

# Storing Fruits & Vegetables



## *Preservation Problems:*

Increasing Growth of:

**Bacteria (microbes) & Fungi (mold)**

## *Natural Preservation Solution:*

Reduce Bacteria & Fungi by:

**Modifying Temperature & Moisture Levels**

**Note: commercial preservation methods often use chemicals to kill bacteria & mold and/or remove oxygen from a cold storage area so the bacteria / fungi die.**

## *Natural Methods to Modify Temperature & Moisture*

**1-Cold Storage**

**2-Freezing**

**3-Drying**

**4-Canning**

### **1-Cold Storage**

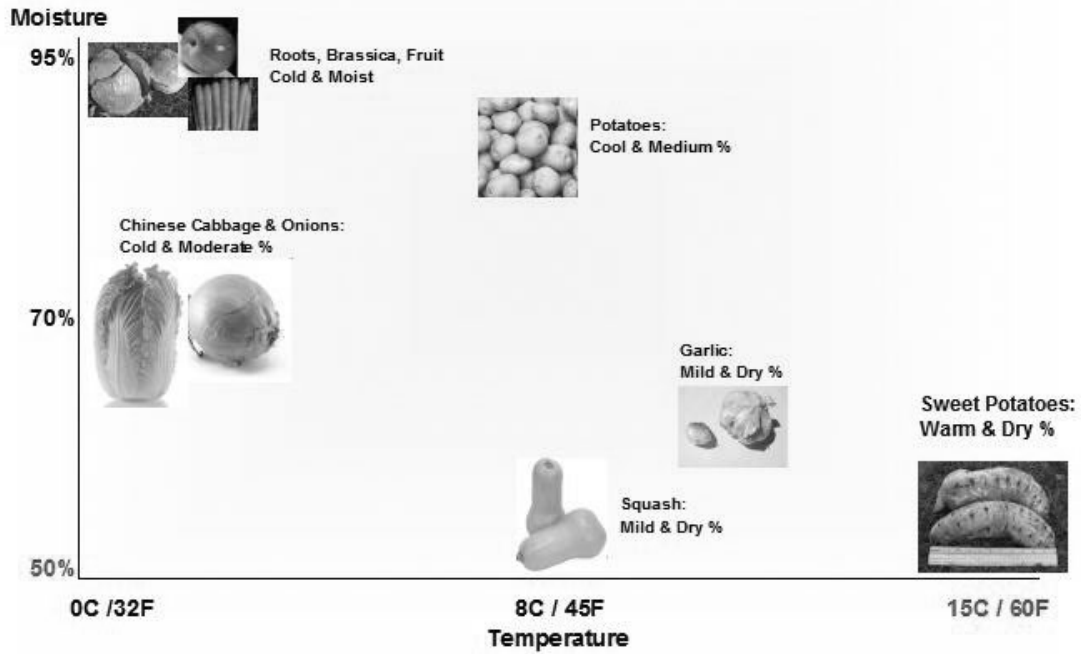
#### **Optimal Temperature & Moisture Levels**

**Many websites & books give optimal storage  
conditions for all fruits & vegetables, e.g.**

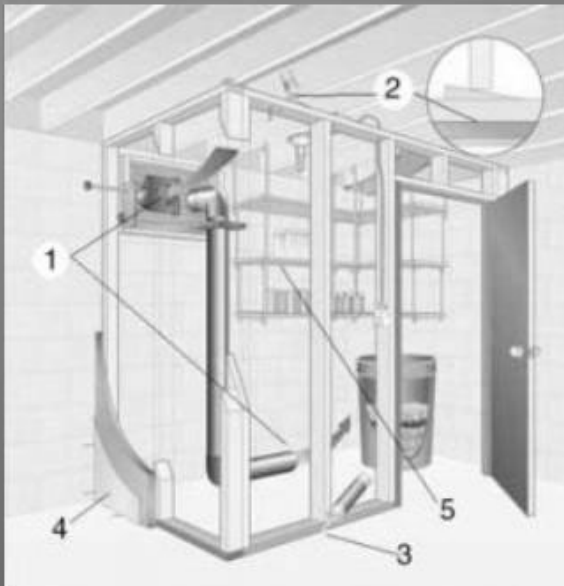
	Temp (F)	Moisture (%)
Brussels Sprouts	32	95
Cabbage	32	95
Carrots, mature	32	95
Cauliflower	32	95
Celeriac	32	95
Celery	32	95
Collards	32	95
Corn, sweet	32	95
Endive, Escarole	32	95
Grapes	32	90
Kale	32	95
Leeks, green	32	95
Lettuce	32	95
Parsley	32	95
Parsnips	32	95
Pears	32	95
Peas, green	32	95
Potatoes, early	50	90
Potatoes, late	39	90
Radishes, winter	32	95
Rhubarb	32	95
Rutabagas	32	95
Spinach	32	95

