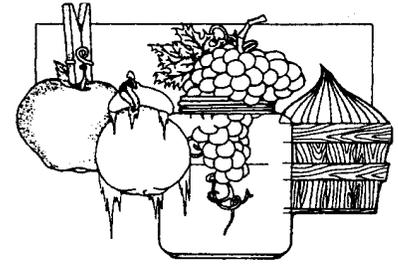


Quality for Keeps



Information for those who produce and preserve food

Fresh corn, oh, how sweet it is!

New sweet corn varieties are sweeter than ever. Although super sweet varieties are excellent for eating fresh and ship well, some super sweet varieties may darken or develop tough skins when canned or frozen.

Canned corn darkens for two reasons. First, enzymes can cause the corn to darken. Blanching the corn before the corn is canned or frozen should solve this problem since blanching kills the enzymes. Second, color pigments in the corn may react with air in the presence of iron, (which is naturally present in the corn tissue or in the water supply). Adding an antioxidant like Vitamin C, citric acid, or Fruit Fresh® to each jar of corn before processing should help prevent darkening. Try adding ¼ teaspoon per pint, or ½ teaspoon per quart.

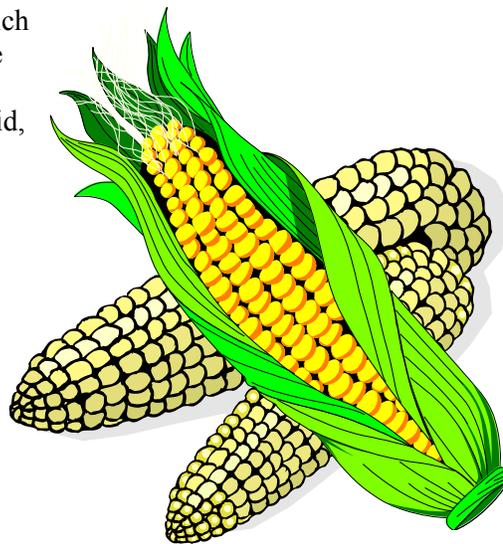
Selection. Choose ears with tender kernels that are milky and well-developed. Kernels that are too large will be chewy and pasty. They should be just firm enough that slight pressure will puncture the kernel, releasing the milky-white juice. If juice is watery, the sweet corn is not ready.

When buying sweet corn in the husk, look for a bright green color, snug husks and dark brown silk.

For maximum sweetness, eat corn as soon as possible after harvest. Leave extra ears in husks, and store uncovered in the refrigerator for up to 2 days. Rapid cooling below 40 degrees F is necessary to preserve sweet-

ness and tenderness. Sugar in corn turns to starch quickly at higher temperatures.

Freezing. Sweet corn can be frozen on the cob, or cut off the cob. However, preserving will not improve the quality of the corn, so always start with high quality produce. Only tender, freshly gathered corn in the milk stage should be selected for freezing. Husk and trim the ears, remove silks and wash.



Before freezing, corn must be blanched to destroy the enzymes that will cause flavor and color changes during storage.

Corn-on-the-cob. Water blanch small ears (1-1/4 inches or less in diameter) 7 minutes, medium ears (1-1/4 to 1-1/2 inches in diameter) 9 minutes, and large ears (more than 1-1/2 inches in diameter) 11 minutes.

Cool promptly and completely to prevent a "cobby" taste. Drain, package, seal and freeze.

Whole kernel corn. For frozen cut corn, blanch for 4 minutes, cool, and cut kernels from the cob at about three-fourths of their depth. Fill pint, or quart-size freezer bags, to a level of 3 to 4 inches from their tops. Squeeze out air, leaving a 1-inch headspace, label, and freeze.

Corn can be stored in the freezer at 0° F for about 10 months. Supersweet (Sh2) varieties of sweet corn may be frozen unblanched and keep their flavor for up to 8 months. After 8 months of frozen storage, taste panels preferred sweet corn that was blanched before freezing. Variety and growing conditions affects the flavor of frozen sweet corn. In general, blanching results in a higher quality product.

To cook frozen corn. Place in boiling water. Cook whole kernel frozen corn for 3 to 5 minutes. Thaw corn-on-the cob, and cook for 3 to 4 minutes. Begin counting cooking time after water returns to a boil.

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Note: Brand names are mentioned for educational purposes only and do not imply endorsement.

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Canning. Corn is a low-acid vegetable and **must** be processed in a pressure canner for safety.

