

Fresh from the Garden

“FROM GARDEN TO FREEZER” FREEZING VEGETABLES

This lesson demonstrates, step-by-step, how to correctly freeze fresh vegetables, in order to preserve the flavor, texture and nutritional value.

Green beans work well for this presentation, but any seasonal substitution may be made.

The material is suitable for both beginning gardeners and gardeners with established productive vegetable gardens, as well as for non-gardeners.

Use the lesson to:

- Teach about the health benefits of vegetables--frozen or fresh
- Demonstrate how to properly freeze fresh vegetables
- Instruct gardeners how to deal with an overabundant crop

Key presentation points:

1. Nutrition and health benefits associated with vegetables.
2. Freezing is a quick and easy way to preserve freshly harvested or purchased vegetables.
3. Proper freezing techniques preserve the natural colors, fresh flavors, and nutrients in vegetables.
4. Frozen, ready-to-serve vegetables will make it easier to serve and eat vegetables.
5. Safe thawing practices.

Additional (optional) points:

- History of frozen foods
- Interesting or fun facts
- Comparison of freezing to other food preservation methods

Freezing Facts:

- In 1924, Clarence Birdseye invented the system for rapidly freezing foods at extremely low temperatures.
- Freezing is a natural way to preserve vegetables and other foods. It does not usually require the use of chemical preservatives.

Preparation:

- Review lesson material
- Review presentation guidelines
- Review demonstration checklist
- Review resources for additional presentation information or activities.

- Select one or more seasonal vegetables for demonstration.
- Prepare vegetables for demonstrations, as necessary.
- Have a variety of samples available for the presentation. A small sample of previously, correctly and incorrectly, frozen vegetables and a sample of a freezer burned item. There are often questions about what freezer burn looks like.
- Collect a variety of containers and plastic bags to display. Show containers that are approved for freezing and containers that are not.

The following is a suggested script with step-by-step demonstration activities:

PRESENTATION: FREEZING VEGETABLES

Before beginning, put a pot of water on the butane burner. While the water comes to a boil, begin the presentation. Introduce yourself and review what you will be presenting with the audience.

“For good health, it is important to eat a variety of vegetables. The more you eat the better chance you have for a healthy life. Eating vegetables, either fresh or frozen, is one of the easiest and most delicious ways to protect your health. They are high in fiber, low in fat and calories, and contain vitamins, minerals, and important plant chemicals (phytochemicals) that may reduce the risk of some cancers and heart disease. For good health, eat vegetables every day – the more the better. For a wide variety of nutrients, choose a rainbow of colors.”

☞ Define phytochemicals and discuss health benefits, if time allows (See “*Nutrition – the basics*” handout for information on phytochemicals)

“Fresh vegetables don’t have to be just a summertime treat. Freezing is a quick and easy way to preserve your fresh-from-the-garden harvest (or vegetables purchased at the farmers’ market) to enjoy all year long. Taking some time to freeze your vegetables is a good way to ensure that you will have vegetables readily available for family meals.

Freezing preserves the natural colors, fresh flavors, and nutrients in vegetables.”

☞ Display a serving of canned green beans and a serving of frozen green beans

☞ Compare the color difference

☞ Point out that canned vegetables contain sodium

“Freezing does not kill bacteria, but it does stop it from growing. Always handle vegetables and other foods safely before freezing and when thawing.

You may freeze large or small amounts of vegetables based on what you have on-hand and your family's needs. Even freezing small amounts of vegetables will allow you to take advantage of low prices.

The time and effort you put into gardening and harvesting, washing, and packing fresh vegetables will be wasted, if you do not take the time to follow a few simple rules before putting the vegetables in the freezer. Today's class will demonstrate, step-by-step, how to freeze vegetables the right way!

You may freeze almost any vegetable you like. However, there are a few that don't freeze well and get soggy or mushy, like cucumbers, celery, lettuce, and a few others.”

☞ Display frozen and thawed limp celery and/or cucumber

“Celery does better if it is cooked and combined in a casserole or mixed dish.

The reason these vegetables don't freeze well is because they contain a lot of water. Water in the cells of vegetables like celery expand when they freeze. The individual cells break and, when the vegetable is thawed, the water leaks out and the vegetable turns mushy.”

☞ Demonstrate how the cells burst and lose liquid by squeezing a previously frozen and thawed vegetable sample over a bowl

“Cabbage is another vegetable that is usually not frozen raw. Freezing a traditional cabbage salad—coleslaw—made with mayonnaise would be double trouble. The cabbage would exude water and become mushy and the mayonnaise would separate and curdle.

When preserving, always start with high quality, young, flavorful vegetables.”

☞ Display green beans for freezing

“Most vegetables will retain their quality (i.e. color, texture, taste, and nutrients) during freezer storage if they are blanched or scalded before freezing. Blanching is not an optional step. There are only a few vegetables that don't require blanching. Neither onions nor peppers need to be blanched. Just chop or dice and freeze.