# 1-Cold Storage

## Optimal Temperature & Moisture Levels



## Build Traditional Cold Room



Requires Considerable Space & Effort

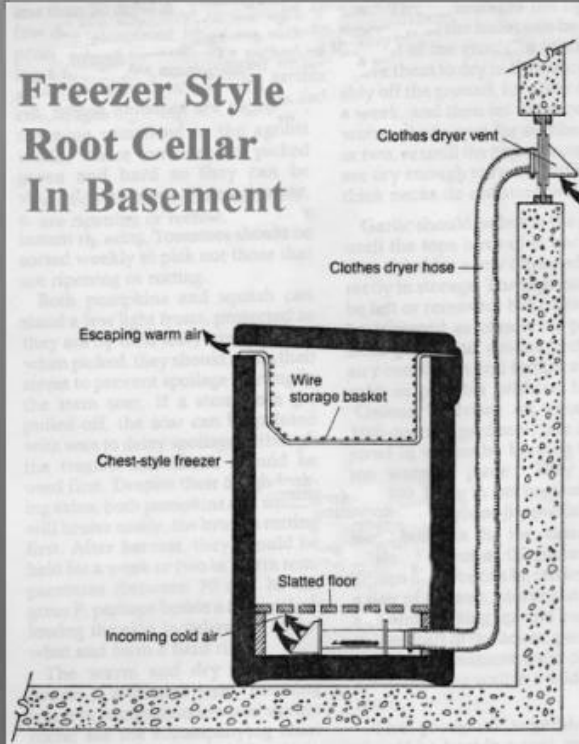
- 1 – Outside cold air intake
- 2 – Warm air vent
- 3 – Sealed to floor
- 4 – Insulated Walls
- 5 – Storage Shelves



Can Provide  
Plenty of Room

## Use An Old Chest Freezer In Basement

### Freezer Style Root Cellar In Basement



*Requires Less Space & Effort  
(Often Free)*

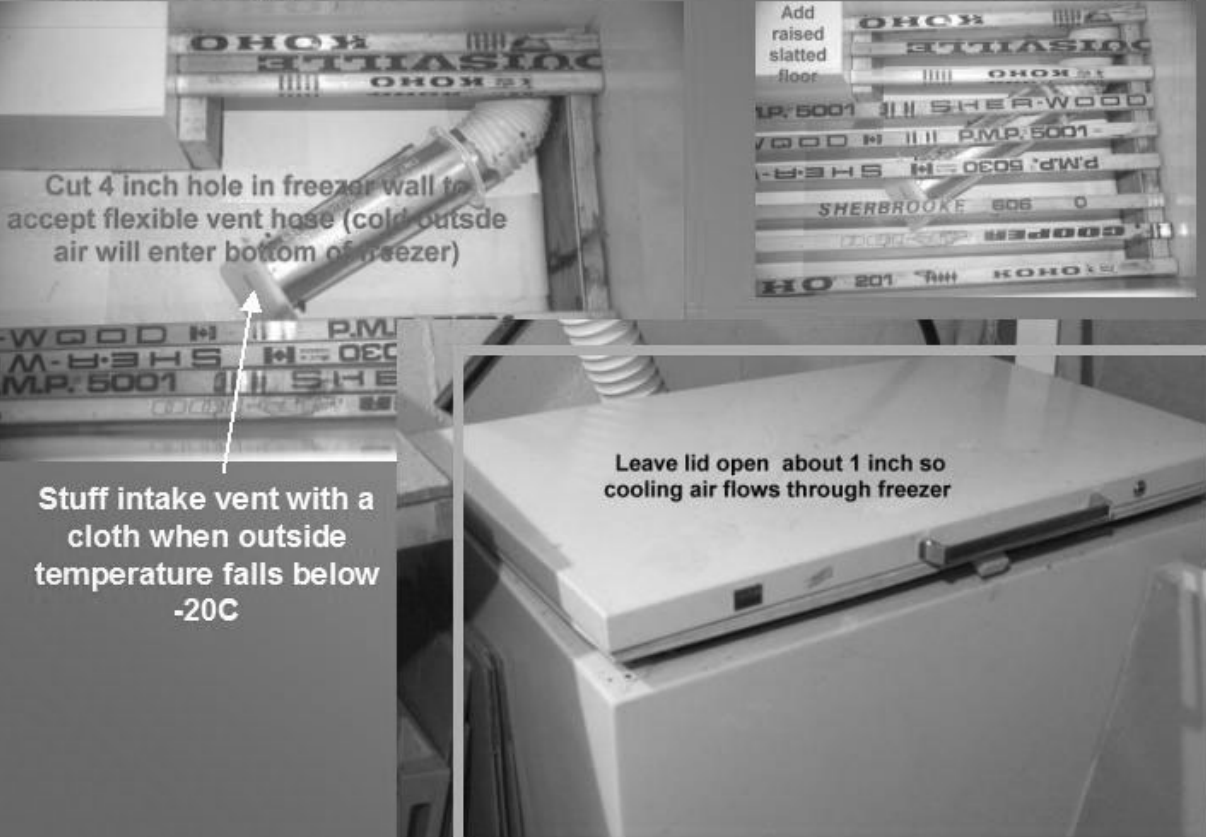
**Remove Motor & Compressor for easy carrying to basement**

