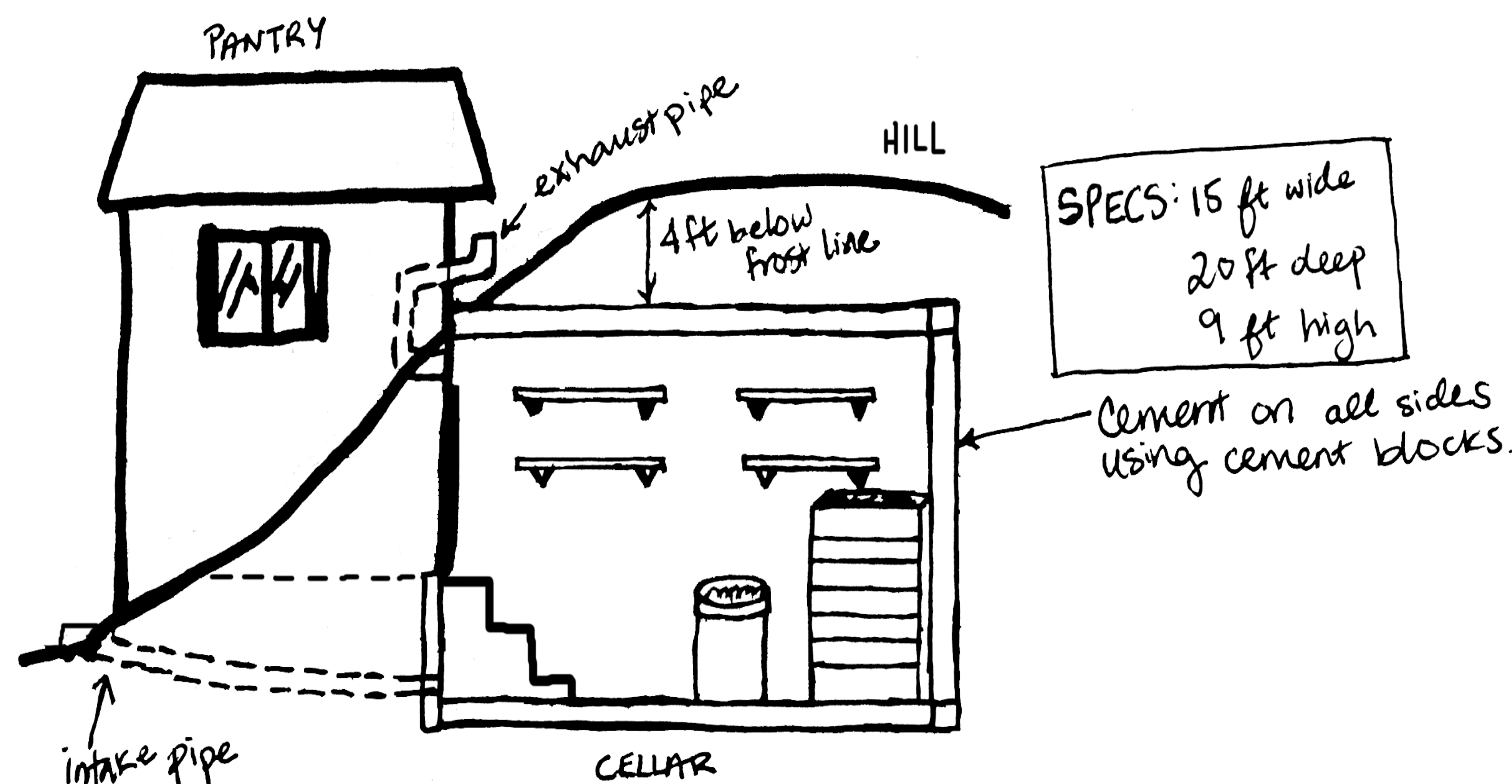


Figure 1. A diagram of the proposed root cellar for the SEEDS farm.

The idea behind our project

The process of designing an orchard that adheres to the principles of permaculture – stable, productive land structured around ecological relationships – can initially seem very daunting. We researched and designed a blueprint for SEEDS that can be used as a foundation for the implementation of a permaculture orchard in the future. With this template in hand, we hope that permaculture practices will spread from SEEDS farm to the Northfield community and beyond.

