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The art of making jams and jellies

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JAM-MAKING is a traditional art of Australian country homes and has its reward in economy and a supply of food with extra appeal.

It can also provide items otherwise unobtainable, such as quondong jelly or rosella jam if you are lucky enough to have access to any of these delicious jam-making fruit.

This article is not for those who have been making jams for years—and have contributed their knowledge to the tradition—but for younger housewives who may be hesitant about it. No recipes are given because they can be found, for all types of fruit, in cookery books and magazines.

**Equipment needed for jam and jelly-making**

Kitchen scales are essential to ensure correct proportions of fruit and sugar.

Preserving pan, large saucepan or boiler—should be wide and shallow to allow quick, even cooking and evaporation. Jam froths up a lot as it boils, and is likely to boil over if the pan is not big enough. A heavy-based pan is better than a very thin one. There is less likelihood of burning and less stirring is needed.

Stirring spoon should be long-handled and wooden for preference.

If cooking is to be done on a gas or electric stove, an asbestos mat or flat metal sheet will help distribute heat more evenly over the base of the pan and prevent centre burning.

Jam jars should be of clear glass, clean, free of chips or cracks, with wide necks and fairly straight sides.

**Essential ingredients**

Apart from fruit and water, the essential ingredients for jams and jellies are sugar, acid and pectin (a jellying property) in proper proportions. Pectin is a gum-like substance formed from pectose. (Pectose is an insoluble substance closely related to cellulose and occurring with it in the cell walls of most vegetable tissues, and especially in unripe fruits. This pectose is changed naturally to pectin in the ripening process of fruits, or on heating with acids.) It is the jellying property of pectin, acting with the fruit acids and sugar, which makes the jam or jelly set.

As fruits ripen, most of the pectin is converted to sugar. Therefore the sweet, over-ripe fruit will not make as good a jam or jelly as will the under-ripe fruit that is rich in pectin.
Pectin and acid content of fruits

Fruits containing both pectin and acid are quinces, green apples, grapes, citrus fruits, and most berry fruits. Most stone fruits have a medium pectin content.

Fruits with acid but no pectin are ripe peaches, pears, strawberries, cherries, rhubarb, pineapple and tomatoes. Figs are low in both pectin and acid.

Fruits with no acid are sweet apples and pears, marrows, melons.

It is the slightly under-ripe fruits, in season, which contain most pectin. Fruits late in season, and over-ripe, contain least pectin and acid.

When making jam or jelly with fruit low in acid add to it a fruit or fruit juice high in acid. Lemon juice, or citric or tartaric acids are often added to fig jam, lemon to melon, passionfruit to pear, raspberry to apple, and so on. If making jam or jelly with a fruit low in pectin, add to it a fruit with a high pectin content, or use a commercially prepared pectin (available in liquid or powder form).

Testing for pectin content

To determine the pectin content of a particular type of fruit, boil a little of the fruit, cut up or squashed, until tender. (Two or three slices of a large fruit, or two or three berries are sufficient.) Take out a teaspoonful of the juice and allow to cool in a cup or glass, then stir in half a teaspoonful of methylated spirits. Leave for a minute. Test the resulting clot. If it is a firm, solid jelly, the fruit is very high in pectin. If the clot has broken into two or three pieces, the fruit has a medium or normal amount of pectin. A badly broken, poor clot shows that fruit is low in pectin.

When making jam or jelly from a fruit very high in pectin, extra sugar is needed to prevent it becoming too stiff and rubbery (or it may be combined with a fruit low in pectin).

MAKING JAM

WEIGHING:

The proportion of sugar to fruit must be correct for good results, as it is necessary to weigh the prepared fruit. (The easiest way to do this is to weigh the pan empty and full, then subtract the weight of the pan. For balance-type scales, put the empty pan on one side and achieve a balance by putting on the weights side sufficient weights or any other objects to balance it. If you have only a few weights, keep these for weighing the fruit). For ease of calculation, keep to an even number of half pounds or pounds of fruit. Fruit for jam should be a mixture of fully ripe (for colour and flavour) and under-ripe (for pectin content).

If fruit is to stand overnight, use a china, enamel or polythene container, as fruit acids can act on metals, resulting in discoloured, tainted food.

COOK FRUIT:

Little or no water is needed for very juicy fruits—merely press or crush before starting to cook. For most soft fruits, also for tough-skinned or firm fruits, water is necessary to prevent burning. Use half-pint of water to 3 lb. fruit. Water helps the juices to flow, draws out the pectin, and gives clarity and sparkle to the jam.

The lid of the pan may be kept on for cooking very firm, dry, or tough-skinned fruits, but should be removed once fruit is tender to allow for evaporation of water.

This cooking of fruit, besides making it soft, kills any bacteria and is necessary to reduce the water content.

SUGAR:

A good general proportion is 3 lb. sugar to each 1 lb. fruit. Particularly sour fruits may need up to 1 lb. sugar to 1 lb. fruit, and if also very high in pectin 1½ lb. sugar to 1 lb. fruit may be needed. Very sweet fruits may need as little as ½ lb. sugar to 1 lb. fruit. Never use less than ½ lb. sugar to 1 lb. fruit, as sugar acts as a preservative and insufficient sugar allows fermentation to occur.