Blanching just means to put the vegetables in boiling water (or over steam) for a short period of time.

There are natural chemicals in vegetables called enzymes that cause changes in flavor, texture, and color. Blanching stops the action of these enzymes.

If you have been disappointed with your home-frozen vegetables, it is probably because you have not blanched them. After about 4 weeks, frozen vegetables that haven't been blanched, usually do not look or taste very good (they lose flavor and color), and many of their vitamins and minerals have been destroyed. They will be safe to eat, just not very appealing.”

☞ Display unblanched freezer burned green beans

“To begin blanching, you need a large pot of boiling water.”

☞ Point to pot on burner

“You need about 1 gallon of water for every pound of vegetables you plan to blanch. Leafy greens like collards or spinach require 2 gallons of water for each pound.

Wash the vegetables well. Trim off the ends and cut the beans in pieces. You can leave them whole if you like, but I think the pieces are easier to handle.”

☞ Demonstrate how to trim and cut green beans

“Put the vegetables into a colander or fry basket or even some cheesecloth. This makes it very easy to lower them into the water and to remove them.”

☞ Display cheesecloth, colander and fryer basket

☞ Put cut green beans into cheesecloth and secure with string or a rubber band

“A string works well because you can leave the ends long and hang them over the side of the pot for easy removal. The pot cover holds the string in place.

When the water is at a rolling boil--that means that it is really moving--put the vegetables into the water and cover the pot.”

☞ Lower the cheesecloth bag of green beans into water and cover pot

“Start counting the blanching time right away.”

☞ Set timer for 3 minutes

☞ Point out the amount of time to blanch green beans is 3 minutes

☞ During blanching time, prepare bowl of water with ice (if possible) and continue with presentation

“If you don’t have a timer, a clock or a watch with a second hand will help keep track of the time.

When the time is up, remove the vegetables from the boiling water. Don’t leave them in the boiling water for longer than the recommended time, or they will cook. If they are removed too soon (under-blanching), the enzymes will continue to be active and the vegetables will become tough and develop an “off-flavor” in the freezer.

When blanching more than one batch of vegetables, save the water and use it several times.”

- ☞ Remove the green beans from the pot
- ☞ Do not remove from cheesecloth bag
- ☞ Put the vegetables into the water immediately

“If you don't have a large bowl, fill the kitchen sink with cold water and add some ice.

Cool the vegetables completely. Usually they are cooled in the cold water for the same amount of time they were blanched. So, for green beans, that means 3 minutes in the boiling water and 3 minutes in the cold water.”

- ☞ Remove the green beans from the ice water
- ☞ Untie the cheesecloth
- ☞ Put the green beans into the colander

“When the vegetables are blanched, you will see a very definite color change. This is really easy to see with green vegetables like green beans and broccoli.”

- ☞ Display the blanched and raw green beans and compare the color difference

“Drain the vegetables well and allow them to dry thoroughly. It helps to spread them onto a kitchen towel or paper towels. Blot dry, if necessary.”

- ☞ Spread a towel and lay green beans on it

“When the vegetable pieces are completely dry, package them in small or family size portions.”

- ☞ Place the green beans into a freezer container

“For individually frozen pieces, place the dry pieces, without touching, on a cookie sheet or tray. Place the tray in the freezer. When the pieces are frozen, remove from the tray and package.”

- ☞ Display cookie sheet
- ☞ Spread blanched, dry green beans into cookie sheet

“With this method, you can remove the exact amount needed for a meal from the package.”

- ☞ Display container of individually frozen vegetable pieces

☞ Share the container to demonstrate the individual pieces

“Frozen foods that are kept too long or not packaged properly will develop "freezer burn" from moisture loss. Freezer burn appears as spongy looking, grayish white spots on the food's surface, and causes off-flavors and toughness. Freezer burned food is safe, but doesn't taste very good.”

☞ Display a sample of freezer burned vegetables

“To protect the quality of frozen vegetables, it is important to use containers that are suitable for freezing. The best containers are those that keep out the air and moisture that circulates in the freezer.”

☞ Display appropriate freezer containers

“Containers should be rigid with tight fitting lids. They are usually labeled ‘for the freezer’.”

☞ Display container packaging and point out the word “freezer”

“Cottage cheese, sour cream and similar containers don't really do the best job for freezing. They don't keep the moisture and air out, because they are designed for storing food in the refrigerator. When used in the freezer, they can become brittle and crack. Remember that it's the moisture and air that will affect the quality of your frozen vegetables.”

☞ Display cottage cheese and sour cream container (or yogurt and/or salsa containers)

“However, if these are all you have, use them only for foods that will be frozen for a short time.