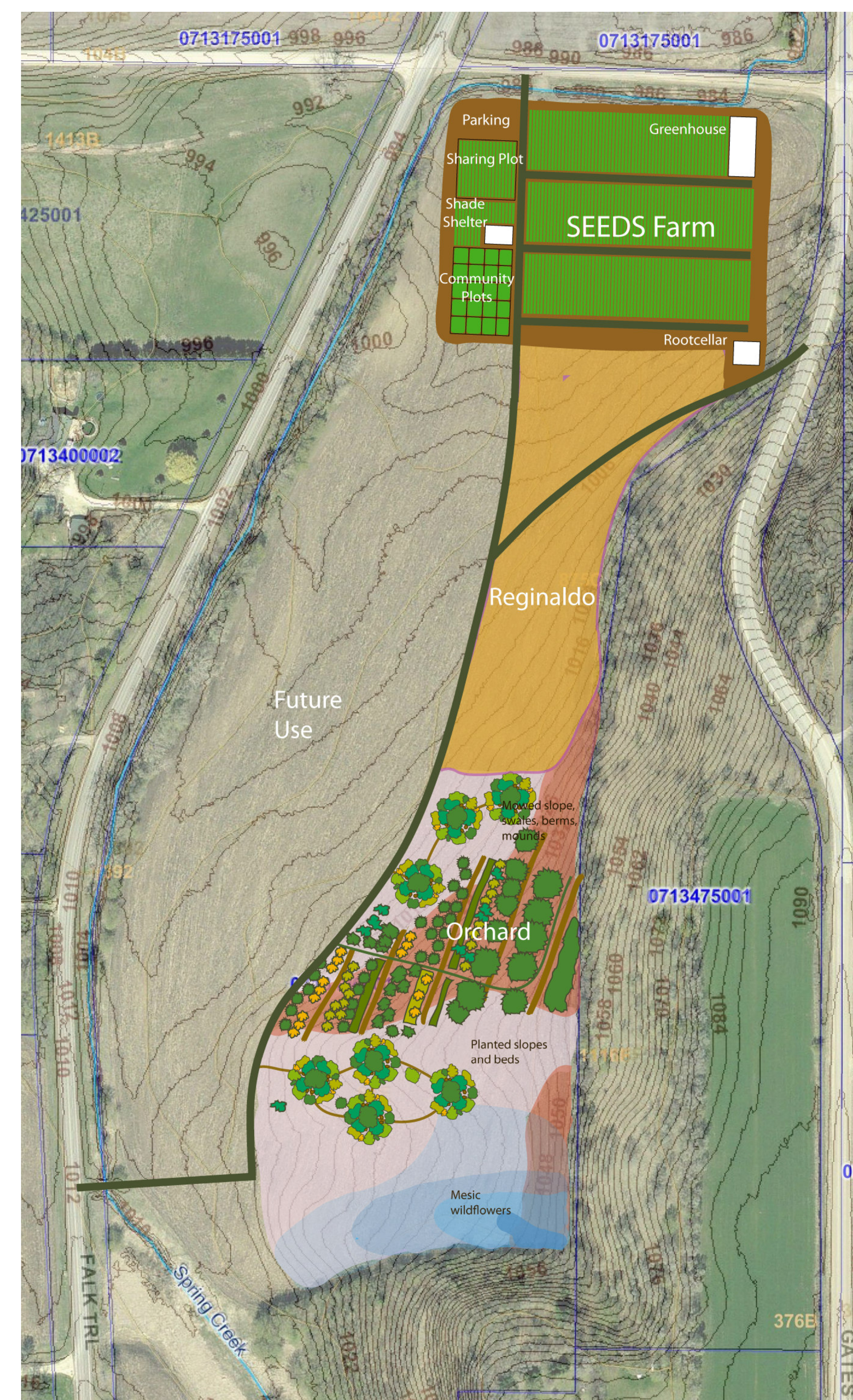


Figure 2. Current schematic map of the layout of SEEDS farm. (a) The root cellar will likely be located along the east access road, in order to expedite the transfer of produce in and out of the cellar. (b) The orchard will be located on the south end of the farm, where steeper hills make the planting of row crops or the siting of buildings impractical. Pink zones indicate grades < 10% and red zones indicate grades ≥ 10%, along with their suggested use. An example of a swale and a network of guilds is shown.

Permaculture Orchard Project

Emily Rose Pfaltzgraff, Tyler Refsland

The steps:

1. Articulate Goals
 - Plant an orchard on the sloped areas of SEEDS farm where planting row crops is not ideal
 - The orchard should be species diverse yet designed to be productive
 - The orchard will be organic and use native plants where possible
 - The soil will be stabilized and its quality improved
2. Analyze and assess site
 - Map the site and assess the elevation, determine problem slope areas
 - Assess hydrology, determine areas where water will accumulate
 - Test soil, determine what treatments (if any) will be needed before planting

- See Soil Parameters -

3. Create a schematic design of the overall site and its specific components. For SEEDS farm, steeper slopes may benefit from swales, berms, or mounds. Plan guilds with species compatibility, productivity, maintenance and accessibility in mind.

- See Plant List -

4. Finalize a detailed design before actual site preparation can begin. Using recommended plant species, refine schematic design. The site assessments will guide plant selection, as well as the prices of the desired plants.

Root Cellars: A Natural Alternative to Refrigerators!

By Brittany Faust, Matt Moon, and Natalie Warren
St Olaf College 2011



What is a root cellar and where can I build one?

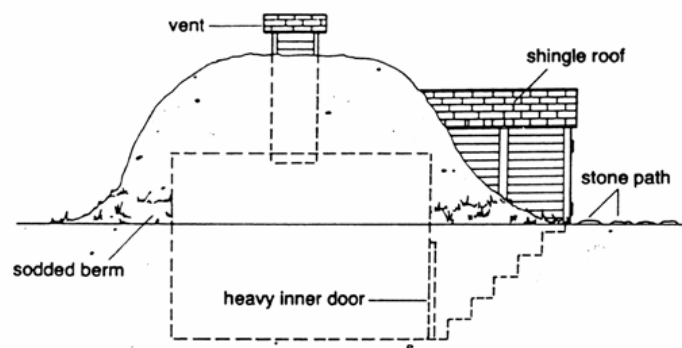
A root cellar is typically an underground storage area for produce, dry goods, meats, and other such food items. Root cellars can be built anywhere on your property. The best places for a root cellar to be built are:

- The side of a hill
- A basement
- Any area you can spare a few yards of space

Root cellars are built to be temperature-controlling, damp chambers to give a longer shelf-life to fresh produce, as well as to keep foods like meats and cheeses cooled. The standard temperature of a root cellar should be around 40 degrees Fahrenheit (much like a refrigerator!).

Hotter than that and the vegetables toughen, sprout, and/or spoil. The temperature at the top is warmer (by about 10 degrees) than near the ground.

To utilize that space, produces such as onions, garlic, and shallots can be placed on the top shelves because they can withstand warmer temperatures.



Benefits of having a root cellar:

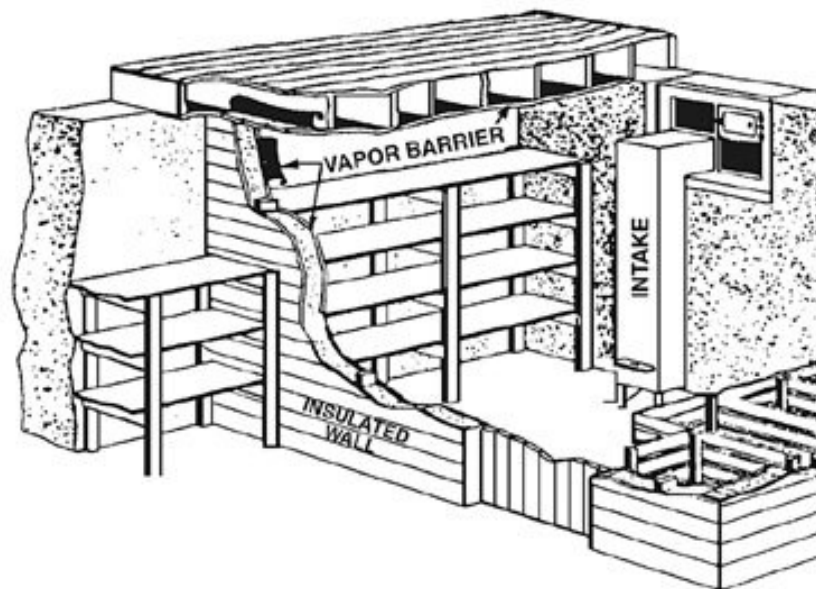
- 1) **They save energy** by naturally cooling produce so that no added energy is needed to maintain them.
- 2) **They are versatile.** You can create the size and shape of your root cellars to meet your needs. They can range from a simple box in the ground to elaborate rooms with hooks and shelves.
- 3) **They extend the shelf life** of most fruits and vegetables. Specific humidity and temperature levels work with venting systems to ensure optimal conditions to extend shelf life.

