Economics of Fruit Preservation as a Cottage Industry

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Although the fruit and vegetable preservation industry is a large one which has been highly standardized, large quantities of surplus fruits and vegetables are preserved in numerous homes and small concerns all the world over. Large commercial concerns which make use of costly machinery and equipment which are often fully automatic with labour-saving devices, pack standard and uniform products for use at home and for the export trade. England, Australia, the U. S. A. and South Africa have built up a large export trade in preserved fruit and vegetables. Numerous homes in these countries, however, preserve their own fruits and vegetables during seasons of plenty. Suitable small-scale equipment by way of can sealers, jam boiling pans, pressure cookers, etc., have been specially designed for this purpose. By propaganda and demonstration, home preservation of fruits has become a safe process in the hands of the average housewife in those countries. In India, however, a beginning has yet to be made in this direction. In the meanwhile, small co-operative concerns and the larger orchards can profitably take up the preservation of fruits on a cottage industry scale. The production of highly standardized products in large well-equipped preservation factories employing automatic machinery and strict technical control should be the ultimate aim.

In the Government Fruit Products Research Laboratory at Kodur, a considerable amount of work has already been done on the preservation of a large number of different kinds of fruits. The methods have been standardized for the preservation of products like canned mangoes, pine-apples, guavas, grape-fruit etc., fruit juices and squashes like lime, lemon and orange squashes, mango and pineapple squashes, watermelon squash, passion fruit squash, cashewapple syrup, tomato juice etc. Different kinds of jams, jellies and marmalades like mango jam, pineapple jam, jack jam, wood-apple jam, banana jam, plum jam, guava jelly, orange marmalade, guava cheese, etc., have all been prepared. Other products like candied rumquat, jack, pineapple, ginger, orange peel and banana fig., banana flour, orange oil, etc., for which methods have been worked out are also of considerable interest. It is thus possible to prepare a large number of useful preserved products from South Indian fruits. In these days of balanced diet, fruits and vegetables with their valuable minerals and

vitamins are almost indispensable. They are important protective foods. Unfortunately, they are highly seasonal and much of the crop is wasted or spoilt during periods of glut. This is a serious loss to the country. Modern science has advanced greatly and it is now possible to preserve fruits and vegetables in all their freshness and richness so that they can be made available throughout the year. At present preserved fruits and vegetables are considered as luxury foods on account of their high cost. When the industry is well organised, it will be possible to bring them within the reach of the common man. The fruit and vegetable preservation industry is an industry of great national and economic importance and its development on a large factory as well as small home-scale should be the concern of the State.

Capital Investment: Very little equipment is required for the preservation of fruits on a small scale. Many of the items are generally available in the average home. Items like can-sealers, thermometers, hydrometers, glass jars, etc., can be purchased easily. A list of items of equipment which are useful for preparing a variety of fruit products is given in Table I. One will be surprised to learn that with this equipment as many as 100–150 cans of fruit, 100–150 bottles of fruit squash and 50–60 lbs. of jam per day can be turn out without any great exertion. The costliest item will be the preparation room and this cannot be avoided. The room should be fly-proof with wire gauze doors and windows. The walls and floor should be smooth and washable. There should be a good drain. A room 20 ft. x 20 ft. will be sufficient for the preservation room. Raw materials and finished products can be conveniently stored in a separate room.

Cost of Production: A large number of preserved products have been prepared at the Government Fruit Products Research Laboratory using equipment similar to that listed. The cost of production has been worked out. The overhead and supervision charges are, however, tentative. A sum of Rs. 10–12 per day towards these will be ample for a small concern. The cost of sugar at nine annas per pound is rather high. The cost of glass containers, corks and cans is also high on account of the abnormal times. There is ample scope for reducing these considerably in normal times. The tentative cost of production of a few typical products is given in the following paragraphs. Actual working data is also given. The costs are on the high side and will be much less when production is regular and to capacity.

The working capital for raw materials, containers, etc., may be taken on the average at about one rupee per can or bottle.

Establishment: The person in charge of the work should have undergone training in fruit canning and preservation at the Government Fruit Products, Research Laboratory. He should have a skilled labourer to assist him in the day-to-day work.

TABLE I.
Equipment for a small fruit preservation unit.