*Less Room than Cold Room but Usually Sufficient Space*

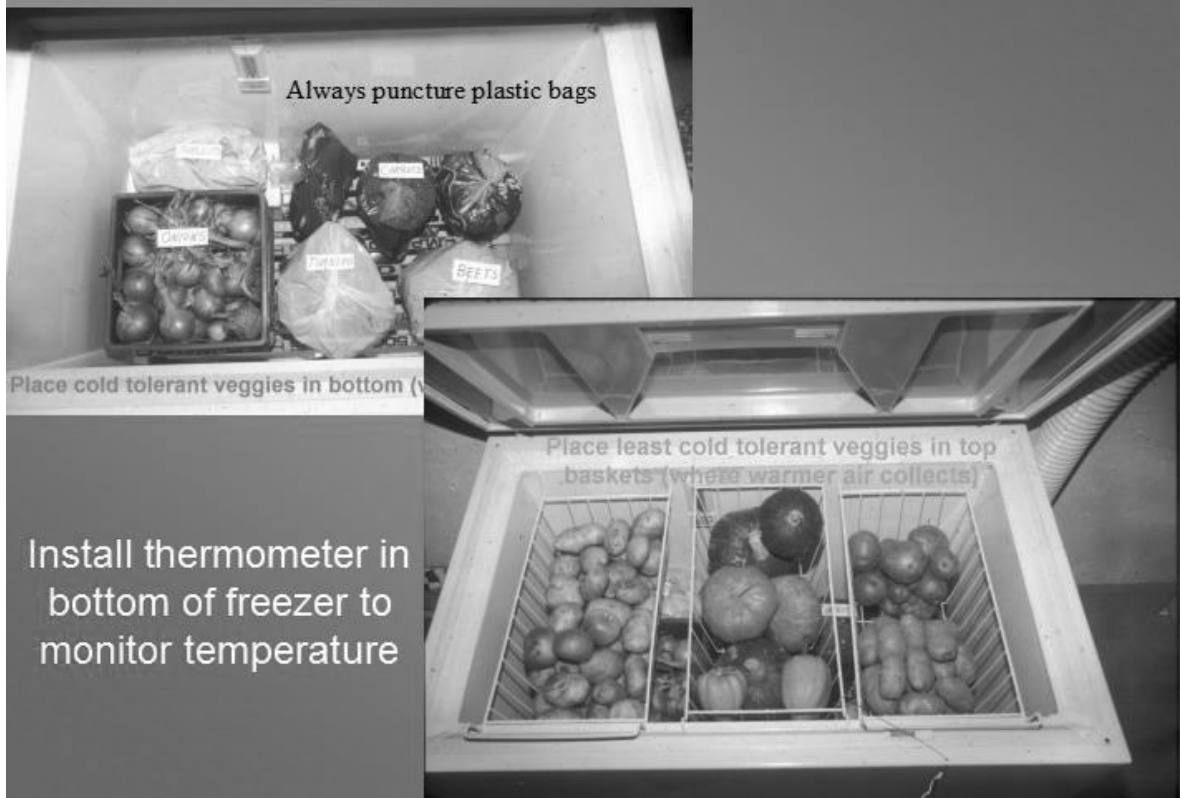
## Installing Chest Freezer In Basement



## Installing Chest Freezer In Basement (Cont'd)



## Installing Chest Freezer In Basement (Cont'd)



## Use An Old Chest Freezer In Garage (If No Room In Basement)



*Requires Less Space  
& Effort Than a  
Basement Cold Room*

**Remove Motor &  
Compressor If You  
Want**

*Easy to Place  
in a Garage*

## Installing Old Chest Freezer In Garage (Cont'd)



**Install a raised slatted floor for cold-loving  
produce & use freezer baskets for others**

**Install a thermostat controlled electric heater to  
prevent the temperature from falling below 0C  
(5C seems lowest setting available)**



