Food Preservation – Part 1

Some local folks will face a serious question in the coming weeks as they harvest the vegetables from the gardens they so zealously planted in the spring. They may ask themselves, “Now that I have it, what am I going to do with it?” They may discover an abundance of beans, tomatoes, squash—whatever they have grown, purchased or been given by generous neighbors or family members and did not know how to “put it by” for use in the winter months.

One answer is to attend the Food Preservation Workshop being held at Trinity Episcopal Church in Martinsburg on Saturday, July 18 at 9 a.m. Information about drying, freezing, vacuum sealing, cold storage and canning will be presented at the event sponsored by the Berkeley Jefferson Master Gardeners Association and the Berkeley County Office of West Virginia University Extension Service, and co-sponsored by Trinity Episcopal Church.

Today’s column explores some of the basic principles of a major food preservation method, canning. Next time we will look more closely at the two types of canning methods, boiling water and pressure canning. In the final article of this three-part series, we will discuss safe storage of those jars of canned food.

Safety is an important issue with home canning. There are many ways to get a jar to seal. However, all of them do not produce a safe product. It is imperative that you select the appropriate canning method, use reliable equipment and precisely follow a recipe from a reputable source. Good sources are WVU Extension Service or the National Center for Home Food Preservation. Their websites are listed below. Another reliable source is *The Ball Blue Book of Preserving* that is widely available in book stores and in the canning supplies section of grocery stores.

You might wonder how canning preserves food. Most fresh foods have a high percentage of water making them perishable. They spoil or lose their quality for several reasons:

- Growth of undesirable microorganisms—bacteria, molds, and yeasts,
- Food enzymes (chemicals in food that cause produce to ripen or mature)
- Reactions with oxygen
- Moisture loss

Microorganisms live and multiply quickly on the surfaces of fresh food and on the inside of bruised, insect-damaged, and diseased food. Oxygen and enzymes are present throughout fresh food tissues.

In canning, jars of food are heated to a temperature that, combined with the correct length of time, destroys microorganisms and inactivates enzymes. Also during this heating process, air is driven from the jar. As the jar cools, a vacuum seal is formed. During storage this vacuum seal holds the lid on the jar preventing recontamination and keeping air from drying out the food. This combination of events preserves the food.

For the purpose of canning, foods are divided into two main categories - acid foods and low-acid foods. Acid foods contain enough acid to prevent the growth of the bacteria that causes botulism poisoning. Almost all fruits belong in the acid food category. Tomatoes, figs and Asian pears, however, are border-line. Specific amounts of bottled lemon juice or citric acid must be added to them before canning to ensure safety. Acid foods also include sauerkraut and foods to which large amounts of acid (usually in the form of vinegar) are added, such as pickles.

Low acid foods contain little or no acid. This category includes vegetables, meats, poultry, seafood, soups or mixtures of both acid and low acid ingredients. An example is spaghetti sauce with tomatoes, meat and vegetables.

The canning method recommended for a food depends on certain characteristics of the food. As we will discuss next time, low acid food must be processed in a pressure canner, while the process known as hot water bath or boiling water canning can be used for acid foods.

Canning processes are determined for specific foods prepared by specific directions for a particular size of jar. The process time is determined based upon the length of time it takes to adequately heat the coldest spot on the jar. The following factors have an effect on how heat penetrates through the food product:

- How the food is prepared—the size of pieces, with or without the peel
- The canning liquid consistency
- The jar size

That is why it is so important to use a reputable, tested recipe and follow directions exactly. If you add extra sugar or fat, if you do not prepare the food according to the directions, or if you add thickeners like starch, rice or noodles, then the process time tested as being accurate to heat even the coldest spot in the jar may not be safe.

Also when canning, you cannot rush the process. Heat up and cool down times are important to the process, so don't try to cool the canner down quickly by setting it under cold, running water.

Canning food allows you to savor summer's bounty during the cold winter months. At West Virginia University Extension Service we want you to be sure you have preserved your summer foods safely. If you have questions consult the following websites or call the WVU Berkeley County Extension office at 304-264-1936.

http://www.wvu.edu/~exten/infores/pubs/nut_hlth.htm#foodpres WVU Extension Service

http://www.uga.edu/nchfp/ The National Center for Home Food Preservation

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