Another method of calculating sugar needed is to use a cup to measure the amount of cooked fruit pulp and juice. Add sugar to it, one cup of sugar to each cup of pulp. As this necessitates transferring hot jam into another receptacle, measuring back into the pan then measuring the sugar in cups it is best suited to only small quantities. The weighing method is more convenient, particularly for large batches of jam.

Do not add sugar to the fruit until all fruit is tender and transparent (especially with citrus fruit peel and thick-skinned...
fruit) as once the sugar is added the uncooked pieces will remain opaque and be tough, spoiling both the appearance and consistency of the finished product.

Sugar may be added, cold, to the fruit, but heated sugar is preferable as it prevents a lowering of temperature and longer cooking time. The heated sugar dissolves more quickly. (Another method of speeding up the whole jam-making process is to dissolve the sugar in a little water or fruit juice from the pan, and bring it to the boil separately. Then add the boiling syrup to the fruit.) Stir until all sugar is dissolved, and thereafter stir frequently while jam is boiling (with lid off).

BOIL QUICKLY:
Let the jam “gallop” until jell point is reached (the point at which jam will set when cold). This occurs at about 218°F to 220°F. Fast boiling is essential—long slow cooking makes the jam dark in colour and a toffee or burnt sugar flavour begins to take over from the characteristic fresh fruit flavour. Each time the jam is stirred, lift the spoon high and watch how the jam falls from it. In the early stages it will run off in thin streams, but as the jam approaches jell point it will drip more slowly from the spoon—each drop will hang for a moment before falling back—and jellies will run in “sheets” from the spoon. When the jam reaches this stage it is close to jell point.

TEST FOR JELL POINT:
When jam is beginning to thicken, start testing it for jell point. Remove the pan from the heat so that it cannot cook any further while the test cools. Put a little jam on a saucer and put it in a cool place or in the refrigerator until cold. Tilt the saucer, or push the surface of the jam. If the jam is still runny, and no “skin” has formed on the surface, it is not done. Return pan to heat and test again in a few minutes time. If, however, the surface of the jam “ripples” and the jam is set, jell point has been reached.

When jam approaches jell point it needs more frequent stirring, as it is more likely to “catch” and burn at this stage. It froths and “spits” more, so stir carefully to avoid burning yourself.

SKIMMING SURFACE:
Some fruits form a scum on the surface while cooking. As a general rule, leave this during the cooking, and when jam has been removed from the heat it may be removed with a metal spoon, or it can be dispelled back into the jam by stirring in a little piece of butter.

Some jams need skimming to remove pips. Allow pips to come to the surface after the sugar has been added, but have all seeds removed before jam changes colour, as they are difficult to see and hard to remove from the thickening syrup. Although cooking time is prolonged, it is easier to remove pan from the heat to a well-lit position and sit down to remove pips in comfort!

COLOUR OF JAM:
Cooking in small quantities results in better colour and flavour of jams. It is better to cook two lots of 4 lb. of fruit each, than one of 8 lb. For show purposes many exhibitors make as little as one or even half a pound of fruit into jam. Large quantities take longer to cook, resulting in deeper colour and loss of fresh flavour.

JAM JARS:
Jars must be scrupulously clean. When washing jars, pay particular attention to corners, necks and shoulders. Avoid jars with very pronounced shoulders, as these are easily missed and air bubbles and moisture can be trapped, leading to mould and crystallisation starting at these points. Straight sides and wide necks allow for easier cleaning and let the bubbles rise to the surface.

Heat jars in the oven to drive out any moisture, and prevent them cracking when the hot jam is poured into them. (If heating by using hot water, dry thoroughly before filling.)

FILLING JARS:
Allow jam to cool a little. Most jams should be bottled while still hot. Some small fruits jams and marmalades must be allowed to cool to only just warm, otherwise the fruit will rise in the jar. (Don’t let it become too cold, as air bubbles will remain and jelly or jam will appear cloudy.) Fill jars to the top, as the contents will contract as they cool. If jar has
shoulders on it, coax out any air bubbles with a skewer. Using a small jug or a cup is the easiest way to put jam into jars—keep a small plate handy to rest it on.

COVERING JARS:

Cover while still hot or leave (protected from dust) until cold. Clear cellophane covers are most commonly used. These can be bought in sealed packets and are more sterile than sheet cellophane.

Some packets also contain smaller circles of waxed paper or cellophane. These are placed on the surface of the hot jam, and the larger circles when the jam is cold (otherwise moisture may form in between the two layers and allow growth of mould). The cellophane cover is dampened on one side, stretched wet side up over the neck of the bottle, and secured with a rubber band (or the cellophane can be dipped in hot water, well shaken, then stretched over).

These covers allow for a little evaporation of moisture (cellophane is semi-permeable), so that if jam is to be stored for a great length of time it may dry out too much.

If the jar has no fitting screw lid, press a cap of aluminium foil firmly over the cellophane top and neck of the jar.

It may seem time-consuming and fussy to pay so much attention to the jars and covers, but the prime cause of mould on the jam is insufficient cleanliness of jars and covers and seldom is it the fault of the jam itself.

STORE CUPBOARD:

Keep jams and jellies in a cool, clean, dry place. The growth of mould and fermentation is encouraged in a warm, damp atmosphere. Strong light can adversely affect the colour of foods, so a closed cupboard is preferable to open shelves.