

Canning Program Suggestions

Have on hand: Copies of “On the Home Front” newsletter to distribute, clipboard and signup sheet for newsletter, copies of handouts made by host group (canning tomatoes, canning salsa, canning notes).

Table Set Up: Pressure canner with samples of gauges or poster showing different gauges, boiling water canner, steam canner (hidden behind poster), boxes of reduced sugar pectins, cans labeled “Take Your Chances” and “Guaranteed Safe,” bulletins (booklets in Spanish, pie fillings, canning protein, reduced sugar jams and jellies, dehydrating, yields, etc.).

Visual

Comments

summer produce
and canner

Although we are going to emphasize canning this evening, let’s briefly look at the advantages and disadvantages of the various food preservation methods.

Freezing Adv: product most like fresh, hard to freeze in way that makes food dangerous.
Freezing Dis: most expensive.

Dehydrating adv: storage takes little space and equipment not expensive.
Dehydrating dis: Product most changed from fresh and most nutrition lost.

Canning adv: Longest storage time with high quality.

Canning dis: Person needs to be knowledgeable about which foods are high risk or low risk.

food safety is #1
priority

Suppose at the grocery store you saw a display of your favorite brand of canned vegetables or tomatoes in a discount bin. [Hold up “Take Your Chances” can] Because the supervisor had a bad night they can’t guarantee that the product was processed the full time for safety, so they are offering the product at a reduced cost. How do you feel about this “bargain”? [Hold up “Guaranteed Safe” can] Do you expect commercial canneries to produce products of unquestionable safety? Yes, and we can have the same safety standards in our own canning at home.

current & tested
canning recipes

CURRENT means every year or two call the Extension office (before salsa season) and say, “This year I will be canning X and Y and Z. Have the canning guidelines for those items changed in the last few years?”

TESTED means based on research by testing repeatedly in labs for control of microorganisms. (“Aunt Mildred has made this for 20 years and no one has died yet” is not enough.)

REMEMBER as you teach youth, neighbors, or friends about canning, do not teach them magic numbers that may change. Teach them how to find current, tested information. (Cooperative Extension is nationwide – education arm of USDA)

sealed jar does not
mean a safe jar

Some people have such faith in a lid that seals that they will iron on lids that did not seal after processing. **NO!** The point is to destroy microorganisms.

why foods spoil;
molds; yeasts,
bacteria, enzymes

Enough heat must reach the center of the jar to control the molds or yeasts or bacteria that might be a risk for that food.

what makes food safe to preserve; lid seal, processing temperature, processing time

It is critical to have the lid seal, but that is not enough by itself. There must be enough time for the heat in the boiling water canner or the pressure canner to penetrate the food and control the undesirable microorganisms.

processing time scientifically determined

Researchers in laboratories repeat the processes again and again until they can guarantee the control of the target microorganism. If you understand some of the factors that affect control of the microorganisms, you will better understand the processing guidelines.

processing determined by:

acidity
consistency/density
altitude
size of container

We will discuss each one of these factors.

high acid foods and low acid foods

Dividing line is measurement of 4.6 pH. Foods higher in acid than 4.6 pH can be processed in a boiling water canner, because we do not have to destroy botulism spore (just molds and yeasts). Foods lower in acid than 4.6 pH **must** be processed in a pressure canner because 240° F. needed to destroy the heat-resistant botulism spore.

density affects heat penetration

Fluids in the canning jar can create convection currents that circulate and help carry the heat from the outer edge of the jar to the center. Jar contents that are thick or viscous will not have convection currents. Heat must travel molecule to molecule by conduction to the center of the jar (much slower). If you change the density of the product, the processing time given in the canning recipe will no longer be valid. Examples are simmering salsa 3 hours instead of the stated 30 minutes; adding thickeners such as flour, barley or pasta to stew; adding more solids such as meat, beans or vegetables to soup you are canning. Do not make product thicker!

altitude affects boiling water canner

Canning guidelines are written for sea level. Guides such as Ball and Kerr have instructions on how to make altitude adjustments, but many people don't know to look. At sea level water boils at 212° F. but at Utah County altitude it boils at 203° F. So it will take longer to get the necessary heat to the center of the jar to destroy molds and yeasts. If the sea level guidelines for the boiling water canner are for less than 20 minutes, add 5 minutes for Utah County altitude. If the sea level guidelines for the boiling water canner are for 20 minutes or more, add 10 minutes. Five or ten.

altitude affects pressure canning

Adding 10 pounds pressure to the atmospheric pressure at *sea level* will cause the water in the pressure canner to boil at 240° F. (sufficient to destroy botulism spore). At *Utah County altitude* we must add 13 pounds pressure to get 240° F. in the pressure canner. [Could talk about different gauges here, or wait until the end to discuss what is displayed on the table.]