Cream-style corn. For each 9-pint canner load, use about 20 pounds of sweet corn (in husks).

Select ears containing slightly immature kernels, or corn that is at the ideal stage or maturity for eating fresh.

Because cream-style corn is thicker than whole kernel corn, it should be canned in **pint jars only**, so that heat can penetrate throughout the product. Hot packing is the **only** method recommended for filling jars.

Husk corn, remove silk and wash ears. Blanch ears 4 minutes in boiling water. Cut corn from cob at about the center of kernel. Scrape remaining corn from cobs with a table knife.

Hot pack (pints only). Add 1 cup of boiling water to each 2 cups of corn. Heat to boiling. Add 1/2 teaspoon canning salt to each jar, if desired. Fill pint jars with hot corn mixture; leave 1-inch of headspace. Remove air bubbles. Adjust lids.

In a dial gauge canner, process pints of cream style corn for 85 minutes at 11 pounds of pressure.

In a weighted gauge canner, process pints for 85 minutes at 10 pounds of pressure at altitudes under 1,000 feet. Or process for 85 minutes at 15 pounds of pressure at altitudes over 1,000 feet.

Corn—whole kernel. For each 7-quart canner load, start with about 31-1/2 pounds of sweet corn (with husks). For each 9-pint canner load, use about 20 pounds of sweet corn.

Selection. Choose ears containing slightly immature kernels, which are at the ideal stage of maturity for eating fresh. Kernels that are too immature may turn brown during the canning process, as some of the sweeter

varieties may also, but this does not affect safety.

For best quality, can a small amount and check color and flavor before canning large quantities.

Husk corn, remove silk and wash. Blanch 3 minutes in boiling water. Cut corn from cob at about three-fourths the depth of the kernel. Caution: Do not scrape the cob.

Hot pack (quarts only). Place kernels in saucepan. Add 1 cup of hot water for each quart of corn, heat to boiling and simmer five minutes. If desired, add 1 teaspoon canning salt per quart to each jar. Fill jars with corn and cooking liquid; leave 1-inch of headspace. Remove air bubbles. Adjust lids, and process.

Raw pack. Fill jars with raw kernels; leave 1-inch of headspace. Do not shake or press down. If desired, add 1 teaspoon canning salt per quart, or 1/2 teaspoon per pint, to each jar. Add fresh boiling water; leave 1-inch of headspace. Remove air bubbles. Adjust lids, and process.

In a **dial gauge** canner, process pints of whole kernel corn for 55 minutes at 11 pounds of pressure. Process quarts of whole kernel corn for 85 minutes at 11 pounds of pressure.

In a **weighted gauge** canner, process pints for 55 minutes and quarts for 85 minutes at 10 pounds of pressure at altitudes under 1,000 feet. At altitudes over 1,000 feet, process pints for 55 minutes at 15 pounds of pressure, and process quarts for 85 minutes at 15 pounds of pressure.

It's OK to skip the salt. Salt seasons vegetables, but it is not necessary for safety. It is perfectly safe to can vegetables without adding salt. Add salt substitutes when serving vegetables; don't use them when canning. If added before the canning process, salt substitutes may cause a bitter taste. When adding salt, use canning salt.

Sources:

GH1454, Quality for Keeps: Preserve Your Garden Delights — How to Can Fresh Vegetables, <http://extension.missouri.edu/publications/DisplayPub.aspx?P=GH1454>

GH1503, Quality for Keeps: Freezing Vegetables, <http://extension.missouri.edu/publications/DisplayPub.aspx?P=gh1503>

"Darkening of Corn". Penn State. 2011. <http://extension.psu.edu/food-safety/food-preservation/faq/darkening-of-canned-corn>

Missouri Environment and Garden Newsletter. AgEBB. "Sweet Corn: A Summertime Treat" 2005, <http://ppp.missouri.edu/newsletters/meg/archives/v11n6/meg1.htm>

Corn Yields

A bushel weighs 35 pounds and yields 12 to 20 pints (an average of 2-1/4 lbs. per pint). Or 8 to 9 quarts (an average of 4-1/2 pounds per quart).



A look at corn varieties

Sweet corn may be classified as standard sweet corn (SU varieties), sugary enhancer (SE) varieties, and supersweet corn (Sh2) varieties. Here is a partial list of popular varieties grown in the Midwest.

- Standard sweet corn (SU) is best picked, husked, and eaten within a very short time from the home garden.