Okay! I want a root cellar! Now what?

Find a place on your property where you would like the root cellar to be located.

If you decide you want a root cellar built into a hillside, follow these steps:

- Make sure that the area you pick for your root cellar is 4 feet under the frost line
- Get supplies (cement, wood for shelves, wood posts, etc.)
- Dig in! Make the space the dimensions that you would like to have for storage (Ex. 8ft x 9ft)
- You can put wood panels on the sides as well as cement for added insulation
- You can fill the floor with cement if you want a less-humid root cellar, or you can keep a soil floor for added humidity
- Put in vents! One vent should be placed at the top as an output vent, and one coming from the bottom of the cellar to the soil above. The exhaust pipe should be 6 inches in diameter at top of cellar going straight into the pantry (unless pantry is heated, in which case pipe should go outside/upward). If you don't have a pantry, just have the pipe go upward out of the root cellar. Second pipe is for intake, which should go through a wall near the floor to allow for cold air to enter.
- Make sure that shelves are 3 inches from the wall to avoid mold!
- The door to the cellar must be heavy and thick so it can add insulation to the chamber
- You can also build a pantry on the outside of the cellar for dry goods!



If you decide you want a root cellar built underground, follow these steps:

- You can either have a roof entrance or stairs built in to the side of the root cellar
- Dig in! Make sure you have dug enough space for easier building
- Must be 4 feet below frost line
- Make a frame for the root cellar with wood posts and create a roof
- Add panels/cement walls to the sides for insulation and roof support
- Put in vents! One vent should be placed at the top as an output vent, and one coming from the bottom of the cellar to the soil above
- Build a roof
- Once completed, cover structure with 4+ foot layer of soil

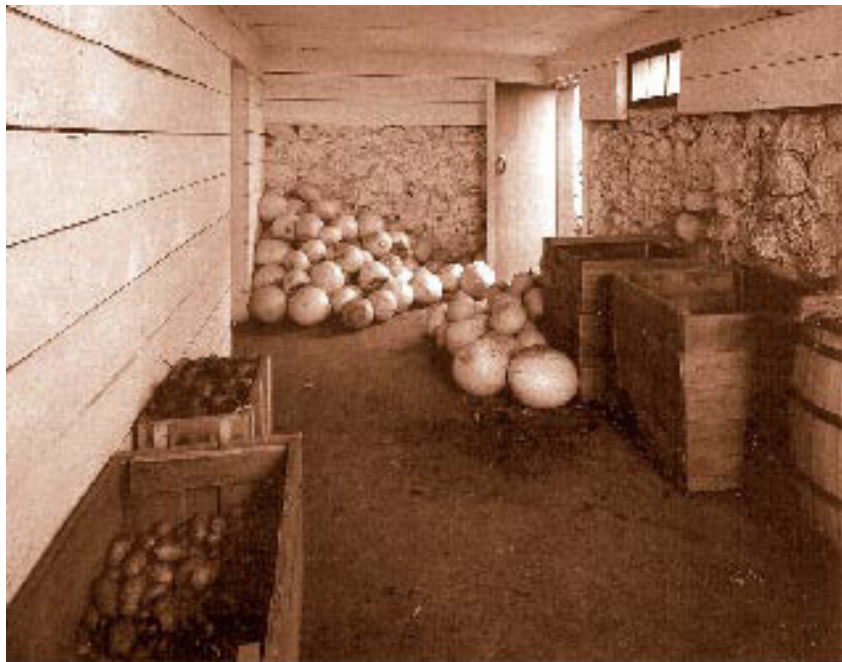
The root cellar must have a smooth ceiling. The more areas/grooves, protrusions on the ceiling, the more chance there is for condensation dripping on shelves and/or produce.

History of Minnesota Root Cellars: An Underground Movement

From indigenous peoples thousands of years ago burying their crops underground to ancient Romans storing their wine underground in search of the proper conditioning, the concept of using the earth's natural thermostatic abilities is nothing new. 17th Century Europeans are given credit for bringing much improvement and thought into the process of root cellar construction and when they immigrated to America they began installing root cellars at their new homes. During the Civil War root cellars provided shelter for slaves moving along the Underground Railroad.



Minnesota and the northern states in general made a habitat for root cellars due to a number of conditions: lower humidity, colder weather, and typically deeper water tables made root cellars and basements (often the two were combined) common in the northern states. Most Minnesota homes built from the mid 19th to early 20th century had either storage space in the basement or a cellar built into the design. A cellar such as the one above is typical of early American root cellar construction, often built into the side of a hill to minimize the need to move around massive amounts of soil.



A good example of a historical Minnesota root cellar is at Oliver H. Kelley Farm in Elk River, MN. The Oliver Kelley became one of the first and most competent Minnesotan farmers. To preserve his increasing harvest, Kelley incorporated a root cellar as part of the original farmstead built in 1850. The cellar was used to store all kinds of food products year round. The original stonewall of the cellar still exists today along with a couple original buildings as the farm has been preserved as a Minnesota historical site.

Organization of your Root Cellar

Temperature (°F) and Humidity (%)	32 - 40° 90 - 95%	32 - 40° 80 - 90%	40 - 45° 85 - 90%	35 - 40° 60 - 70%
Produce	Beets Collards Broccoli Chinese cabbage Carrots Turnips Radishes Rutabagas Parsnips Jerusalem artichokes Celery Salsify Celeriac Parsley Brussel sprouts Leeks Kohlrabi	Potatoes Endive Escarole Cabbage Cauliflower Quince Apples Pears Oranges Grapefruit Grapes	Cucumbers Cantaloupe Eggplant Tomatoes Watermelon Sweet peppers	Garlic Onions Green Soybeans Hot Peppers Sweet Potatoes Pumpkins Winter Squash Green Tomatoes

Costs

These costs were calculated using the Ace Hardware website. We encourage you to utilize local businesses and work with people in the community to acquire your materials. Things like cement blocks and spare wood for shelving could be acquired *for free* if you can find them, which would greatly diminish your costs. Good luck!

