

Small Scale Production of Fruit Preserves

Introduction

Fruit preserves such as jams and marmalades are mixtures of fruits and sugar, which have been boiled to produce a stable gel structure with attractive visual and eating qualities and mould-free storage life. The products should have characteristic colours, flavours and textures and be easily spreadable.

Commercial preserves contain between 25-35 grs. small fruit per 100 grs. and are, consequently, low in fruit content. They may also contain varying levels of artificial additives, such as; gelling agents, colours and flavours.

Home produced preserves should contain, at least, 50 grs. small fruit per 100 grs.; have a characteristic 'fruity' flavour, not too sweet, not too stiff or rubbery and contain no artificial additives.

Market

The market for good quality home produced jams and marmalades continues to grow and, conversely, the market for commercially produced preserves is in decline. The main attractions of the home produced preserves are the absence of artificial additives and the significant fruity flavour.

Method of Production

The basic principle of jam making is to have fruit, pectin, acid and sugar present in the correct proportions. All fruit should be carefully washed and dried prior to use to remove any residue from spraying, etc. The setting of jam depends on the presence of pectin. Pectin occurs in varying amounts (table 1) in the cell walls of fruit. When the fruit is simmered, the pectin is released into solution. Fruits low in pectin may need an additional source of pectin before they will give a satisfactory set. I.e. red currant juice added to strawberries.

TABLE 1: Presence of Pectin in Fruits

GOOD	MEDIUM	POOR
Apples	Plums	Strawberries
Gooseberries	Raspberries	Cherries
Blackcurrants	Apricots	Blackberries
Red Currants	Loganberries	Rowanberries
Damsons		Pears
Seville Oranges		

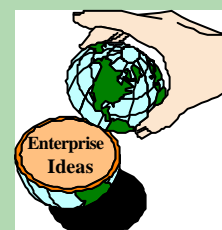
Acid is necessary for pectin extraction, improving colour and flavour and preventing crystallisation. Each 2 kg. (4 lbs.) of fruit requires an average of 2 tb. spoons of lemon juice or teaspoon of citric or tartaric acid. Careful simmering of the fruit prior to adding the sugar is essential for good results. Simmering the fruit well ensures that the pectin is released, the skins are broken down and the juice is extracted. Hard skinned fruits such as gooseberries, blackcurrants, plums and damsons require more water and a longer simmering time than soft fruits such as strawberries or raspberries. Adding the sugar before the skins have softened



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will toughen them and adversely affect the texture of the finished jam. After adding the sugar, the mixture should be well stirred until all the sugar is dissolved, then brought to the boil and allowed to remain boiling until setting point is reached (104-106°C or 220-223°F). A digital thermometer with food probe is recommended for this purpose. The pan should be taken off the heat after reaching setting point and any scum removed and, without delay, the jam poured into warm sterilised jars. Lid jars immediately with air tight metal lids. Wipe down and allow to cool. The jars should then be labelled and stored in a cool, dark, well ventilated cupboard.

Jams can be made from single fruits for a concentrated flavour, raspberry being a particular favourite for instance. However, many fruits combine well with others to provide an excitingly different flavour. Flowers can be used with fruit to impart a delicate fragrance and subtle taste to the finished jam. For a really luxurious touch, liqueurs or spirits can be also be incorporated.

Well-made jam keeps perfectly, does not go mouldy and does not crystallise. It is clear and bright with a well-set texture that is not too stiff or rubbery.

Labelling

The sale of jams and marmalades in supermarkets, food stores and other retail outlets requires correct labelling, which provides the customer with basic information regarding the ingredients, quality and make-up of the product. The ingredients should be listed in descending order of importance by weight of the ingredient used.

Establishment Costs

The provision of a suitable food kitchen unit approved by the local Health Board would be required. A good quality electric, oil, gas or solid fuel cooker with high output rings or plates, costing £2,500-£4,500 would need to be provided.

Alternatively, individual high output gas rings or electric plates can be used for the processing operations and a smaller oven used for sterilisation of jars, etc. The outlay on other equipment, such as, saucepans, jugs, digital probe thermometer, etc. should not be more than £500 or just enough to get started. Additional equipment can be purchased when sales require increased output.

Variable costs of fruit, sugar, jars, lids, labels, power, labour, distribution and other general overheads should be calculated. The cost of the fruit is the main variable outlay which small scale operations can reduce significantly by growing much of their own fruit. Technical assistance in fruit growing can be supplied by the local Teagasc Advisory Office.

In determining selling price, consideration has not alone to be given to aforementioned costs but also market prices, competitors and quality and presentation of your product.

Teagasc Food Training Programme

Practice at making jams, marmalades and other quality value added products is provided by Teagasc. Further information is available from your Teagasc Rural Enterprise Adviser, Chief Agricultural Officer or Dermot Linehan, James O'Keeffe Institute, Newmarket, Co. Cork.