Yellow - Earlivee, Gold Cross Bantam, Iochief, Jubilee, Seneca, Horizon, Sundance

White - Pearl White, Platinum Lady, Silver Queen

Bi-color - Butter & Sugar, Honey & Cream

- Sugary enhancer varieties (SE) have a higher sugar content than the traditional SU sweetcorn, but still retain the tenderness and creamy texture of standard sweet corn. The taste, texture, and tenderness is outstanding, and preferred by home gardeners for superior eating quality.

Yellow - Bodacious, Gold Nugget, Incredible

White - Silver King

Bi-color - Frisky, Jackpot, Peaches & Cream, Sugar Baby

- Supersweet (Sh2) varieties have three to ten times the sugar of SU varieties, and ship well. However, supersweet corn has a crispy, tough-skinned texture and lacks the creamy texture of other sweet corn varieties. This affects the quality of frozen and canned sweet corn. To confuse matters, newer varieties of supersweet corn, like Honey Select and Vision, have both the tender gene from SE varieties and the high sugar content from the supersweet (Sh2) varieties .

Source: Missouri Environment and Garden Newsletter. AgEBB. "Sweet Corn: A Summertime Treat" 2005 <http://ppp.missouri.edu/newsletters/meg/archives/v11n6/meg1.htm>. Katie Krammler, Agronomy/Plant Sciences Specialist, Ste. Genevieve County, East Central Region.

Half-gallon jars have limited use

Only apple juice and grape juice may be processed in half-gallon canning jars according to recommendations from the USDA and the National Center for Home Food Preservation.

At least one canning jar manufacturer is selling half-gallon canning jars. That manufacturer has a printed note on the top that says half-gallon jars are only used for some highly acidic foods in a boiling water canner, such as grape juice and apple juice.

This process time is not to be used for tomato juice, for example.

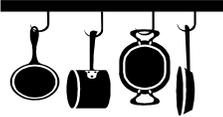
There are no other research-tested processes for half-gallon jars. Boiling water processes for other foods for jars larger than those published with recipes (usually pints and/or quarts) cannot be extended by any formula to a larger jar.

Older directions for canning foods in half-gallon jars do exist, but these are not currently accepted, or endorsed by the USDA, Cooperative Extension System or U.S. manufacturers of home canning jars.

Source: Penn State Cooperative Extension. 2011. <http://extension.psu.edu/food-safety/food-preservation/faq/canning-with-half-gallon-jars>



THE RECIPE BOX



Pickled corn relish

- 10 cups fresh whole kernel corn (16 to 20 medium-size ears, or six 10 oz. frozen packages)
- 2-1/2 cups diced sweet red peppers
- 2-1/2 cups diced sweet green peppers
- 2-1/2 cups chopped celery
- 1-1/4 cups diced onions
- 1-3/4 cups sugar
- 5 cups vinegar (5%)
- 2-1/2 tablespoons canning or pickling salt
- 2-1/2 teaspoons celery seed
- 2-1/2 tablespoons dry mustard
- 1 teaspoons turmeric

Yield: About 9 pints

Procedure: Boil ears of corn 5 minutes. Dip in cold water and cut whole kernels from cob (do not scrape the cob), or use six, 10-ounce packages of frozen corn (defrost in the refrigerator or microwave). Mix peppers, celery, onions, sugar, vinegar, salt and celery seed in a saucepan. Bring to a boil and simmer 5 minutes. Stir occasionally.

Mix mustard and turmeric with a small amount of the simmered mixture, and add back to the hot mixture along with the corn. Simmer another 5 minutes. If desired, thicken mixture with flour paste (1/4 cup flour blended in 1/4 cup water) and stir frequently. Fill jars with hot mixture. Leave 1/2—inch headspace. Adjust lids and process half-pints or pints for 15 minutes in a boiling water canner at 1,000 feet or less, or for 20 minutes at altitudes over 1,000 feet.

Source: GH1459, *Quality for Keeps: Pack a Pickled Product.* <http://extension.missouri.edu/publications/DisplayPub.aspx?P=GH1459#com>

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Mary Schroepfer

Mary Schroepfer
Nutrition & Health Specialist
116 W. Main
Union, MO 63084
Ph: (636) 583-5141
Fax: (636) 583-5145
Email: SchroepferM@missouri.edu

Judith Lueders

Judith Lueders
Nutrition & Health Specialist
321 N. Main, Suite 1
Perryville, MO 63775
Ph: (573) 547-4504
Fax: (573) 547-4535
Email: LuedersJ@missouri.edu

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