Don't overfill them, and hold the lids in place with freezer tape.

If you find that you have a lot of space between the vegetables and the lid, crumple up a piece of wax paper, plastic wrap, or foil and put it on top of the vegetables. The paper fills the empty space where air can collect, and will help preserve the quality of the frozen vegetables.”

☞ Put some of the blanched green beans into the container

☞ Crumple a piece of wax paper and put it on top of the beans

☞ Put the cover on the container

“If you prefer plastic bags, use heavy bags labeled ‘freezer bags’.”

☞ Display plastic freezer bag

“Plastic produce bags from the supermarket are not acceptable. These bags are too thin to protect your vegetables from the air and moisture in the freezer. Also, they frequently have very small holes in them that let even more air and moisture into the package.”

☞ Display plastic produce bag

“When storing vegetables in a plastic bag, remove as much air as possible before sealing.”

☞ Put some of the blanched green beans into the bag

☞ Demonstrate how to push or squeeze air from the bag

“There is a little trick you can use to remove the air and it works very well. Seal the freezer bag almost completely, but leave just enough space to put a straw into the bag. Now suck out any air that remains. As the air is removed, the plastic forms a tight protective seal around the vegetables.”

☞ Demonstrate the removal of air with a straw

“Be very careful not to draw any vegetable particles up through the straw and into your lungs. Also, be careful not to add any saliva to the freezer bag.

Now seal the bag tightly using a twist tie.

The gooseneck seal is an effective way to prevent air from getting into the freezer bag.”

☞ Demonstrate the gooseneck-twist tie seal

“Twist the top tightly. Fold the twisted section in half. Secure the tie just above where the top and bottom sections meet.



Heavy-duty aluminum foil will also work (it's better than regular foil), if you are careful to close it tightly. Be aware that foods that contain acid, like tomatoes will react with the aluminum and cause pitting. To avoid this, first wrap these foods in plastic wrap, then over wrap with foil. Foil is probably the most costly way to package your frozen vegetables.”

☞ Display box of heavy-duty aluminum foil

☞ Display piece of pitted aluminum foil

“Always label freezer packages with a description of the contents and the date. Do this even if you think you will be able to recognize the food later. When frozen, many foods look the same.

You can write directly on plastic bags and some containers with an indelible marker. Some packages might need a label or some tape. Be sure that you purchase materials that are designed for the freezer--"freezer tape and labels". Regular Scotch tape or mailing labels won't stay stuck. They will eventually come off.”

☞ Display freezer tape, market, and labels

“Now you are ready to put the vegetables in the freezer to be enjoyed later.

For the best quality, store frozen vegetables at 0°. This will be hard to do, if you have a freezer that is part of a refrigerator (on the top or side-by-side), so eat the vegetables within a month or two, or at the longest 4 months. If you have a free standing freezer, they can be stored a little longer (6 months). If possible, use a freezer thermometer.”

☞ Display a freezer thermometer

“Freeze packaged vegetables quickly, in a single layer, in the coldest part of the freezer. The faster the vegetables freeze, the firmer they will be when thawed. The longer it takes for the food to freeze, the more large ice crystals, which puncture the veggie's cell walls, are formed. After the vegetables are frozen, stack them.

Cook most frozen vegetables straight from the freezer without thawing. If you must thaw the vegetables, be sure to do it in the refrigerator, the microwave or in cold water. When foods are thawed at room temperature, it is possible for the bacteria that cause food poisoning to grow.

Vegetables that have been partially thawed can be refrozen, if they still contain ice crystals. Refreezing will result in the loss of some texture and quality.”

☞ Display a partially thawed package of vegetables

☞ Point out the feel and look of existing ice crystals

“Cooking vegetables in a small amount of water rather than a large amount will prevent the vitamins from being lost to the water.

Generally, for each quart of vegetables, use 1/2 to 1 cup of water. Salt is optional. Some vegetables, like corn-on-the-cob, may require more water.”

☞ Demonstrate the most nutritious cooking method by placing vegetables in the glass saucepan and adding water just to cover

“Avoid overcooking by adding the vegetables to the water only after it has come to a boil. Cook them only until tender--about half as long as you would, if the same vegetable were fresh.

Vegetables can also be frozen in a casserole or mixed-dish. If you have a favorite vegetable dish, prepare it as usual but cook for only ½ the recommended time. Then cool, label and freeze.

Remember, for good health, it is important to eat a variety of vegetables--fresh or frozen. Eat vegetables every day—the more the better. The more vegetables you eat the better chance you have for a healthy life. Having vegetables handy in the freezer will make serving and eating vegetables easier.

Don't "undo" all the nutritional benefits of eating vegetables by serving them with large amounts of fat and salt. Sauces, dressings, and other ingredients will add calories, fat and cholesterol.”

☞ Conclude presentation

☞ Thank audience for their participation

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