S. No.	Particulars	Number required	Cost Rs.	A.	P.
1	Aluminium basins with lids—capacity 20—100 lb. diameter 10″—20″	12	250	0	0
2	Saucepans 3—6 lb. capacity	4	10	0	0
3	Mugs	4	4	0	0
4	Strainers	2	6	0	0
5	Trays	2	12	0	0
6	Galvanised steel buckets	6	30	0	0
7	Kerosene stoves with 3—4 burners	2	75	0	0
8	Charcoal ovens with stand	4	16	0	0
9	Sieve for pulping	2	8	0	0
10	Spoons, large	2	3	0	0
11	Spoons, table	6 }	16	0	0
12	Spoons, tea	6			
13	Knives, stainless steel	6	18	0	0
14	China plates of different sizes	6	8	0	0
15	Glass tumblers	6	2	0	0
16	Orange squeezer	1	30	0	0
17	Wooden lime squeezer	12	25	0	0
18	Wooden basket press	1	160	0	0
19	Spring balance	1	30	0	0
20	Goldsmith's scales for weighing preservatives, with weights	1	25	0	0
21	Glass funnel 4″—6″ diameter	2	2	0	0
22	Thermometer 0—240°F.	2	20	0	0
23	Brix hydrometer with jar (0—10, 10—20, 20—30, 30—60 and 60—90)	1 set.	100	0	0
24	Rubber gloves	2 pairs.	5	0	0
25	Beakers 100—250 cc.	6	4	0	0
26	Perforated skimmer	2	2	0	0
27	Can sealer. Dixie automatic	1	150	0	0
28	Burpee canning Retort	1	150	0	0
29	Coring knives	6	15	0	0
30	Pineapple eye extractors	3	6	0	0
31	Can opener	1	1	0	0
32	Bottle opener	2	1	0	0
33	Stone jars. 25—50 lbs.	12	50	0	0
34	Glass carboys 5—6 gallon capacity	12	150	0	0
35	Cream squeeze	2	12	0	0
36	Pestle and mortar, porcelain	1	4	0	0
37	Bottle cleaning brushes	12	2	0	0
38	Crown corking machine	1	90	0	0
39	Home dryer	1	100	0	0
40	Work tables	3	100	0	0
	Total		1,692	0	0

I. CANNED PRODUCTS.

		Rs.	A.	P.
(1) *Canned Mangoes* (i) *Neelum.* (in 40 deg. Brix Syrup)				
1. Neelum mangoes, 75 @ Rs. 5 per 100 ...		3	12	0
2. Sugar—3 lb. 7 oz. @ 9 annas per lb. ...		1	14	8
3. Charcoal—¾ basket at Re. 1 per basket ...		0	12	0
4. Labour—¾ man-day at Re. 1 per day ...		0	12	0
Cost of 11 A 2½ cans prepared ...		7	2	8
Hence cost of contents per A 2½ can ...		0	10	5
Add (1) cost of can ...		0	4	0
(2) overhead charges ...		0	2	0
Hence cost of one A 2½ can of Neelum mangoes ...		1	0	5
Present sale price ...		1	8	0
(2) *Bangalora* (in 40 deg. Brix Syrup).				
1. Bangalora mangoes, 22 lb. @ 0—0—9 per lb. ...		1	0	6
2. Sugar—2 lb. 10 oz. @ 9 annas per lb. ...		1	7	8
3. Charcoal ¾ basket @ Re. 1 per basket ...		0	12	0
4. Labour ¾ man-day ...		0	12	0
Cost of 10 A 2½ cans prepared ...		4	0	2
Hence, cost of contents of one A 2½ can ...		0	6	5
Add (1) cost of can ...		0	4	0
(2) overhead charges ...		0	2	0
Hence, cost of one A 2½ can of Bangalora mangoes ...		0	12	5
(3) *Canned guavas* (in 45 deg. Brix Syrup).				
1. Guavas — 13 lb. — 13 oz. at one anna per lb. ...		0	14	0
2. Sugar — 3 lb. 8 oz. at 9 annas per lb. ...		1	15	6
3. Charcoal — 1 basket @ Re. 1 per basket ...		1	0	0
4. Labour — 1 man-day ...		1	0	0
Cost of 17 A-1 small cans ...		4	13	6
Hence, cost of contents of one A-1, can ...		0	4	7
Add (1) cost of can ...		0	2	0
(2) overhead charges ...		0	1	0
Hence, cost of one A-1 can of guavas ...		0	7	7

Note:—A-1 can is only about half the size of A 2½ can.

