

BUSINESS SET-UP GUIDE

PRODUCTION OF CORDIALS

Business Profile Summary

You will need a market that can support sales of at least K64 per day.

You will need around K3500 to start the business.

Profit potential for this business is around K5000 per year.

Market

Sales

You will need a market that can support the sale of K400 - K600 per week. This guide is focussed on starting a small scale cordial making business and selling the product in tradestores, supermarkets, clubs, hotels or at local markets.

There exists a strong demand for cordials as most people enjoy drinking cold drinks due to the hot weather prevalent in most parts of Papua New Guinea. Cordials are also used to produce ice blocks.

Location

The owner has several options for selling the product as follows:

1. At the local market.
2. Through shops.
3. Through hotels and clubs.

If the owner wishes to sell direct to the end customer, then the location with the highest traffic should be chosen. This will generally mean higher expenses in the form of rent.

If the owner wishes to sell through shops, hotels or clubs, then the business can be started from the house. However the owner will have to accept a lower mark-up to allow for a margin to be made by the shop owner.

Food Preparation Area

The Food Preparation area must be clean and hygienic. It should be large enough to carry out the various stages of Cordial making and packing to include.:

1. Selecting the fruit.
2. Preliminary treatment.
3. Preparation of the fruit.
4. Extraction of the juice.
5. Mixing and adding preservative.

6. Bottling and storage.

Costing the Business

Equipment Cost

The following list represents a range of possible equipment needed for establishing a small scale cordial making business:

Item	Estimated Cost - Kina	Purpose	Update Cost
Equipment			
Juice extractor	600	extracting juice	
Fruit cutting knives	100	cutting fruit	
Refractometer	500	measuring sugar concentration	
Liquid storage plastic jars	150	store water/cordial	
Spoons, wooden ladles	80	stirring and mixing	
Total equipment	1430		

The prices used are estimated average cost based on Port Moresby prices at the time this guide was prepared. A column has been provided for the user to update these cost.

The above capital requirements are based on the principle of starting a profitable small scale cordial producing operation with a minimum outlay of capital.

Staff

A small scale cordial producing operation could be started by an owner helped by a family member.

Position	Main Responsibility	Monthly Wage
Owner	Manage business- decide products and prices, prepare cordial, buy supplies and raw materials, supervise all staff	K450
Helper (1)	Assist in all areas	K150
	Total	K600

Raw Materials

Product costing is detailed in Annex 1.

Your major raw material is fruit. Availability and price you pay for fruits will be determined to some extent by the weather conditions and seasonality of the fruit. In times of drought or when the fruit is out of season the availability will be less and price will be high. Try and buy regularly from a few farmers. Once your suppliers know that you will be buying regularly, they will adjust their production to meet your demand. Also try and use the fruits which are readily available locally.

The cost of producing one bottle of lime juice cordial is 95 toea as shown in appendix I. The cost includes lime juice, water, sugar plus the bottle and label. If you plan to produce other types of cordial or fruit squash you will need to calculate your cost as shown in appendix I.

Licences/Registration

The size and nature of this business does not require company registration and should be set-up as a sole proprietor or partnership.

Please contact the nearest provincial authorities or NCDC to obtain details of licences required. For the purpose of this guide, the annual licence fee is estimated at K150.00.

Operating Cost

A cordial making business has certain operating costs. Some of these costs are:

- paid once when you establish services such as water, electricity ;
- some are paid on a monthly basis.

When you start your business you will usually need some working capital (money) to establish services, pay certain yearly expenses and to meet some of your monthly operational costs until the business can generate enough income to meet these costs. In the case of a Cordial producing business this should only be for the first month.

The size and nature of this business probably will not warrant renting a new place. Hence the operational costs listed below are on the basis of incremental costs incurred to run the business. For the purposes of this guide, it has been assumed that the product will be sold through supermarkets/retail tradestores.

Below is a table showing the initial and monthly operating cost associated with a cordial making business.

