

Freezing Fruits and Vegetables

Home Food Preservation Virtual Series
September 2, 2020

UNIVERSITY OF
Nebraska
Lincoln

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ADVANTAGES

Easy, quick, convenient
Maintains color, flavor, texture and nutrients

Stops growth of microorganisms
Slows enzyme action

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DISADVANTAGES

Experience texture changes
Thawing time can be inconvenient
Higher cost of storage (freezer and energy)
Packaging can be costly
Loss of electricity – Large food loss

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QUALITY CHANGES

Enzymes – vegetables quality loss
Air – fruits browning reaction
Ice Crystals – quality deterioration
Evaporation of Moisture – freezer burn, quality issue not safety issue

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MINIMIZE ICE CRYSTALS

Set freezer temperature -10°F
24 hours in advance
Add amount that will freeze within
24 hours: 2-3 pounds per cubic foot
Chill food before freezing
Spread food around freezer

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Packaging Food for the Freezer

- ✓ Moisture-vapor resistant
- ✓ Durable and leak-proof
- ✓ Resistant to cracking and brittleness at low temperature
- ✓ Resistant to oil, grease or water
- ✓ Protect food from absorbing off-flavors and odors
- ✓ Easy to seal and label

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CONTAINERS



- Rigid containers
- Flexible bags
- Flexible wrappings
- Vacuum packaging



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HEADSPACE GUIDELINES

Type of Pack	Container with wide top opening		Container with narrow top opening	
	Pint	Quart	Pint	Quart
Liquid Pack*	1/2 inch	1 inch	3/4 inch	1-1/2 inch
Dry Pack**	1/2 inch	1/2 inch	1/2 inch	1/2 inch
Juices	1/2 inch	1 inch	1-1/2 inch	1-1/2 inch

*Fruit packed in juice, sugar, syrup or water; crushed or pureed fruit.
 **Fruit or vegetable packed without added sugar or liquid.



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Labeling Frozen Foods

- Product name
- Added ingredients and amounts
- Date

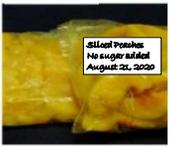


Photo Source: National Center for Home Food Preservation



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FREEZING FRUITS




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PREPARING

- Sort, discard poor quality/ unripe fruit
- Rinse under cool, running water while rubbing skins; drain
- Fruit with firm peel use a clean vegetable brush and scrub
- Do not use galvanized, copper or iron equipment



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PREVENT FRUIT FROM DISCOLORATION



- Pure Ascorbic Acid Powder (Vitamin C)**
 1/2 teaspoon powdered = 1500 mg
 Use the amount specified in directions for each fruit
- Commercial Anti-Darkening Mixtures**
 Use according to package directions
- Citric Acid/Lemon/Orange Juice**
 If used in large quantities, may mask natural fruit flavors
- Steaming**
 Best for fruits that will be cooked



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Acceptable packs for fruit

DRY/INDIVIDUAL QUICK-FROZEN
Place fruit, single layer, on a baking sheet
Freeze uncovered until solid (4-6 hours)
Transfer to container, press out air
Seal, label and freeze

SUGAR
Sprinkle sugar over fruit
Mix gently until juice is drawn out and sugar is dissolved
Pack loosely, press out air
Seal, label and freeze

SYRUP/PECTIN
Prepare desired syrup, following instructions
Cool before using
Place fruit in container, pour syrup over fruit
Use small piece crumpled, water resistant paper to hold fruit down
Seal, label and freeze

UNSWEETENED JUICE/WATER
Place fruit in container, pour juice/water over fruit
Use small piece crumpled, water resistant paper to hold fruit down
Seal, label and freeze



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FREEZING VEGETABLES



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PREPARING

Harvest at right time; sort for size, ripeness and color

Rinse under cool, running water while rubbing skins; drain

Vegetables with firm surface use a clean vegetable brush and scrub

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BLANCHING

Process of immersing food in boiling water for a short period of time, then cooling it quickly to stop cooking.

Slow enzymes that can cause undesirable changes in the food after it is frozen.
Remove oxygen from plant tissue.
Clean the surface of dirt and organisms.
Wilt or soften to make vegetables easier to pack.

If not done properly:
Under-blanching stimulates the activity of enzymes.
Over-blanching causes loss of nutritive value and undergo changes in color, flavor and texture.



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BLANCHING METHODS

Water blanching is the best method for blanching vegetables, even heat penetration.

Steam blanching is a slower process, requires 50% more time than water blanching.

Microwave blanching is not as effective, some enzymes may not be inactivated.

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WATER BLANCHING

STEPS

- Put water in saucepan with tight lid
- Bring to a boil
- 1 gallon of water for each pound of vegetables; 2 gallons of water for each pound of leafy greens**
- Place small amount in basket/strainer and immerse in boiling water, make sure water covers all vegetables
- Cover
- Let boil for required time, begin when placed in water
- Lift out of water and cool immediately in cold/ice water
- Cool same amount of time as blanching**
- Drain, pack, seal, label and freeze



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Specialty Instructions

Mushrooms
Treat to prevent darkening: steam or fry in fat
Cool and drain
Pack, seal, label and freeze



Tomatoes
Do not need to be peeled
Need to be cored



Summer Squash
Wash and grate
Pack, seal, label and freeze



Onions and Peppers
Blanching not required
Pack, seal, label and freeze



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Acceptable packs for vegetables

Dry
Blanch, cool and drain
Pack, seal, label and freeze

Individually Quick-Frozen
Blanch, cool and drain
Spread single layer on baking sheet
Freeze for 4-6 hours
Pack, seal, label and freeze
*Asparagus spears will curl, making difficult to pack

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STORING FROZEN FRUITS AND VEGETABLES

Stored at 0°F

8-12 MONTHS

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Resources

Fundamentals of Consumer Food Safety and Preservation: Master Handbook, Washington State University Extension Curricula, EC002

So Easy to Preserve, The University of Georgia Cooperative Extension, 6th Edition, 2014

Complete Guide to Home Canning, USDA, revised 2015

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