

Preserve 24 Jars Of Fruit An Hour by Theo Wilms. www.preservefruit.co.nz

It's wonderful to be able to preserve 50kg (110lb) of fruit in a morning and have the 72 jars stored for the year's desserts and breakfasts. This method has been perfected over thirty years and may be suitable for others out there who enjoy bottled fruit but only manage-as my mother did, to bottle 6 jars of fruit in a morning.

24 quart jars are placed in a 60 litre (16 gallon) drum used as a water bath and this is placed inside a 200 litre (44 gallon) drum used as a wood furnace. The water bath comes to the boil in 45 minutes, the jars are left to cook for 10 minutes and then the batch of jars with their fruit are removed and left to cool.

This site is for those who like preserves, have access to high-quality bulk fruit and can find the drums cheaply in their town or city. It is also suitable for those who have a cottage industry making preserves and who want to expand their range.

Requirements. You need;

- (1) A 44 gallon open-top drum with a hole cut out in the bottom to make a furnace. Cut the hole with a cold chisel which is a toughened chisel able to cut steel;
- (2) A 16 gallon open-top drum. These are called grease drums and a used one can be obtained from large users of machinery. Cleaning the new drum is easy if the grease has a melting point lower than that of boiling water. Just place the drum on the bricks in the furnace, fill with water, boil and then skim off the oil and grease. If the grease does not shift this way then you have to wipe it out with rags and wash it out with warm, grease-shifting detergent. Clean, open-top drums can be bought online;
- (3) A firm round disc with holes in it that fits nicely at the bottom of the smaller drum. A perfect one is the steel disc found across the lint sieve in the older New Zealand Fisher and Paykel tumble clothes driers. If you cannot find one, a circular wooden disc made up of planks joined together and drilled with 1cm holes can be made up. Ensure that the wood is not weather treated as you don't want wood preservative circulating around the jars. Don't use particle board as it will break up in the first boiling. Make it 33cm in diameter.
- (4) Stiff wire handles that go to just over the top of the drum are attached to the disc. This is the 'basket' on which the 24 jars are stacked in three layers of 8 jars.

You also need four old-style bricks. These are placed in two stacks on their edge and are the support for the smaller drum and make up the firebox. Concrete bricks may crack with the heat and modern bricks are too narrow to use. Go to a building recycling yard for the old-style bricks. If you cannot find any you will have to go to an engineering shop

and get them to make up two boxlike supports for the small drum. Make them 24x24x10cm out of welded angle iron.

The common *Agee* preserving jars come in two types; newer ones and more thick-walled older ones. The older type has a thick surrounding ledge just below the screw thread and these require gold coloured screw bands. The Gold bands that are sold also fit the American Mason jars. The newer preserving jars have green screw bands. The screw bands and lids are available from leading supermarkets in New Zealand. If they are not there, ask your supermarket to order them in from the suppliers; Preserving Products Ltd. 2 Kings Rd, Panmure, Auckland. The jars are sometimes available on the TradeMe website or you will need to advertise for them. You will need approximately 72 quart jars for 50 kg of fruit if it is stacked in the jars. If fruit like Damson plums are just poured into jars, then you'll need about 90 quart jars for 50kg fruit. You can preserve fruit in the smaller half-size jars but they take up a lot of room in a pantry. Modern narrow-necked preserving jars could only be stacked stably one on the other if you put a thin disc between each layer. Oven trays cut to size (33cm diam.) and drilled with 1cm holes would be ideal.

The wood that is needed to fire the drum can be off cuts from a timber yard or old cracked planks from a demolition yard or you may have some dry, pruned branches from your trees. You will need a hatchet to break up the wood.

Buying Fruit

If you are going to bottle 50kg of fruit in a morning then use fruit that you do not have to peel.

Use only hard, new fruit and this can be bought from local orchards, farmers' market, auction houses that deal in fruit and vegetables or from online orchards. Do not put soft, over-ripe fruit in jars as these become mush when cooked and they also affect the ability of the jar to seal. See below. If you intend to bottle fruit for a local tourist lodge, choose fruit that you cannot buy cheaply in cans. Nectarines, Damson plums, Fortune plums, Greengages or the extra large apricots that are available would be ideal. Bottling for a tourist lodge would be great in that you can go back there for the jars.

The Site

For the setup to be stable, the site where you are placing the drums has to be firm and dead level.

The small drum is filled with boiling water and jars till the surface of the liquid is just 3-4cm from the top of the drum so if there is any lean on the small drum, there is the risk that something will tip. As I live in town on a hill I have dug a small, circular depression in the back garden, used a spirit level and a small plank to make it flat and then bricked it over.

Filling The Jars

Wash the fruit and put the jars through a dishwasher. Large plums are just halved and the

pieces stacked nicely in the jar. The small stones are left in as these give an almond flavour to the cooked fruit. Apricots are stoned as the larger stones take up too much room in the jar. Peaches and pears would have to be peeled and the fruit sliced. Small plums are just poured into the jars. Tomatoes can be squashed into the jars with a bottle. Do not overfill the jars as the lid wont seal if fruit is pushing up from the underside. Eat or discard over-ripe fruit as this does seem to cause the lids not to seal. There are dissolved gases in the over-ripe fruit which causes pressure to build up in the heated jar. Just pour one tablespoon of sugar on top of the fruit. If you add more sugar, this will just sink to the bottom of the jar and form candy when it is all cooked.