Cellar

Costs: 700 6x8 cement blocks, \$1- \$1.50 per block \$700 – 1,050

Cement mix - \$8 - \$10 for 60 lbs. \$16 – 20

Which block is right for the job and other installation advice:

<http://www.acehardware.com/info/index.jsp?categoryId=1283397>

Shelving w/ bolts -\$50 \$50

Baskets/ floor storage - \$20 \$20

Pantry

500 cement blocks \$500 - \$750

Cement mix (already included)

Wooden door \$30

Roof \$100

-Cap - \$30

-Panels - \$80

Aluminum Intake pipe \$10 - \$15

Aluminum Exhaust pipe \$10 - \$15

Cost of digging – tractor rental - \$170/hr \$170 - \$510

Total

\$1,606 - \$2,560

Sources

- 1) This site above from the University of Minnesota is one of the best resources for Minnesota root cellar construction. It has in depth specifics on cost, materials, and temperature data for the cellar at the Food Farm in Wrenshall, MN near Duluth.
<http://smfarm.cfans.umn.edu/rootcellar.htm>
- 2) <http://www.nytimes.com/2008/11/06/garden/06root.html>
- 3) “Produce bound underground”
<http://www.hobbyfarms.com/food-and-kitchen/root-cellars-14908.aspx>
- 4) “The return of the root cellars”
<http://www.tribwatch.com/rootcell.htm>
- 5) Wikipedia.org/root_cellars
- 6) “How to build a root cellar”
<http://www.survival-spot.com/survival-blog/build-root-cellar/>

**Value Added Products:
Summary for SEEDS Farm**

Environmental Studies 399
Academic Civic Engagement Project
Spring 2011

Introduction

To create a value added product, farmers take their raw produce and process or prepare it in some way to increase the value of the final product. The SEEDS farm is looking to develop one or several value added product(s) that could be sold at the Riverwalk Farmers Market in Northfield in the near future.

In order to create and sell a value added product, there are some laws and regulations that farmers should be aware of. Certain products that they create and sell will be exempt from licensing and regulations, while others will involve a host of complex statutes and laws, and involvement with the regulatory agencies in Minnesota.

Exemptions for Farmers

Chapter 28A.15 of the Minnesota Statutes lay out the exclusions for licensing food handlers.¹

Farmers are exempt from licensing if they are selling the products of their farm or garden occupied and cultivated by them.

The Pickle Bill, which is also contained in chapter 28A.15 Subdivision 10 exempts farmers from licenses if they are selling home-processed or home-canned food products that meet the following five conditions

- (1) the products are pickles, vegetables, or fruits having an equilibrium pH value of 4.6 or lower
- (2) the products are home-processed and home-canned in Minnesota
- (3) the products are sold or offered for sale at a community or social event or a farmers' market in Minnesota
- (4) the seller displays at the point of sale a clearly legible sign or placard stating: "These canned goods are homemade and not subject to state inspection" unless the products were processed and canned in a kitchen that is licensed or inspected
- (5) each container of the product sold or offered for sale under this exemption is accurately labeled to provide the name and address of the person who processed and canned the goods and the date on which the goods were processed and canned.

The foods that might be allowed under the Pickle Bill

- Home-processed or home-canned sweet or dill pickles, tomatoes, salsa, apples, cherries, grapes, plums, peaches, flavored vinegars and naturally fermented foods such as sauerkraut and pickles
- May also include other non-potentially hazardous foods such as jams, jellies, fruit syrups, cakes, cookies, fruit pies, breads, lefse, and maple syrup
- These foods can be made in your home or in a licensed kitchen.
- The Department of Agriculture urges sellers of these products to complete a better process school and have the recipe and manufacturing process reviewed by a person knowledgeable in the food canning industry who is recognized as a process authority.

Licensing:

The sale of all other foods will require a license. The Pickle Bill specifies these foods as being not exempt:ⁱⁱ

Foods that are not pickles, vegetables or fruits.

Foods that have an equilibrium pH of greater than 4.6

Pickled eggs, and meat even if the product's equilibrium pH is 4.6 or less.

This will include: peas, green beans, beets, sweet corn, carrots unless the equilibrium pH is 4.6 or less

Additionally, if you buy from another source and resell these products, you need a license.

Process for Obtaining a License

The process of obtaining a license can often be lengthy and will require the farmer to work through the Department of Health.

The SEEDS farm is interested in selling a breakfast burrito at the Riverwalk Farmers Market this summer. The ingredients for this product would be eggs, beans, rice, herbs, salsa, and store-bought tortillas. Such a product will require a license through the Department of Health given the need for preparation of the food and cooking of the burrito.

First Steps:

Depending on the item being sold, different equipment will be necessary, and therefore a different license will be necessary.

It will be important to develop a menu and estimate the volume of food to be stored, prepared and sold before contacting the Department of Health in order to determine what type of license you will need.

The Application Process:

A different license is required for a Mobile Food Unit, Seasonal Temporary Food Stand or a Food Cart. However, a similar application exists for all three types of Temporary Food Services. The Plan Review Application from the Minnesota Department of Health can be found on the Department of Health's website.ⁱⁱⁱ See Appendix IV

A contact that may be helpful before beginning the application process is the Minnesota Federation of County Fairs. The people at this organization are knowledgeable about health regulations and can help you get some information before beginning the application and licensing process. <http://www.mfcf.com/contacts.htm>

It will be necessary to contact your local food inspector to schedule an appointment to review your application and the equipment that you intend to use. The food inspector for Rice County is:

Greg Stevens
507-344-2735

The application for receiving a license will require complete documentation. Items that you will need to have ready^{iv}:

- A completed plan review application;
- A proposed menu of the food and beverage items to be served;
- The layout for all food and beverage service equipment in the unit;
- The make and model number of all food and beverage service equipment;
- The type of floor, wall and ceiling surfaces in the mobile unit;
- The location of the handwashing sink and the three-compartment sink; and
- The size of the holding tanks for fresh water and wastewater.

The construction plan review for a Mobile Food Unit is \$350

The construction plan review for a Food Cart or Seasonal Temporary Food Stand is \$250

The equipment and cart will need to be inspected by the Health Inspector before use.

The Equipment:

A Mobile Food Unit and Seasonal Temporary Food Stand are similar in that they are both self-contained units in which food can be prepared and stored. As indicated by its name, a Mobile Food Unit is a vehicle-mounted unit; either motorized or trailered, and does not need to be disassembled for transport to another location. A Seasonal Temporary Food Stand is also self-contained but is disassembled and moved from location to location. These units *may* require a **Commissary**, which is a permanent licensed food establishment in order to serve as a location for dumping wastewater and perhaps for storing food.

The primary difference between a Mobile Food Unit/Temporary Food Stand and a Food Cart is that the use of a Food Cart *will* require a Commissary. Food Carts are smaller and non-motorized and generally self-propelled by the operator. The commissary is used not only for dumping wastewater but also for preparing and storing food items.

For all three units, food cannot be prepared or stored in a home or other private establishment.