Operating Cost	Initial Working Capital	Monthly
Water charges	30	30
Electricity Charges	100	100
Office supplies	30	15
Cleaning supplies	50	25
Miscellaneous	50	25
Total Operational Cost	260	195

Start-up Costs

You will need money to meet a number of cost in order to start your business as shown in the following table:

Item	Total	Update
Equipment	1430	
Staff wages (first month)	600	
Raw material and packaging (first month) ¹	937	
License and registration	150	
Operating cost	260	
Total Start-up Cost	3377	

The cost to start a Cordial Producing Business is around K3,500.

Profitability

Monthly Profit and Loss

	Break even sales			
Sale per day	64	75	100	150
Sales per month (25 days)	1590	1875	2500	3750
Cost of Raw Materials	795	937	1250	1875
Gross Profit	795	937	1250	1875
Operational Expenses				
Wages	600	600	600	600
Electricity	100	100	100	100
Water	30	30	30	30
Office supplies	15	15	15	15
Cleaning supplies	25	25	25	25
Miscellaneous	25	25	25	25
Total	795	795	795	795
Operating Profit per month before tax	0	142	455	1080

Break even sales

If we assume a mark-up of 100 % on all products then the break even sales for this business is K64 per day. This means that if you sell less than K64 per day, you will make a loss. If you sell more than K64 per day, you will make a profit.

Financing the Business

The size and nature of this business is such that savings or a micro loan should be used for financing the business.

¹ Based on sale of K75 per day.

Business Planning

Before turning your idea into an operating business, collect information and make plans to see if your business will be successful. Just like an engineer who prepares a plan before building a bridge, a business owner needs to prepare a Business Plan.

A Business Plan is a written document that describes in detail all aspects of your business. Preparing a Business Plan will help you to think carefully and find out if there are any weaknesses in your business idea.

Most importantly, a Business Plan gives an opportunity to try out your business idea on paper rather than in reality. It is much better to do a Business Plan and find out that the idea is not good than to start a business that will fail.

Where can you get help?

There are a number of organisations that can help you establish this business to include:

Name of Organisation	Address	Phone/Fax	Assistance
Small Business Development Corporation	P O Box 286 Waigani P.O. Box 1106 Kokopo P.O. Box 1613 Mt. Hagen P.O. Box 1092 Wewak	Ph 3250100 Fx 325-0801 Ph 982 8201 Fx 982 8664 Ph 542 1067 Fx 542 1275 Ph 856 3201 Fx 856 3204	Start Your Business training and business advise and assistance.
Small Business Development Corporation	P.O. Box 103, Lae	Ph 472 1677 Fx 472 3876	Technical training in food processing. Advice and assistance. Sourcing of equipment
Appropriate Technology & Community Development Institute	Private Mail Bag Lae, Morobe Province	473-4781 473-4303	Technical information and books Skills training. Technical advice.
Food Technology Section of the Department of Applied Science	Private Mail Bag Lae Morobe Province	Ph 473-4555 Fx 472-4067	Training and on-the-job experience
Food Processing & Preservation Unit (FPPU)	P.O. Box 19 UniTech Lae	473-4562 475-7868	Technical training in food processing & preservation quality control & hygiene. Sourcing of equipment