Fill the jar with water out of the hot tap. This ensures that the water in the jar does not have any dissolved air in it. This water does not have to be hot- it just needs to have passed through the water heater in your house to remove its air. If you use water out of the cold tap, then a large pressure builds up in the jar and the lids are less likely to seal when they cool. Make sure that you fill the jar completely with water and sluice all of the sugar off the rim and into the jar.

It is best to have the old and new jars placed separately so that you do not mix up the different screw bands. Screw down the lids fairly tight so that the pressure can be released when the jars heat up. Tighten them fully when the jars come out of the drum.

Firing Up The Batch

Place the small drum on the bricks- about 27 cm apart so that the rims of the drum sit on the bricks. Put in the disc then place evenly eight quart jars on the bottom then repeat with another sixteen jars. If you have two or three half jars these can be placed in gaps on top of the 24 jars. Fill the drum up with cold water till 3-4cm from the rim.

Light the fire and use pine cones or small pieces of wood to get the most heat into the walls of the small drum. Tear up cardboard and drop this into the flames coming up between the sides of the drums. Burn only 3-4 cardboard boxes/batch. After 40-45 minutes or so, the water will boil as a moving shimmer over the surface and large bubbles will rise, it will not really come to a rolling boil.

Don't get it really hot by pouring on the cardboard so that it reaches a boil in 30 minutes as the jars won't have time to cook and there isn't enough time for the pressure in the jars to release in the drum.

Note the time when boiling happens and then stop feeding the fire after 3-4 minutes. The fire should be well down when you take out the cooked fruit- ten minutes from the time of boiling. Do not exceed this time as the fruit will just turn to mush. During the cooking, the water does get a little brown from iron in the drum but this does not affect the sealed fruit.

Taking Out The Jars

Have one person put on leather gloves, the other person uses rubber gloves and two flannels and has a bucket of cold water handy. Put some planks on the ground a small

step away onto which you will put the hot jars. The person with the leather gloves then lifts the whole batch so that the top row of jars are just out of the water so that they can be picked out by the other person. Lift the jars on opposite sides of the drum so that the weight remains balanced and then tighten the screw bands. Do all of this rapidly as the holder of the jars must remain steady for about five or ten minutes as you unload the drum. Cool your fingers in the bucket of water as you unload. Remember your school physics in that a jar under water weighs a lot less and the batch of jars is surprisingly easy to lift.

You might like to practise this procedure before the drum is fired up so that you get a feel of the effort and time involved and you are just dealing with cold water. You **MUST** lift out the jars from opposite sides of the small drum, two at a time so that the weight remains balanced. It's not really feasible to use a pair of tongs for this procedure because the person lifting up the jars just has to hang on to the weight so much longer.

Preparing For The Next Batch

Remove the bulk of the hot water by scooping it out with a pot since the cold jars of the next batch will often crack if they are placed in the boiling water. Pour the hot water onto weeds in your garden. Hose in cold water until the water is warm. Stack the next batch for firing and refill the small drum with water. Move the hot jars onto wood or cardboard in the shade to cool. When you finish up completely, put the small drum on the bricks over the embers to drive out the water at the bottom edge as it will rust out if you don't.

Reasons For Failure To Seal

Now, after thirty years of preserving by this method, I only get one or two jars that do not seal out of 70 jars or so. When jars are sealed, the lids depress a little with the vacuum in the jar. Most of them depress fully but sometimes, two or three in a batch of twenty four only partially depress. These are fine for home use or for taking to a local tourist lodge or bed and breakfast where they would be stored and used but they would not be good enough to go through the mail as the lid might come off. When I first started, I got complete losses of twelve or fifteen out of seventy.

Unsealed jars occur because;

- Water out of the cold tap is used to fill the jars. See above.
- The wrong screw band is used for the jar or the screw band is cross threaded.
- Two lids are placed on one jar. This happens because the lids stick together when they come out of the packet. If children are helping then this can easily happen.
- The rim of the jar is chipped.
- The lid is placed on sugar sitting on the rim of the jar.
- Over-ripe fruit is bottled.
- Jars are overfilled with fruit and the lid has no room to depress.
- The screw band is not wound tight enough and hot juice sprays out of the jar when it is lifted from the drum.

Sometimes a lid will buckle up under the pressure. Do not release this while hot, usually it goes down with time and seals.

If you do intend to sell your jars, put your label on the lid as it will be hard to recycle the jar if labels are firmly stuck to jars.

Air In Bottled Fruit

My mother used to bottle fruit by sterilising the jars in the oven, boiling the fruit and then scooping it into the hot jars. She left no room for air at the top, put on the lid, screwed it down and then let the jar contract to give the vacuum. There was no pressure in the jar. When I started bottling with the water bath method, I wasn't particular about air in the jars as it would sterilise with the heat but I got the losses of unsealed jars. Pressure really built up in the heated jar and sometimes the juice would spray out. Only when I drove the air out of the system did the losses fall away. There will be people out there who use a normal water bath that holds four jars and have never had problems with losses when they have air in their jars. That's OK for four jars but the losses don't show up until you have the big numbers of jars.

Storing The Cold Jars

It will take six or seven hours for the jars to cool and the lids to depress. Remove the screw bands and clean them in soapy water. Sugary juice will have seeped on their screw thread and this will rust easily if the bands are not washed. Wipe the top of the jars with a sponge to clear away this sugary remnant as fungus will grow over the top of the glass if you don't.

Store the drums under cover as they rust easily if kept out in the weather. Next year wipe the inside of the small drum with steel wool before preserving.