Mobile food units and Seasonal Temporary Food Stands will be required to have a number of specific kinds of equipment. Minnesota Administrative Rule 4626.1860 lays out these requirements. See Appendix I.

Food carts are less complex, given the need for the commissary. Rule 4626.1850 lays out these requirements. See Appendix II.

For fact sheets on these types of units, see these links from the Department of Agriculture.

Food Cart - <http://www.health.state.mn.us/divs/eh/food/license/foodcart.pdf>

Seasonal Temporary Food Stand -

<http://www.health.state.mn.us/divs/eh/food/license/tempseason.pdf>

Mobile Food Unit - <http://www.health.state.mn.us/divs/eh/food/license/mfureview.pdf>

*See Appendix III

All equipment in a Mobile Food Unit, Seasonal Temporary Food Stand, or a Food Cart must meet **National Sanitation Foundation (NSF) International** food service equipment standards. This generally means that the equipment and trailer/food cart will need to be stainless steel.

Fully NSF Certified Carts can be purchased from a variety of places. Here is a link from the NSF website to a number of certified companies:

<http://www.nsf.org/Certified/Common/Company.asp?TradeName=&CompanyName=&PlantState=&PlantCountry=&PlantRegion=&Standard=059&search=SEARCH>

The only company in Minnesota listed on this site is **Chameleon Carts**, which is located in Plymouth, Minnesota. All of the products sold by this company are NSF certified. For their concession trailers – which could function as a mobile food unit or a seasonal temporary food stand, prices can be in the \$20,000-40,000 range depending on size and custom options. This company also sells food carts, whose prices will be closer to \$5,000 - 10,000. Buying a used concession trailer or food cart is also a possibility. Craigslist is an option for purchasing NSF certified equipment or trailers. Buying used will reduce prices by thousands. Concession trailers can be found for less than \$10,000 and food carts for less than \$5,000

Chameleon Carts

12755 16th Ave North

Plymouth, MN 55441

763-557-2885

<http://www.chameleoncarts.com/>

This company can both sell you a fully furnished and certified truck and can furnish a truck that you own or purchase with the necessary equipment. They seem very willing to work with you to find out what type of equipment you will need to cook your menu and to help you comply with health regulations. The owner is Mark Palm and his cell is 612-889-9095.

Potential Equipment Needs:

Three compartment dishwashing sink

Stainless steel tables

Exhaust fan system

Freshwater Tank

Handwashing sink

Refrigeration

Wastewater Tank

Griddles

Appendix I^v

626.1860 MOBILE FOOD ESTABLISHMENTS; SEASONAL TEMPORARY FOOD STANDS; SEASONAL PERMANENT FOOD STANDS.

This part applies to mobile food establishments, seasonal temporary food stands, and seasonal permanent food stands.

- A. The entire operation shall be accomplished from a single self-contained unit, except for supply.
- B. A mechanical exhaust system complying with NSF International Standard No. 2, which is incorporated by reference in part [4626.0505](#), and part [4626.1475](#) shall be provided when grease-laden cooking vapor, condensation, fumes, obnoxious or disagreeable odors, or smoke are generated in a cooking process.
- C. Water shall be supplied under pressure with a mixing faucet.
- D. A water inlet shall be protected from contamination and designed to preclude attachment of a nonpotable service connection.
- E. A water tank shall comply with the provisions for an alternate water supply in parts [4626.1035](#) and [4626.1135](#) to [4626.1175](#) and NSF International Standard No. 59, sections 7.3 and 7.4, which is incorporated by reference in part [4626.0505](#).
- F. A handwashing device supplied with 21 degrees C to 43.5 degrees C (70 degrees F to 110 degrees F) running water, soap, nail brush, and paper towels shall be provided where food is prepared.
- G. Single-service disposable eating and drinking utensils shall be used unless warewashing facilities specified in parts [4626.0735](#) to [4626.0890](#) are provided and the sanitization procedures specified in parts [4626.0895](#) to [4626.0905](#) are used.
- H. Warewashing facilities for multiuse utensils shall be available and shall consist of at least a three-compartment sink, either freestanding or installed in a counter.
- I. Space shall be provided for air drying utensils.
- J. Towel drying is prohibited.
- K. The sanitization procedures specified in parts [4626.0895](#) to [4626.0905](#) shall be used.
- L. For seasonal temporary or permanent food stands that are disassembled after each use, a gravity-fed handwashing device and three containers of sufficient size to immerse utensils may be used in lieu of the requirements of items C, F, and H if:

- (1) only beverages are served from an original container or bulk beverage dispenser;
- (2) only prepackaged nonpotentially hazardous food is sold, prepared, or served; or
- (3) the menu is limited to prepackaged potentially hazardous foods cooked or prepared to order, or precut or prewashed foods that have been obtained from a licensed food establishment.

M. A waste holding tank and waste removal shall comply with parts [4626.1180](#) to [4626.1220](#).

N. Mechanical refrigeration complying with part [4626.0505](#) shall be provided for potentially hazardous foods.

O. Food preparation and cooking areas shall be protected by an impervious shield or by a separation distance to ensure customer safety and to prevent food contamination by customers.

P. The facility shall provide protection during adverse weather by its construction or location. Food activities shall cease if protection fails.

Statutory Authority: *MS s [31.101](#); [31.11](#); [144.05](#); [144.08](#); [144.12](#); [157.011](#)*

History: *[23 SR 519](#)*

Posted: *October 11, 2007*

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Appendix II^{vi}

4626.1850 FOOD CARTS.

The provisions of this part apply to food carts.

- A. A food cart shall meet NSF International Standard No. 59 for Food Carts, which is incorporated by reference in part [4626.0505](#).
- B. A food cart located outdoors shall be equipped with an easily cleanable, detachable awning or umbrella to prevent adulteration of food.
- C. A food cart component that requires cleaning and maintenance shall be returned to an approved permanent food establishment each day of food cart operation for supply and cleaning.
- D. Except for cleaning and supply, a food cart operation shall be accomplished entirely from a single self-contained unit.
- E. A mechanical exhaust system complying with NSF International Standard No. 2, which is incorporated by reference in part [4626.0505](#), and part [4626.1475](#) shall be provided for a food cart used indoors when grease-laden cooking vapor, condensation, fumes, obnoxious or disagreeable odors, or smoke are generated in a cooking process. All food carts designed for cooking grease-laden foods shall be equipped with an approved fire protection system.
- F. A food cart where food is prepared shall be equipped with a handwashing device supplied with hot and cold running water, soap, nail brush, and paper towels.
 - (1) Hot and cold water shall be supplied under pressure or by gravity with a mixing faucet.
 - (2) A water inlet shall be protected from contamination and designed to preclude attachment of a nonpotable service connection.
 - (3) A water tank shall comply with the provisions for an alternate water supply in parts [4626.1035](#) and [4626.1135](#) to [4626.1175](#).
- G. Only single-service articles are permitted.
- H. Where an approved three-compartment sink is not present, multiuse food preparation, service, and dispensing utensils shall be washed at a permanent food establishment each day of use.
- I. A waste holding tank and waste removal shall comply with parts [4626.1180](#) to [4626.1220](#).