Suppliers

Contact Addresses/Numbers

Name of Supplier	Location	Mailing Address	Phone	Fax
Utensils, Bowls, Trays, Knives, Juicers etc.				
Brian Bell & Company Pty Ltd	Port Moresby	P O Box 1228, Boroko	3255411	3250167
	Goroka	P O Box 336, Goroka	7321622	7322048
	Mount Hagen	P O Box 88, Mt Hagen	5421999	5423279
	Eriku, Lae	P O Box 255, Lae	4721433	4721548
	Malekula Street, Lae		4723377	4723368
	Kokopo	P O Box 1338, Rabaul	9829027	9829141
T.E. (PNG) Pty Ltd	Port Moresby	P O Box 1388, Boroko	3256322	3250350
	Voco Point	P O Box 669, Lae	4726262	4721323
	Lae		4726246	
Kai Kai Cookware	Taraka, Lae	P O Box 565, Lae	4720511	4757299
Raw Material Suppliers				
Patrick Transport	Gabutu, Port Moresby	P O Box 1758, Boroko	3217490 3217300	3217228
P&B Cheung Pty Ltd	Koki, Port Moresby	P O Box 573, Port Moresby	3213733 3214562	3217607
Choulai Trading Co	Port Moresby	P O box 168, Badili	3200888	3213618
Alotau Enterprises	Alotau	P O Box 27, Alotau	6411246	6411270
Andersons Foodland	Malaguna Road, Rabaul	P O Box 221, Kokopo	9821029	9829145
	Eriku, Lae	P O Box 221, Kokopo	9829144	4726342
	Lae	P O Box 415, Lae	4723991 4722428	
	Madang	P O Box 266, Madang	8523055	8523347
	Koki, POM	P O Box 3055, Boroko	3211111	3211144
	Kavieng	P O Box 306, Kavieng	9842202	9842045
Garamut Enterprises Pty Ltd	Wewak	P O Box 96, Wewak	8562106 8562356	8562324
	Maprik	P O Box 166, Vanimo	8581219	
George Seto & Co Pty Ltd	Wewak	P O Box 69, Wewak	8562822	8562439
J J Wholesalers Badili	Badili, POM	P O Box 781, Badili	3212188	3211281
Jimm Trading Pty Ltd	4-Mile, Port Moresby	P O Box 1026, Boroko	3255891 3258980	3250934
Madang Wholesale Pty Ltd	North Coast Road, Madang	NIL	8523611	
Voco Point Trading Pty Ltd	Voco Point, Lae	P O Box 4121, Lae	4724300 4724864	4723042
Lae MarketWholesale	Lae Market,	P O Box 4121, Lae	4727044	4726862
N Poya (Group) Pty Ltd	Banz	P O Box 57, Banz	5462273	5462325
	Minj		5465521	5462325
Papindo Trading Co	Coronation	P O Box 885, Lae	4723322	4726133

Name of Supplier	Location	Mailing Address	Phone	Fax
Pty Ltd	Drive,Lae		4723001	4721225
Seeto Kui	Lae Gordons, Port Moresby	P O Box 456, Lae P O Box 1405, Boroko	4721111 4720906 3254700 3254215	4721335 4720890 3257208
Super Value Store Pty Ltd	Lae Mt Hagen Port Moresby	P O Box 1988, Lae P O Box 165, Mt Hagen P O Box 1180, POM	4721688 5422764 3252965	4726103 5422763 3230820
Tanpac (PNG) Pty Ltd	Gordons, Port Moresby	P O Box 6078, Boroko	3253705 3253499	3254737
Tropicana Pty Ltd	Port Moresby Kokopo	P O Box 6670, Boroko	3232377 3255677 9829188 9828526	3258677 9828523 9829166
M & S Tsang Pty Ltd	Madang	P O Box 19, Madang	8522428	8523016
Kabuka Trading Pty Ltd	Dobel, Mt Hagen	P O Box 264, Mt Hagen	5451355	
Ling's Freezer	Port Moresby Lae Rabaul	P O Box 1756, Boroko P O Box 1028, Lae P O Box 138, Rabaul	3254966 4720188 9821092	3250524 4720868 9821093
Steamships Trading Co Ltd., Wholesale Division	Gerehu, Port Moresby PMF, Badili, Port Moresby	P O Box 1, Port Moresby	3261243 3220276	3261419 3211275
Associated Distributors, Freezer	Lae	P O Box 3419, Lae	4724666	4720085 4723198
Associated Distributors Niugini	Lae	P O Box 4019, Lae	4724666	4720085 4723198
Pacific Products Pty Ltd	Port Moresby	P O Box 2777, Boroko	3252932	3250579
Plastic Bottle Suppliers				
Rutec by Variform, PNG Pty Ltd.	Port Moresby	P O Box 304, Waigani	3211592	3217301
KK Kingston Pty Ltd	Lae Port Moresby Mt Hagen Rabaul	P O Box 1104, Lae P O Box 6860, Boroko P O Box 618, Mt Hagen P O Box 2248, Rabaul	4722745 3256083 5422998 9821247	4726175 3250728 5421229 9821245

Appendix 1

Costing and pricing calculation - Lime Juice Cordial (Medium Sugar)

Ingredients:

Lime Clear Juice
Water
Sugar
Bottle
Label
Preservative Potassium Metabisulphite

Costing:

Ingredients	Qty	Cost Kina	Update
Lime Juice	1 Kg	3.00	
Sugar	1.5 Kg	1.90	
Water	1.0 kg	0.00	
Plastic Bottles (7)		1.40	
Labels (7)		0.35	
Total Ingredient Cost		6.65	
Cost for 7 bottles of 500 ML		6.65	
Cost for 1 bottle of 500 ML		0.95	

Selling Price:

Obviously your selling price cannot be below Kina 0.95

To determine your selling price try and investigate prices for similar items available. If there is a similar item, then your price should be close to that price.

As you will be selling your product through shops, hotels or clubs, so you would have to allow a reasonable margin for the reseller.

Probably a reasonable price for the above product will be K 1.90.

Be prepared to review prices if your product is not selling.

Appendix II

How to produce fruit squashes and cordials

Squashes are commonly made from unclarified fruit Juice. Important fruits used are mango, orange, lime or lemon, pineapple, litchi, passion fruit and other fruit juices having some pulp and body.

Sound fully ripe fruits are washed thoroughly, peeled and stones and cores are removed wherever necessary, and passed through pulper (mango), minced and pressed in hydraulic press (pineapple) or passed through screw type juice extractors (orange) or the juice is extracted by rosin machines (limes, lemons and passion fruits). The juice obtained is strained through stainless steel sieves to remove seeds and other bigger particles.

Sugar syrup is prepared separately to give 75% syrup and 25% fruit Juice in the final squash. The syrup should give final total soluble solids @ 45% and acidity @ 1% in the final squash. To the final product desired flavours and permitted colours are also added and preserved by Potassium Metabisulphite or Sodium Benzoate to the maximum limits of 350 PPM SO₂ or 600 ppm Benzoic acid in the final product. The squash is filled in sterilised bottles and sealed airtight.

Cordials are usually made from clarified fruit Juice and the most popular one is the lime juice cordial. In Papua New Guinea, however, squashes are known as cordial i.e., cordials containing unclarified juice.

Preparation & Preservation of Orange Squash

1. **Selection of fruit:** Select fresh, fully ripe and sound oranges. Tight skinned oranges should preferably be graded according to size to fit the size of the rose of the cone type juice extractor (rose being changeable according to the size of the fruit).
2. **Preliminary treatment:** Wash the fruit thoroughly in water or in very dilute solution of Hydrochloric Acid (1:20) to remove the residual spray, all dust, soil and other extraneous matter.
3. **Preparation of the fruit:** Cut the tight-skinned oranges into halves or remove the peel and break into segments of the loose-skinned oranges.
4. **Extraction of the juice:** Extract the juice with a cone type hand-worked or electrically worked Juice extractor in the case of tight-skinned oranges and with a screw type juice extractor for the segments of the loose-skinning oranges. Strain the juice through a coarse muslin cloth.
5. **Recipes:**

	Recipe 1 (33% Orange Juice)	Recipe 2 (57% Orange Juice)	Recipe 3 (60% Orange and Lime Juice)
i). Juice	3.6kg	3.6kg.	1.8kg
ii). Sugar	4.6kg	2.7kg	1.8kg
iii). Water	2.8lt
iv). Citric Acid	180gm	90gm
v). Lime or Lemon	900gm
vi). Essence (Peel emulsion of 2-4 oranges for every 100 fruits used or by adding a suitable dose of fruit-essence or oil)			
vii). Orange colour (Suitable quantity of permitted edible orange colour to bring out the desired shade of colour in the finished product).			

Note 1: In the case of Recipe 1 above, sugar syrup is first prepared by heating the mixture of sugar and water and straining the same through a coarse muslin cloth. This syrup is cooled and then mixed with juice, etc.

Note 2: Peel emulsion is made by crushing tile peels in a pestle and mortar and squeezing the crushed pulp through a thick cloth.

Note 3: New recipes can be created after gaining some experience.

- Mixing and adding preservative:** Mix the above quantities of the ingredients thoroughly and strain through a coarse muslin cloth. Finally add the preservative, ie., Potassium Metabisulphite at the rate of 350 ppm of the finished product.