## Installing Old Chest Freezer In Garage (Cont'd) (Be Sure to Install a Thermometer and Monitor Temperature)



If heater keeps freezer too warm,  
cover heater with wire mesh so it  
will shut off more quickly  
(especially in fall and spring)



If heater still keeps freezer too  
warm, cover top of wire mesh with  
foil so it will shut off even sooner  
(especially in fall and spring)

### *A Few Special Cold Storage Considerations*

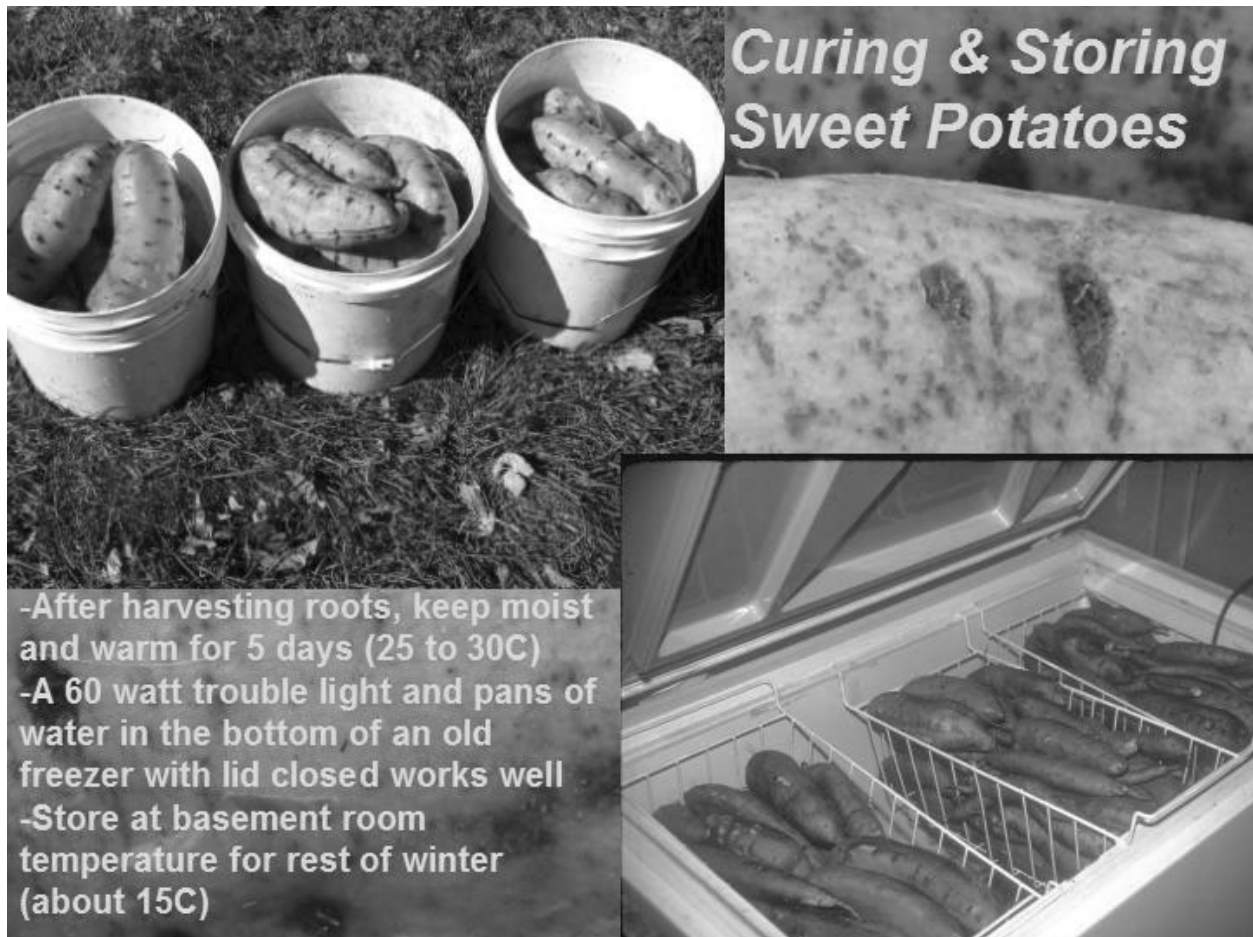
## Storing Fruits And Vegetables



Dig sweet potatoes in September when weather turns cool

Sweet potatoes usually grow in clumps just below crown

From 2007  
(they like heat)



