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FOOD CANNING AND PRESERVATION

OPPORTUNITIES FOR SMALL BUSINESSES

Turn Potential Into Profit



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Introduction to Food Canning



Canning is an important, safe method for preserving food if practiced properly. The canning process involves placing foods in jars or similar containers and heating them to a temperature that destroys micro-organisms that cause food to spoil. During this heating process air is driven out of the jar and as it cools a vacuum seal is formed. This vacuum seal prevents air from getting back into the product bringing with it contaminating micro-organisms.

Fruits and vegetables used for canning are picked at peak freshness, ensuring the best flavor and nutrient quality. Canned foods can be just as nutritious as fresh and frozen foods because canning preserves many nutrients. The amount of minerals, fat-soluble vitamins, protein, fat and carbohydrate remain relatively unchanged by the process of canning. But, because the canning process requires higher temperature, canned goods may have less water-soluble vitamins such as vitamin C and vitamin B.

Benefits of Canned Food:

Research shows canned foods offer nutrients comparable to their fresh or frozen counterparts. They are also rated highly when it comes to prep time, cutting down on waste, and taste. Additionally recipes prepared with canned ingredients rated the same or better in terms of taste and nutrition compared to those using fresh or frozen ingredients.

Canned foods are considered minimally processed foods. After being cleaned, peeled, chopped and trimmed, as necessary, foods are cooked in the can to lock in nutrients and flavor.

Steel cans are strong, tamper resistant and feature an airtight seal to help guard against foodborne illness and contamination. In addition, steel cans are the most recycled food package.

As canned food has longer shelf life, the processor does not need to worry about the expiry and non-selling of its items. Canning the food is a very profitable business and suits the fast lifestyle of the consumers as they are easy to consume and store.

Safe Canning Methods:

There are two safe ways of processing food, the boiling water bath method and the pressure canner method:

- The boiling water bath method is safe for tomatoes, fruits, jams, jellies, pickles and other preserves. In this method, jars of food are heated completely covered with boiling water (100 °C) and cooked for a specified amount of time.
- Pressure canning is the only safe method of preserving vegetables, meats, poultry and seafood. Jars of food are placed in 2 to 3 inches of water in a special pressure cooker which is heated to a temperature of at least 112 °C. This temperature can only be reached using the pressure method. A microorganism called *Clostridium botulinum* is the main reason why pressure processing is necessary. Though the bacterial cells are killed at boiling temperatures, they can form spores that can withstand these temperatures. The spores grow well in low acid foods, in the absence of air, such as in canned low acidic foods like meats and vegetables.

When the spores begin to grow, they produce the deadly botulinum toxins (poisons).

The only way to destroy these spores is by pressure cooking the food at a temperature of 112 °C, or above, for a specified amount of time depending on the type of food and altitude. Foods that are low acid have a pH of more than 4.6 and because of the danger of botulism, such foods must be prepared in a pressure canner.

Low Acidic Foods:

The low acidic foods include:

- Meat
- Seafood
- Poultry
- Dairy Products
- All Vegetables

High Acidic Foods:

High acid foods have a pH of 4.6 or less and contain enough acid so that the Clostridium botulinum spores cannot grow and produce their deadly toxin. High acidic foods can be safely canned using the boiling water bath method. The high acidic foods include:

- Fruits
- Properly Pickled Vegetables

Canning Equipment:

The common canning equipment is discussed below, which is easily available in the market and rationally used by SMEs:

Water Bath Canners

A water bath canner is a large cooking pot, with a tight fitting lid and a wire or wooden rack that keeps jars from touching each other. The rack allows the boiling water to flow around and underneath jars for a more even processing of the contents. The rack also keeps jars from bumping each other and cracking or breaking. If a rack is not available, clean cotton dish towels or similar can be used to pack around

jars. If a standard canner is not available any large metal container may be used as long as it is deep enough for 1 to 2 inches of briskly boiling water to cover the jars. The diameter of the canner should be not more than 4 inches wider than the diameter of your stove's burner to ensure proper heating of all jars. Using a wash kettle that fits over two burners is not recommended because the middle jars do not get enough heat. For an electric range, the canner must have a flat bottom. Outdoor fire pits with a solid grate will also work however close attention is required to ensure proper boiling temperature.



The plastic pipes are placed at regular intervals of approximately 10 feet. Each tunnel structure will then be covered by a 0.04 mm thick and 10 feet wide plastic sheet. Approximately 25 tunnels can be constructed on an acre of land depending on the type of vegetable, i.e. watermelon, muskmelon or round gourd.

The cost of stated structural and material requirement of such tunnel varies depending upon the type of material used for structure including the cost related to plastic used as a shield (cover) and mulch.

Pressure Canners

A pressure canner is a specially-made heavy pot with a lid that can be closed steam-tight. The lid is fitted with a vent (or pet-cock), a dial or weighted pressure gauge and a safety fuse. Newer models have an extra cover-lock as an added precaution. It may or may not have a gasket. The pressure pot also has a rack.



Jars:

Jars come in a variety of sizes from half-pint jars to half-gallon jars. Pint and quart Ball jars are the most commonly used sizes and are available in regular and wide-mouth tops. If properly used, jars may be reused indefinitely as long as they are kept in good condition.

Jar Lids:

Most canning jars sold today use a two piece self-sealing lid which consists of a flat metal disc with a rubber-type sealing compound around one side near the outer edge, and a separate screw-type metal band. The flat lid may only be used once but the screw band can be used over as long as it is cleaned well and does not begin to rust.

Canning Utensils:

Helpful items for small scale canning and preserving:

- Jar Lifter: essential for easy removal of hot jars.
- Jar Funnel: helps in pouring and packing of liquid and small food items into canning jars.
- Lid Wand: magnetized wand for removing treated jar lids from hot water.
- Clean Cloths: handy to have for wiping jar rims, spills and general cleanup.
- Knives: for preparing food.

- Narrow, Flat Rubber Spatula: for removing trapped air bubbles before sealing jars.
- Timer or Clock: for accurate food processing time.
- Hot Pads
- Cutting Board

There are also many specialty utensils available like apple slicers, cutting spoons for coring and pit removal, corn cutters and fruit skimmers.

Useful Links:

www.smeda.org.pk

www.pfa.gop.pk

www.punjab.gov.pk

www.icid.punjab.gov.pk

<https://www.businessbook.pk/category/food-canning-facility-4096>

[http://www.canning-food-](http://www.canning-food-recipes.com/canning.htm)

[recipes.com/canning.htm](http://www.canning-food-recipes.com/canning.htm)

www.hussaincan.com

www.shahicanning.com

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