Note 4: The preservative, in the powder form, should be dissolved in a small quantity of water or the finished product and then mixed with the rest of it very thoroughly.

- Bottling and storage:** Fill the finished product into bottles (which has been previously heated in boiling water for 15-20 minutes) leaving 1"-1 1/2" space at the top. Cork air-tight either with crown cork seal or by ordinary capping machine. Clean the bottle with wet cloth and store the bottles in a cool, dry place.

A suggested cottage-scale recipe		
Orange Juice		2lt
Sugar		4kg
Water		3.8lt
Citric Acid		80gm
Flavours:	Orange Sweet	50ml
	Orange Oil	15ml
Sunset Yellow		1gm
Sodium Benzoate		5gm
Common Salt		3gm

Preparation & Preservation of Lemon/Lime Squash

- Selection of fruit:** Select fresh, fully ripe fruit, free from bruises and particularly from fungal attacks. The bigger size fruit of the lemon species should be graded according to size.
- Preliminary treatment:** Wash the fruit thoroughly under a spray of cold water, preferably in small lots at a time to remove dirt, spray material and other extraneous matter.
- Preparation of the fruit:** Cut the fruit into halves with sharp stainless steel cutting knives.
- Extraction of the juice:** Extract the juice with lime-squeezers or in a small basket or screw press in the case of limes or with a cone type juice extractor in the case of lemons. Strain the juice through a coarse muslin cloth to remove seeds and coarse pulp.
- Recipes:**

		Medium Sugar Squash	High Sugar Squash
i).	Juice	2.0kg	1.8kg
ii).	Sugar	2.5lt	3.6kg
iii).	Water	1.7kg	360gm

New recipes can be created by the processor after gaining some experience.

Note: 1 A suitable quantity of edible yellow colour (Tartrazine) is added to bring out the desired shade of colour in the finished product.

Note : 2 For recipe with high sugar contents the ingredients may be mixed by slight warming, if necessary.

6. **Mixing and adding preservative:** Mix the above quantities of the ingredients thoroughly and strain through a coarse muslin cloth. Finally add the preservative, ie., Potassium Metabisulphite at the rate of 3 5 0 ppm of the finished product.

Note: 3 The preservative, in the powder form, should be dissolved in a small quantity of water or the finished product and then mixed with the rest of it very thoroughly.

7. **Bottling and Storage:** Fill the finished product into bottles which had been thoroughly cleaned, washed and previously sterilised in boiling water for 15-20 minutes leaving a head space of 1 1/2-inches. Cork air-tight either with crown cork seal or by ordinary capping machine. Clean the bottle with wet cloth and store in a cool, dry place. A very popular health drink - **ginger squash** - can be made by mixing together fresh ginger and lemon juice, as given below:

Recipe:	
Lemon Juice	1.6kg
Ginger	0.4kg
Sugar	2.5kg
Water	1.7lt

Preparation & Preservation Of Mango Squash

1. **Selection of fruit:** Select fresh, fully ripe, juicy type rather tart but sound fruit. The indigenous type of fruit, which is inferior for table purposes, because of too much fibre, yields higher percentage of juice.

2. **Preliminary treatment:** Wash the fruit thoroughly removing the stems, spray material, dirt etc.

3. **Preparation of the fruit:** Rub the fruit lightly between the palm of hands to thin down the pulp as best as possible.

4. **Extraction of pulp:** Remove the stem portion of the fruit and squeeze out the juice with hands wearing house-hold rubber gloves or with the help of small pulping machine leaving the least quantities of pulp with the skin and the stone. If a pulper is used it is better to remove the skin before the fruit is fed to die pulper hopper.

5. **Recipe:**

Mango Pulp	4.5kg
Water	4.5lt
Sugar	4.5kg
Citric Acid	150gm
Sun Set Yellow (Orange) colour, just Enough to bring out attractive Appearance	1 gm
Mango Alfonso Flavour	30ml
Sodium Benzoate	6gm

6. **Mixing and adding preservative:** Mix the above ingredients thoroughly avoiding heating as far as possible. Strain through a coarse muslin cloth. Add the preservative, ie., Potassium Metabisulphite at the rate of 350 ppm of the finished product.