Statutory Authority: *MS s* [31.101](#); [31.11](#); [144.05](#); [144.08](#); [144.12](#); [157.011](#)

History: [23 SR 519](#)

Posted: *October 11, 2007*

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Appendix
III^{vii}

Mobile Food Units

A *mobile food unit* is a food and beverage service establishment that is a vehicle mounted unit, either motorized or trailered, and readily movable, without disassembling, for transport to another location. The unit can operate no more than 21 days annually at any one place unless it is operated at the site of and in conjunction with a permanent business licensed under Minnesota Statutes, Chapter 157 or Chapter 28A. All mobile food units must be operated in compliance with the Minnesota Food Code.

Plan Submission

A plan review application with plans and specifications must be submitted to the regulatory authority for review and approval at least 30 days before beginning the construction of a mobile food unit. The plans must include:

- The intended menu.
- The anticipated volume of food to be stored, prepared, and sold.
- The proposed layout, mechanical schematics, construction materials, and finish schedules.
- The proposed equipment types, manufacturers, model numbers, locations, dimensions, performance capacities, and installation specifications.
- Detailed information on any custom fabricated equipment.

Contact the regulatory authority for a preoperational inspection at least 14 days prior to opening.

Licensing

License applications and fees must be submitted to the appropriate regulatory authority prior to operation.

Location and Construction

- Except for supply, the entire operation must be accomplished from a single self-contained unit. Locate the unit away from possible contamination sources.
- Exterior surfaces of the unit must be of weather resistant materials.
- The facility must provide protection during adverse weather by its construction or location. Food activities must cease in adverse weather if the interior of the unit is not adequately protected from the weather, windblown dust and debris.
- The floor, wall, and ceiling surfaces must be smooth, durable, and easily cleanable. Floor surfaces should be vinyl or equivalent.
- Interior lights must be shielded or coated.
- Electrical service must comply with Minnesota Rules, Chapter 1315.
- A fire extinguisher with a minimum 2A 10 B C rating must be present if required by the fire marshal.
- Gas hook-up and service must comply with Minnesota Rules, Chapter 1346.

Food Sources

All foods, beverages and ice must be obtained from an approved commercial source. Any food preparation or food storage done off-site, must be accomplished at a licensed food establishment.

Equipment

- All equipment used in this operation must meet applicable NSF International food service equipment standards.
- A mechanical exhaust system must be provided when grease laden cooking vapor, condensation, fumes, obnoxious or disagreeable odors, or smoke are generated in the cooking process.



Environmental Health Services Section
625 North Robert Street, P.O. Box 64975
St. Paul, MN 55164-0975
651-201-4500
<http://www.health.state.mn.us>

- Mechanical refrigeration must be provided for all potentially hazardous food.
- Accurate temperature measuring devices must be provided in each refrigeration unit containing potentially hazardous foods, and for monitoring internal food temperatures.
- Single service disposable utensils must be provided for eating and drinking purposes unless approved warewashing facilities are provided.

Dishwashing Facilities

If multiuse utensils are used, provide dishwashing facilities which consist of at least a three compartment sink, either freestanding or installed in a counter. Space must be provided for air drying utensils.

Handwashing Facilities

A handwashing device supplied with hot and cold running water, soap, nailbrush, and paper towels must be provided in areas where food is prepared. The water temperature must be 70° F to 110° F.

Water Supply

- The water supply in a mobile food unit must meet the following requirements:
- Water must be supplied under pressure with a mixing faucet.
- Water must be obtained from an approved public water supply system. Water cannot come from a residential well.
- Water tanks must be provided which are easily cleanable, of sufficient capacity to meet the needs of the operation, and constructed of an approved non-toxic material. The water inlet must be protected from contamination and be designed to prevent attachment of a nonpotable service connection.
- Hoses used to obtain water must be of food grade quality and provided with an approved backflow prevention device.
- Water tanks, pumps, and hoses must be flushed and sanitized before being placed into service after construction, repair, modification, and periods of nonuse.

Waste Disposal

- A waste water holding tank must be provided which is sized 15 percent larger in capacity than the water supply tank.
- Waste water must be removed in such a manner that a public health hazard or nuisance is not created. Waste water must be discharged into a sanitary sewer or other approved sewage treatment system.

For Further Information Contact the Following MDH District Offices:

Bemidji	◆	(218) 308-2100
Duluth	◆	(218) 723-4642
Fergus Falls	◆	(218) 332-5150
Mankato	◆	(507) 344-2700
Marshall	◆	(507) 537-7151
Metro	◆	(651) 201-4500
Rochester	◆	(507) 206-2700
St. Cloud	◆	(320) 223-7300

To request this document in another format, call 651-201-4500 or TTY 651-201-5797.

IC#141-0941

Appendix IVⁱⁱⁱ



Plan Review Application
 Environmental Health Services Section
 Food and Beverage Plan Review
 P.O. Box 64975
 St. Paul, Minnesota 55164-0495
 Phone: 651-201-4500 Fax: 651-201-4572

Courier Drop-off:
 Environmental Health Services Section
 Food and Beverage Plan Review
 625 North Robert Street
 St. Paul, Minnesota 55155
 Phone: 651-201-4500 Fax: 651-201-4572