**Curing & Storing  
Sweet Potatoes**

-After harvesting roots, keep moist and warm for 5 days (25 to 30C)  
-A 60 watt trouble light and pans of water in the bottom of an old freezer with lid closed works well  
-Store at basement room temperature for rest of winter (about 15C)

## *Winter Storage of Chinese Cabbage*



Harvest in Late Fall



Wrap with Paper



Place in Box



Cover with paper or cloth



Place in bottom part of cold storage (coldest area)

## *Using Stored Chinese Cabbage*



Take from Cold Storage



Remove Paper & Root



Tear Off Spoiled Leaves



Place in Water for a Few Hours



Drain & Store in Refrigerator

## Carrot Problems

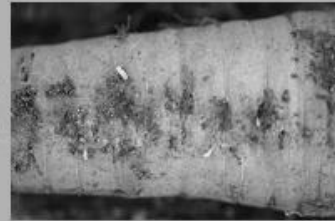


Carrot Weevil Damage

Healthy Carrots

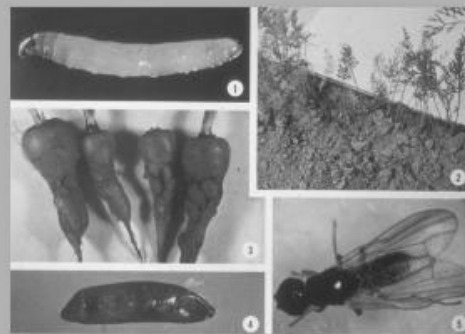


Carrot Rust Fly Damage



Carrot Weevil Life-Cycle

Agriculture  
Canada



Carrot Rust Fly Life-Cycle

## Freezing Fruits & Vegetables

Low Moisture Varieties Freeze the Best, e.g.:

- Blueberries
- Peas
- Corn

High Moisture Varieties Thaw Out Soft & Soggy, e.g.:

- Green Beans
- Strawberries

Fast freezing reduces soginess ( internal ice crystals stay smaller & do not puncture cells)

- best to spread out thinly to speed up freezing

## Freezing Fruits



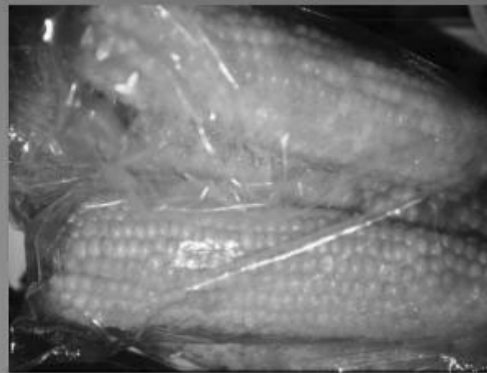
For best results, freeze fruits & veggies Individually.

Then bag

## Freezing Vegetables



Freezing Corn-On-The-Cob takes more space than freezing just the kernels



Frozen Tomato Sauce



Best to boil vegetables before freezing to kill bacteria & fungi

## Canning Fruits & Vegetables

### 1-Must First Kill Bacteria & Fungi by:

- Boiling
- Microwave
- Oven Heating

### 2-Add a Substance to Prevent Bacteria/Fungi Re-Growth:

- Vinegar
- Sugar, Honey, Maple Sugar

### 3-Finally, Seal Fruits & Vegetables in Containers to:

- Prevent bacteria & fungi from entering, & to
- Prevent oxygen from stimulating bacteria/fungi growth

## Examples

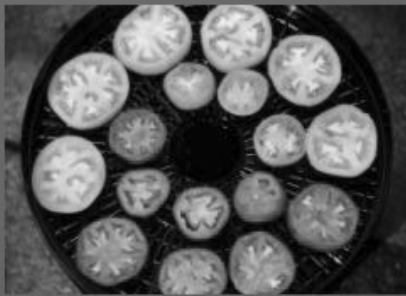


## Storing Fruits And Vegetables

### Some Fruits & Vegetables Can Be Dried



Electric Fan Dryer



Drying Tomatoes



Drying Peppers



Drying Watermelons

### *Simple Sun Drying*



Metal Rack in the Sun



Window Screen in the Sun

## *The End*

See Down To Earth, Summer, 2009, pg 6 article:

*Creating the Best Cold "Room" For You*

*[http://www.cog.ca/ottawa/documents/dte\\_summer\\_2009.pdf](http://www.cog.ca/ottawa/documents/dte_summer_2009.pdf)*

And See the following web site for more gardening info:

*Gloucester Allotment Garden Assoc website: <http://gaga.ncf.ca>*

Or My Website:

*<http://georgebushell.com>*