For both the boiling water canner and the pressure canner ONE adjustment is necessary. For the boiling water canner we add time. For the pressure canner we add pressure.

canning is NOT

With **cooking** you are successful if the food tastes good and is the expected consistency.

cooking	However, the objective of canning is to control potentially harmful microorganisms which can only be determined in a lab. Appearance, taste, and texture (especially in low acid foods) cannot always tell you if the product has been canned adequately.
control your creativity!	Do NOT get creative when canning if the changes you are contemplating would result in a product lower in acid or denser consistency.
canning guidelines may change	Now that we know why acidity, density, and altitude are critical to safe canning we are ready to discuss why canning guidelines sometimes change.
new risk identified may mean new canning guidelines	Several years ago researchers discovered that some molds are capable of producing very potent toxins. These mycotoxins don't make us sick immediately as food poisoning toxins or microorganisms do, but over the years they may increase our risk of certain cancers or of damage to our nervous system. NOTE: Scraping off the visible mold doesn't eliminate the risk, because if it is a mold capable of creating mycotoxins those toxins are created in the microscopic "threads" (mycellium) that penetrate the food – and the softer the food the more likely the invisible "threads" will be deep below the surface. [The mycellium of mold can be compared to the root system of a plant.] ALSO NOTE: Heating or boiling the food will not eliminate these toxins as they are very heat resistant.
	Since about 70% of jams sealed with paraffin developed mold, USDA wanted a technique that would eliminate the risk of mold. Therefore, processing jams and jellies in the boiling water canner is now recommended.
	USDA found a more heat-resistant mold spore associated with apples , so the processing recommendations for applesauce were changed: the contents of jar must be very close to boiling hot when you put into the canner and processing time was lengthened somewhat.
change in ingredient may require a change in the processing	Sometimes canning guidelines change because ingredients change. One example is VINEGAR. Years ago folks could get vinegar that was 6 or 7% acetic acid. Now our vinegar is 5% acetic acid or lower. An old-time pickling recipe usually calls for less vinegar than current recipes. REMEMBER that cucumbers and other vegetables that you pickle are low acid foods; adequate acidity from the vinegar is what makes it safe to process in the boiling water canner.
	And TOMATOES have changed. We have meaty, dense tomatoes and we have juicier tomatoes. These are high acid tomatoes and there are more and more lower acid tomatoes. USDA had to develop canning guidelines that would give adequate protection even when canning meaty low-acid tomatoes.
handout on processing	There are choices – four ways of packing the bottles, times for the boiling water canner, times for the pressure canner, and three choices for added acid. But you must read

straight across – you don't pack the bottle according to the bottom line and process according to the top line!

Discuss top line and bottom line. Explain advantages of heating tomatoes in saucepan if that method is chosen; rapid deactivation of enzymes*, tomatoes shrink in saucepan for better fill of bottles and for release of much of the oxygen that was trapped in the tissue. (*deactivating the enzymes as soon as the tomato is skinned means the tomatoes will not separate into solids at top of jar and straw colored liquid below; this separation is not a safety problem, just aesthetics)

handout on salsa Discuss first recipe. It has very broad guidelines that let each person create a unique salsa – 5 pounds tomatoes to 3 pounds low acid vegetables (any combination of hot or mild). Remind class that if they simmer the salsa along time to make it thicker the processing time in the boiling water canner will not longer apply.

canners on table If not already discussed, answer any questions on pressure canner, boiling water canner, and steam canner. NOTE: USDA, Ball, and Kerr all have very similar statements saying they do not recommend the steam canner because there are no research-based processing times. So if you are using the steam canner, please stick to fruits and fruit products. Please don't do tomatoes in the steam canner.

Point out options for reduced sugar or no sugar jams. Note that these specially modified pectins are not interchangeable.

Point out other bulletins that may be of interest such as canning pie fillings (using ThickGel but not instant Clear Jel or cornstarch, etc.).

Warning! Show labels. “This product has not been processed following current USDA recommendations and may be hazardous to your health.” These labels are to put on your bottles if you are determined to can as you have always done in the past.

If you have questions call us at 851-8468 or visit our office at:
100 East Center, Room L 600, Provo, UT 84606



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