Plan Review Application – Temporary Food Establishments <i>Submit a complete set of plans to the above address, at least 30 days before construction begins.</i>	
Unit/Stand Information:	
Unit/Stand Name _____	
Establishment Address _____	
Location – City _____ County _____ Township _____	
Business Phone # _____ Website: _____	
Submitter Information:	
Submitter's Name _____	
Mailing Address: _____	
Street/PO Box _____	City _____ State _____ Zip _____
Contact Phone # _____ Cell Phone # _____ Fax # _____	
Email Address: _____	
Owner Information:	
Owner's Name _____	
Mailing Address: _____	
Street/PO Box _____	City _____ State _____ Zip _____
Contact Phone # _____ Cell Phone # _____ Email _____	
Address: _____	
Contractor/Architect/Engineer Information (if different from submitter/owner):	
Name and/or Company _____	
Mailing Address: _____	
Street/PO Box _____	City _____ State _____ Zip _____
Contact Phone # _____ Cell Phone # _____ Fax # _____	
Email Address: _____	
Proposed date for start of construction: _____ Proposed date for completion of construction _____	
<i>Transient Food Service Definitions:</i>	
Mobile Food Unit - a food and beverage service which is a vehicle mounted unit, either motorized or trailered, operating no more than 21 days annually at any one place or is operated in conjunction with a permanent business at the site of the permanent business by the same individual or company, and readily movable, without disassembling, for transport to another location.	
Seasonal Permanent Food Stand - a food and beverage service which is a permanent stand or building, but which operates no more than 21 days annually.	
Seasonal Temporary Food Stand - a food and beverage service stand which is disassembled and moved from location to location, but which operates no more than 21 days annually at any one location.	
Food Cart - a food and beverage service, which is a non-motorized vehicle self-propelled by the operator. Food carts licensed under this category must be certified to NSF Standard No. 59. A commissary is required for food storage, water supply, disposal and cleaning.	

New Construction of *(See definitions for categories on first page)*

Note: Minnesota Rule 4626.1725 8-201.12 CONTENTS OF PLANS AND SPECIFICATIONS. A. The plans and specifications for a food establishment shall include: (1) the intended menu; (2) the anticipated volume of food to be stored, prepared, and sold or served; (3) the proposed layout, mechanical schematics, construction materials, and finish schedules; (4) the proposed equipment types, manufacturers, model numbers, locations, dimensions, performance capacities, and installation specifications; (5) a complete set of elevations and drawings for all custom fabricated equipment; (6) a functional flow plan indicating how food will be handled; and (7) other information that may be required by the regulatory authority for the proper review of the proposed construction, conversion, or modification. A statement of intent regarding the food services to be reviewed. This statement should include all kitchens on the premises serving food to the public.

Check the Appropriate Box(es):

- Mobile Food Unit \$350 _____
- Seasonal Permanent Food Stand \$250 _____
- Seasonal Temporary Food Stand \$250 _____
- Food Cart \$250 _____

Total Plan Review Fee Submitted \$ _____
(for additional help, see worksheet for new construction)

For Office Use Only:

Insp. Initials _____

Check No. _____

Plan No. _____

Remodel or Addition of *(See definitions for categories on first page):*

Previously Licensed as (provide name or license number of former operation, if known): _____

Check the Appropriate Box(es):

- Mobile Food Unit \$250 _____
- Seasonal Permanent Food Stand \$250 _____
- Seasonal Temporary Food Stand \$250 _____
- Food Cart \$250 _____

Total Plan Review Fee Submitted \$ _____
(for additional help see worksheet for addition or remodel)

TDD: MN Relay Service At (651) 201-5797 or toll free at 1-800-627-3529.

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- ⁱ “2010 Minnesota Statutes.” Minnesota Office of the Revisor of Statutes. 2010. <https://www.revisor.mn.gov/statutes/?id=28A.15> (Accessed April 20, 2010).
- ⁱⁱ “Pickle Bill Fact Sheet.” Minnesota Department of Agriculture. 2011. <http://www.mda.state.mn.us/food/safety/minn-food-code-fact-sheets/pickle-bill.aspx> (Accessed April 20, 2010).
- ⁱⁱⁱ “Plan Review Application – Temporary Food Establishments.” Environmental Health Services Section. Minnesota Department of Health. PDF at <http://www.health.state.mn.us/divs/eh/food/license/mfureview.html> (Accessed April 27, 2011).
- ^{iv} “Licensing: Food, Beverage and Lodging Establishments: Plan Review for Mobile Food Units” Minnesota Department of Health. 2011. <http://www.health.state.mn.us/divs/eh/food/license/mfureview.html> (Accessed April 27, 2011).
- ^v “Minnesota Administrative Rules: 4626.1860 Mobile Food Establishments; Seasonal Temporary Food Stands; Seasonal Permanent Food Stands.” Minnesota Office of the Revisor of Statutes. 2011. <https://www.revisor.mn.gov/rules/?id=4626.1860> (Accessed April 20, 2011)
- ^{vi} “Minnesota Administrative Rules: 4626.1850 Food Carts.” Minnesota Office of the Revisor of Statutes. 2011. <https://www.revisor.mn.gov/rules/?id=4626.1850> (Accessed April 20, 2011).
- ^{vii} “Minnesota Department of Health Fact Sheets: Mobile Food Unit.” Minnesota Department of Health. 2011. <http://www.health.state.mn.us/divs/eh/food/license/mfureview.html> (Accessed April 20, 2011).