The preservative, in powder form, should be dissolved in a small quantity of water or the finished product and then mixed with the rest of it very thoroughly.

7. **Bottling and Storage:** Fill the finished product into bottles which had been thoroughly cleaned, washed and previously sterilised in boiling water for 15-20 minutes leaving a head space of 1 1/2-inches. Cork air-tight either with crown cork seal or by ordinary capping machine. Clean the bottle with wet cloth and store the bottles in a cool, dry place.

Preparation & Preservation Of Passionfruit Squash

1. **Selection of fruit:** Select fully ripe and weighty fruit with deep yellow pulp inside having fully developed flavour and aroma.

2. **Preliminary treatment:** Wash the fruit thoroughly in running water to remove all extraneous matter.

3. **Preparation of the fruit:** Cut the fruit into halves with sharp stainless steel knives.

4. **Extraction of the pulp:** With the help of scooping knives, take out the deep yellow pulp and also the small black seeds from the tough and leathery skin of the fruit. Separate the seeds from the pulp by rubbing through enamel, stainless steel or Aluminium sieve into a clean enamelled or plastic bucket. Mix the pulp with water and rub the residue in water with rubber-gloved hands to release the pulp and strain through the sieve. For this a foodmill or kitchen food processor can also be used. Repeat this extraction process once again. Mix the three extractions and filter through a muslin cloth to remove the small seeds etc.

5 Recipe:

	A	B
Juice Extract	4.5kg	2.2kg
Sugar	2.7lt	3.8kg
Citric Acid	30gm	35gm
Water	3.5lt	3.5lt
Tartrazine (Apple green)	1gm	1gm
Sodium Benzoate	4gm	4gm
Final Brix	40	40

6. **Mixing and adding preservative:** Mix the above ingredients thoroughly warming, if necessary. Strain the finished product through a muslin cloth. Add the preservative ie. Potassium Metabisulphite at the rate of 3 5 0 ppm of the finished product.

7. **Bottling and storage:** Fill the finished product into bottles which had been thoroughly cleaned, washed and previously sterilised in boiling water for 15-20 minutes leaving a head space of 1 1/2-inches. Cork air-tight either with crown cork seal or by ordinary capping machine. Clean the bottle with wet cloth and store the bottles in a cool, dry place.

Preparation & Preservation Of Lime Juice Cordial

1. **Selection of fruit:** Select fresh, fully ripe limes (Key variety) free from bruises and particularly from fungal attacks.
2. **Preliminary treatment:** Wash the fruit thoroughly under a spray of cold water preferably in small lots at a time to remove all dirt, spray material and other extraneous matter.
3. **Preparation of the fruit:** Cut the fruit into halves with sharp stainless steel knives.
4. **Extraction of the juice:** Extract the juice with the juice extractor or strain the juice through a coarse muslin cloth.
5. **Clarification:** Add preservative i.e. Potassium Metabisulphite at the rate of 800 ppm of the juice and mix thoroughly. Store the juice in large sized glass carboys or Winchester bottles. When the sediment deposits, siphon the clear Juice out without disturbing the sediment and then strain it through a fine muslin cloth.
6. **Recipe:**

	Medium Sugar Cordial	High Sugar Cordial
Clear Juice	2.0kg	1.8kg
Sugar	1.5lt	2.25kg
Water	1.0kg	180ml

7. **Mixing and adding preservative:** Mix the above ingredients thoroughly, slightly warming, if necessary. Strain the product through a fine muslin cloth. Finally add the preservative, i.e., Potassium Metabisulphite at the rate of 350ppm of the finished product. The preservative, in powder form, should be dissolved in a small quantity of water or the finished product and then mixed with the rest of it very thoroughly.
8. **Bottling and Storage:** Fill the finished product into bottles which had been thoroughly cleaned, washed and previously sterilised in boiling water for 15-20 minutes leaving a head space of 1 1/2 inches. Cork air-tight either with crown cork seal or by ordinary capping machine. Clean the bottle with wet cloth and store the bottles in a cool, dry, cool place.