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Your Pressure Cooker

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DON'T BE AFRAID of a pressure cooker just because you are using it for the first time. It is really very simple to operate, even though it looks very imposing. After a couple of trials with it, you will feel as much at ease with it as with an ordinary saucepan.

Let us try to understand how the pressure cooker operates. In the first place it cooks by a method entirely different from ordinary boiling or steaming.

By means of heavy construction and an airtight seal, steam pressure is maintained within a heavily built kettle. This heavy construction is necessary because the water used in the cooker can increase in volume 1700 times when temperatures above boiling are reached. This fact causes the resulting pressure to be much greater than that outside the kettle.

Because the steam within the pressure cooker has a temperature above the boiling point of water (212°F.), it is capable of killing many bacteria that would not be killed at the boiling temperature of water. Also, this high temperature shortens the cooking time of the food.

Let us examine a pressure cooker. Everything about it is made to take care of increased pressure. Upon the lid are three important parts:

1. A petcock
2. A safety valve
3. A pressure gauge

The Petcock

Before it is used, the petcock should be completely unscrewed. Be sure that you can see light through the opening in the lid where the petcock fits on. The petcock is primarily for exhausting the air at the beginning of the cooking process. The air must be completely exhausted in order that live steam can take its place.

As long as air remains in the cooker the temperature inside will not be as high as that indicated by the pressure gauge. If the steam is allowed to escape for several minutes, then all of the air should be out. This escaping steam may be almost invisible, but it will make a hissing sound.

This is a saucepan type of pressure cooker, designed for meal preparation.

When you are cooling the pressure cooker, the petcock should not be opened until the pressure has dropped to zero. Always open the petcock before removing the lid.

The Safety Valve

The petcock may also be opened gently in case you wish to speed up the drop in pressure. There are really few occasions when you would need to do this.

The safety valve usually consists of a little ball, a shaft and a spring which fits around the shaft. A collar-like covering holds it all in place. This covering contains holes through which the steam issues when the valve "blows" because of excessive pressure inside the cooker.

The ball acts as the closing point and when the pressure is too high, the steam pushes it upward against the
spring. If you remove the outer housing of the safety valve and push upward on this little ball, you can tell exactly how the safety valve operates. Sometimes the ball tends to stick because it needs cleaning. It is essential that the ball should move freely. When the safety valve is removed, look through from the underside of the lid and see that the opening is not clogged.

Some pressure cookers have the petcock and safety valve combined in one part.

The Pressure Gauge

If the gauge is correct and all the air has been removed, then the temperatures and pressures within the cooker should be approximately as follows:

- 5 pounds pressure — 228°F.
- 10 pounds pressure — 240°F.
- 15 pounds pressure — 250°F.

Many pressure gauges may be registering improperly especially when they have been used a while. This means that if the gauge should register 15 pounds pressure, the temperature within the cooker may be only 240°F.

Now if a person were canning corn, let us say, at 15 pounds pressure and a faulty gauge were used, it might be the cause of later spoilage.

Pressure gauges can be checked and recalibrated. The Household Equipment Department of Iowa State College maintains such a service.

Excellent cakes have been baked in pressure cookers at Iowa State College.

By HELEN VIRGINIA JOHNSON

The Lid

Proper placement of the lid is important. As a rule it fits in one position only. This position is often indicated by matching arrows on the lid and on the kettle.

If the lid clamps on by means of lugs which screw tight, then opposite lugs should be tightened together. A drop of sewing machine oil on each lug will make the lugs easier to unscrew later.

When you are ready to remove the lid, be sure that you tip it away from yourself. This will allow any remaining steam to escape away from your face.

Cooling

The pressure cooker should be allowed to cool gradually. It should never be cooled by means of cold water or a damp cloth. This is because the pressure cooker is made of such heavy material that a sudden change of temperature might cause it to crack.

Maintaining Pressure

After the desired pressure has been reached the heat under the cooker may be turned down. The fact that you can cook with little heat and in less time makes your fuel cost low with a pressure cooker.

It's important to see that the safety valve is kept clean and is working. It is quite simple to maintain a low heat on gas. Gas lends itself very readily to maintaining a constant desirable pressure. If electricity is used and there are only three heats on the surface unit, the cooker may have to be removed from the heat occasionally in order to keep the pressure constant. A suitable spot may be found on the coal range and the cooker kept there. It is fairly simple to keep the pressure constant with a kerosene flame.

Performance Questions

When first using a new pressure cooker, sometimes the lid doesn't fit quite tight. This will cause an escape of steam at the rim of the lid. After using the cooker two or three times this usually stops.

If the spring in the safety valve is weak it will cause the valve to "blow" at a low pressure. A new spring will take care of this.

Sometimes the safety valve may be improperly adjusted and will "blow" at too low a pressure. Also there may be a little water in the vent. This issues forth as steam for a short while.