Latin Name	Common Name	Height	Function & Uses	Fruit / Nut ripens	Requirements
<i>Vaccinium angustifolium</i>	Blueberry	0.5 - 4'	Fresh eating, jam, jelly, syrup	July - August	Sandy soil, full sun, soil pH 4.0-5.0 is op to net plants to keep out birds Soil that is well-drained but never dry, f sites
<i>Rubus sp.</i>	Raspberry	1-5'	Fresh eating, jam, jelly, syrup	July	
<i>Ribes sp.</i>	Currant	2-5'	Jelly, jam	Late June - July	Highly tolerant. Full to part sun. Moist s
<i>Ribes sp.</i>	Gooseberry	2-5'	Jelly, jam, sauce	July - August	Highly tolerant. Full to part sun. Moist s
<i>Amelanchier sp.</i>	Juneberry (Service berry)	6-20'	Beverages, jelly, jam, sauce	Late June - July	Moist soil
<i>Sambucus canadensis</i>	American Elderberry	4-12'	Jelly, jam, wine	August - September	Moist soil
<i>Prunus americana</i>	Wild Plum	3-20'	Sauce, pies, jelly, preserves	August - September	
<i>Viburnum lentago</i>	Nannyberry	10-20'	Sweet, edible fruits	July-August	Full to part sun, grows on variety of soil drought tolerant
<i>Viburnum trilobum</i>	Highbush Cranberry	3-10'	Jelly, sauce	September	Moist soil, shade
<i>Vitis riparia</i>	Wild Grape	N/A	Juice, jelly, syrup, wine	September - October	Full sun, high temperatures. May need keep out birds
<i>Prunus virginiana</i>	Chokecherry (Canada Red)	10-25'	Jelly, syrup, pies, preserves, and wine	July - August	Full sun
<i>Prunus pennsylvanica</i>	Pin Cherry	20-30'	Jelly, syrup, wine	July - August	Full sun
<i>Malus domestica</i>	Mantet, Oriole, Beacon Apple (dwarf varieties available - 45% smaller)	20-25'	Fresh eating, cooking	Early to mid-August	Full sun, uplands, well-drained soils, sel
<i>Malus domestica</i>	Paulared, Wealthy, Chestnut Crab Apple	20-25'	Fresh eating, cooking for all but Chestnut	August - September	Full sun, uplands, well-drained soils, sel
<i>Malus domestica</i>	Red Baron, McIntosh, Sweet Sixteen	20-25'	Fresh eating, cooking for McIntosh	Mid to late September	Full sun, uplands, well-drained soils, sel
<i>Malus domestica</i>	Cortland, Northwestern, Prairie Spy, Honeygold, Fireside	20-25'	Fresh eating, cooking	Late September - early October	Full sun, uplands, well-drained soils, sel
<i>Prunus communis</i>	Summercrisp, Ure Pears (dwarf varieties available)	18-25'	Fresh eating	Mid-August	Full sun, uplands, well-drained soils, sel
<i>Prunus communis</i>	Luscious, Gourmet, Patten Pears (dwarf varieties available)	18-25'	Fresh eating	Mid to late September	Full sun, uplands, well-drained soils, sel
<i>Prunus domestica</i>	European Plum	15-20'	Cooking	Late August - early September	Full sun, well-drained soils
<i>P. salicina x P. americana</i>	Hybrid Plum	15-20'	Cooking	Late August - early September	Full sun, well-drained soils, self-incomp
<i>P. cerasus</i>	Tart cherry	6-14'	Jam, pies, soups, toppings	Late-July	May need to net plants to keep out birr Full sun, soil that is well-drained but ne - 6.5 is optimal
<i>Fragaria sp.</i>	June-bearing Strawberry Varieties (have best yields)	0.5 - 2'	Fresh eating, jam, jelly, syrup	Late spring	Full sun, soil that is well-drained but ne - 6.5 is optimal
<i>Fragaria sp.</i>	Everbearing Strawberry Varieties	0.5 - 2'	Fresh eating, jam, jelly, syrup	Late spring and early fall	
<i>Asimina triloba</i>	Pawpaw	12-20'	Largest edible fruit native to America.	July-August	Only hardy to Zone 5, so survival is low, established, when they require full sun
<i>Corylus americana</i>	Hazelnut	8-16'	Roasted and eaten or ground into flour	Early fall	Full or part sun, widely adaptable to sc conditions. Must harvest nuts before w
<i>Castanea mollissima</i>	Chinese Chestnut	25-45'	Often used for shade, produces sweet nuts	Late fall	Full sun, moderate water requirements tolerant of salt and alkaline soils
<i>Carya ovata</i>	Shagbark Hickory	70-90'	Sweet nuts, wood is excellent for smoking meat	Fall	Full or part sun, grows in wet and dry s
<i>Morus nigra</i>	Mulberry tree	25-40'	Fresh eating, jam, jelly, syrup	Late July	Full sun, withstands drought and salt
<i>Insectary plants</i>	Tallgrass Seed Mix for Mesic to Dry Mesic Soils Dill Parsley Carrot Cilantro Clovers Yarrow Thyme Rosemary Mint		Insectary, native habitat, attractive, nitrogen fixers		

Table 1. Important site conditions to consider before planting. In determining soil nitrate, note that concentrations will vary depending on the time of year the soil core is taken. Leaching of nitrate occurs during the winter.

Parameter	Level	Interpretation	Treatment(s)
Bulk Density (g/cm ³)	> 1.5	Compacted or lacking pore space, this soil may produce adverse effects	<ul style="list-style-type: none"> • Select deep-rooted plants • Amend with organic matter and till or hand-loosen • Infiltration swales • Select wet-tolerant plants
	≤ 1.5	Adverse effects unlikely	
Soil pH	3.01 to 4.0	Strongly acidic - only the most acid tolerant plants can grow and only if organic matter levels are high enough to mitigate high levels of metals. May limit phosphorus availability	<ul style="list-style-type: none"> • Avoid acidifying fertilizers • Apply lime, wood ashes at recommended rates • To maintain low pH but add calcium, use gypsum • Avoid plant species that prefer acidic or alkaline soils • Apply micronutrient fertilizers as needed • Apply sulfur at recommended rates • Use acidifying chemical fertilizers
	4.01 to 5.5	Moderately acidic - growth of acid intolerant plants will likely be affected. May limit phosphorus availability	
	5.51 to 6.8	Slightly acidic - optimum for many plants, particular acid tolerant species	
	6.81 to 7.2	Near neutral - optimum for most plants, except those tolerant of acid	
	7.21 to 7.5	Slightly alkaline - may limit phosphorus availability and some metals such as Zn	
	7.51 to 8.5	Moderately alkaline - may limit phosphorus availability and some metals such as Zn. Only preferred by species adapted to this range	
> 8.5	Strongly alkaline - may limit phosphorus availability and produce oxyanion toxicities		
Soil organic matter (%)	> 3.0	Could indicate possible loss of organic matter from erosion or plant matter removal	<ul style="list-style-type: none"> • Add organic matter: Mulch, compost and compost tea, green and brown manures, cover crops, soil staking • Plant dynamic accumulators
	≤ 3.0	Fertile soils generally contain between 3-6% organic content	
Nitrate (ppm)	0-20	Very likely N deficient	<ul style="list-style-type: none"> • Select adapted plants, nitrogen fixers, or dynamic accumulators • Amend the soil with compost (e.g. fresh leaves) • A low rate of sidedress nitrogen may be appropriate in some situations • Indicates excessive application of manure, compost, or other sources of nitrogen
	20-30	Likely sufficient	
	> 30	For crops that set fruit, concentrations higher than 30 ppm may decrease yields	
Slope grade	0-5%	Guilds, planted slopes and beds, pathways, service areas	<ul style="list-style-type: none"> • May need wet-tolerant species, butterfly planting, raised beds, mound planting • Permanent vegetation cover (especially woody species) • Contour planting. No paths • Infiltration swales
	5-10%	Guilds, planted slopes and beds, pathways, service areas	
	10-25%	Berms and mounds, mowed slopes, grass areas, wildflowers	
Vegetation	Colonizers	Periodic heavy seed pressure from outside site	<ul style="list-style-type: none"> • Time mulch applications to minimize sprouting • Establish complete ground cover • Eliminate seed producing neighbors (e.g. female boxelder trees)

1 Jacke, Dave, 2005, page 319

2 Heckman, Joseph, 2003, page 5

3 Amacher, Michael et al., 2007, page 3