Loss of liquid from the jars in canning may be a problem. It may be due to one or more of the following factors:

1. Fluctuation of pressure
2. Jars too full
3. Food packed too tightly in the jars
4. Too tight a seal on the jars
5. Too rapid reduction of pressure during cooling.

Care of Cooker

When the pressure cooker is to be put away it should be washed, cleaned with steel wool, if necessary, and dried thoroughly. The gauge on the lid should not be dipped in water. When stored, it would be best to invert the lid and leave it ajar for ventilation. Dropping the lid may nick it or cause the gauge to register improperly. Cast aluminum cracks easily when dropped.

GENERAL PROCEDURE FOR USING A LARGE PRESSURE COOKER

1. Check the gauge (perhaps once a season).
2. Check the safety valve.
3. Check the petcock.
4. Put in the food.
5. Fit the lid onto the cooker.
6. Tighten the lugs by opposite pairs.

7. Check the petcock to see that it is open.

8. Start on high heat on the range.

9. Allow the steam to escape from the petcock a few minutes before closing.

10. Bring the pressure up to that which is desired.

11. Turn down the heat and see that the pressure does not fluctuate.

12. Start counting the processing or cooking time from the time when the desired pressure was reached as indicated by the gauge.

13. When the time is up, turn out the heat and let the pressure drop gradually.

14. When the gauge registers zero, open the petcock.

15. Unfasten the lid and remove it away from your face.

Baking Cake in Cooker

Very nice cakes have been baked in the pressure cooker in the Household Equipment Department of Iowa State College. If you wish to do this, be sure you use a low heat and keep the petcock open. The cake batter is placed in a pan and set up on a rack. There should be no water in the cooker. This method of cake baking costs only a trifle more than any other method and is convenient to handle and simple to operate. This method of cake baking costs only a trifle as compared with oven baking. Also, it does not heat up your kitchen.

Pressure Saucepan

Within the last few years a saucepan type of pressure cooker has appeared on the market. It is convenient to handle and simple to operate. They do not have a gauge but maintain a pressure of 15 pounds.

By means of the pressure saucepan, cooking time and costs can be reduced to a small fraction of what they are by other methods of preparation. The tougher cuts of meat can be quickly prepared in such a cooker. Baked beans can be prepared in 1 hour, after soaking. If you wish to give a delicious flavor to meat such as baked stuffed heart or veal birds, it should be well browned first.

All fresh vegetables can be cooked in the pressure saucepan in less than fifteen minutes. Cooking vegetables in this manner helps preserve vitamin C. However, this is not true if the vegetables become overcooked. Since little water is used there is less mineral loss.

The amount of time, recommended for cooking certain vegetables at 15 pounds pressure is given in the accompanying table. This table differs some-what from the tables that have been distributed with the saucepan type of pressure cooker. The recommenda-

tions here are based on tests made with a saucepan cooker over an extensive period of time.

Freezing Fruits, Vegetables

By H. H. PLAGGE

WITH victory gardens to provide vegetables and small fruits, and a shortage of supplies and equipment for home canning, frozen food lockers may see greatly increased use in the home food preservation program. Frozen foods retain more of their natural flavor and color and as much as most of their original food value as products preserved by other methods.

Iowa has more frozen food lockers than any other state in the country. With rationing of meat, for which most consumers have used their lockers, lockers may be used more than ever before for storing vegetables and fruits.

From the standpoint of successful freezing, recent experimental work in Iowa has shown that more frozen vegetables spoil in lockers because they do not get hot enough than for any other reason. This fact would indicate that scalding is the most important step in preparing vegetables for the locker.

After the vegetables have been sorted carefully and washed thoroughly, they are ready to scald. The water must be kept boiling — and that means at least 4 gallons of boiling water to a pint of vegetables. Cover the kettle to conserve water and heat, but stir the vegetable once during the scalding period — which varies from 1 minute for peas and baby lima beans to 4 minutes for cut corn. Timing is an important part of the scalding process. Scalding time given on the freezing calendar and bulletin of the Extension Service of Iowa State College has been recommended as a result of experimental work.

Vegetables coated with soil, that has become dried, should be soaked a short time in cold water before they’re washed. Spray washing is particularly desirable for removing sand and grit from spinach and other leafy greens. While corn usually is not washed, portions that have been infested by the corn ear worm should be trimmed off, and corn silks may be removed by brushing.

Glass, waxed or tin containers are satisfactory for freezer locker storage, but foods will keep better in glass containers. Three-fourths of an inch of head-space should be left in quart containers and one-half inch in pints to allow for the expansion that accompanies freezing. All vegetables except greens may be packed in a 11/2 or 2 percent brine; greens should be packed without brine.

A state law requires that vegetables and fruits be sharp-frozen at temperatures below 0 degrees F. before they are stored in the lockers, where temperatures should not be allowed to rise above 10 degrees. At 0 degrees F. the maximum storage period recommended is a year or more, while the storage period at 10° F. may be only 6 to 8 months.