		Rs.	A.	P.
(4) *Canned Grapefruit* (in 60 deg. Brix Syrup)				
1. Grapefruits 4 (4 lb.) @ 8 pies per lb. ...		0	2	8
2. Sugar 1 lb. @ 9 annas per lb. ...		0	9	0
3. Caustic soda for lye peeling 2/3 oz. at 5 annas an ounce ...		0	3	4
4. Charcoal ¼ basket @ Re. 1 per basket ...		0	4	0
5. Labour ¼ man-day ...		0	4	0
Total cost of contents of 2-A 2½ cans ...		1	7	0

Rs.	A.	P.
3	12	0
1	14	8
0	12	0
0	12	0
7	2	8
0	10	5
0	4	0
0	2	0
1	0	5
1	8	0
1	0	6
1	7	8
0	12	0
0	12	0
4	0	2
0	6	5
0	4	0
0	2	0
0	12	5
0	14	0
1	15	6
1	0	0
1	0	0
4	13	6
0	4	7
0	2	0
0	1	0
0	7	7
0	2	8
0	9	0
0	3	4
0	4	0
0	4	0
1	7	0

	Rs.	A.	P.
Hence, cost of contents of one A 2½ can ...	0	11	6
Add (1) cost of can ...	0	4	0
(2) overhead charges ...	0	2	0
Hence, cost of one A 2½ can of grape fruit ...	1	1	6

Note :— The cost of production of canned chinee orange,* loose–jacket orange pummelo, etc., will be about the same.

II. JUICES, SQUASHES AND CORDIALS

(1) *Mango squash* (45 deg. Brix)

	Rs.	A.	P.
1. Country juicy mangoes—200 at Rs. 3 per 100 ...	6	0	0
2. Lime juice—7⅛ lb. (250 limes) at Re. 1 per 100 ...	2	8	0
3. Sugar 28 lb. 7 oz. @ 9 annas per lb. ...	16	0	0
4. Preservative, pottassium meta bi-sulphite 20 gm. @ 0—3—6 per oz. ...	0	2	6
5. Charcoal, 2 baskets at Re. 1 per basket ...	2	0	0
6. Labour—1 man-day ...	1	0	0
Total cost of 35 bottles of squash. 24 oz. each ...	27	10	6
Hence, cost of contents per bottle ...	0	12	8
Add (1) cost of bottle ...	0	6	0
(2) cost of crown cork ...	0	0	3
(3) overhead charges ...	0	2	0
Hence, cost of one 24 oz. bottle of mango squash ...	1	4	11

(2) *Chinee orange squash* (60 Deg. Brix)

	Rs.	A.	P.
1. Kodur Chinee oranges, 433 @ Rs. 15 per 100 ...	65	0	0
2. Limes 2,000 at Re. 1 per 100 ...	20	0	0
3. Sugar 267 lb. 7 oz. @ 9 annas per lb. ...	150	7	0
4. Preservative, K. M. S., 5 oz. at Re. 0—3—6 per oz. ...	1	1	6
5. Charcoal, 10 baskets at Re. 1 per basket ...	10	0	0
6. Labour, 5 man-days ...	5	0	0
Total cost of contents of 230 bottles x 24 oz. ...	251	8	6
Hence, cost of contents of one bottle ...	1	1	6
Add (1) cost of bottle ...	0	6	0
(2) cost of cork ...	0	0	3
(3) over-head charges ...	0	2	0
Hence, cost of 1 x 24 oz. bottle of orange squash ...	1	9	9

Note:— The cost of fruit is nearly twice the normal price.

		Rs.	A.	P.

(3) *Loose-jacket orange squash* (60 Deg. Brix)

		Rs.	A.	P.
1. Loose-jacket oranges (Coorg or Santra) 110 at Rs. 8 per 100	...	8	12	0
2. Limes 200 at Re. 1 per 100	...	2	0	0
3. Sugar 26 lb. 11 oz. at Re. 0—9—0 per lb.	...	15	0	0
4. Preservative, K. M. S. ½ oz. Re. 0—3—6 per oz.	...	0	1	9
5. Charcoal 1½ baskets @ Re. 1 per basket	...	1	8	0
6. Labour 1 man-day	...	1	0	0
Total cost of 25 x 24 oz. squash	...	28	5	9
Hence, cost of contents of one bottle	...	1	2	2
Add (1) cost of bottle	...	0	6	0
(2) cost of cork	...	0	0	3
(3) over-head charges	...	0	2	0
Hence, cost of 1 x 24 oz. bottle of squash	...	1	10	5

(4) *Lime Squash* (50 deg. Brix)

		Rs.	A.	P.
1. Limes 1,000 @ Re. 1 per 100	...	10	0	0
2. Sugar 49 lb.—6 oz. @ Re. 0—9—0 per lb.	...	27	12	4
3. Preservative K. M. S. 1 oz. at Re. 0—3—6 per oz.	...	0	3	6
4. Charcoal—2 baskets at Re. 1 per basket	...	2	0	0
5. Labour 2 man-days	...	2	0	0
Total cost of 56 x 24 oz. bottles of squash	...	41	15	10
Hence, cost of contents of one bottle	...	0	12	0
Add (1) cost of bottle and cork	...	0	6	3
(2) over-head charges	...	0	2	0
Hence, cost of 1 x 24 oz. bottle of lime squash	...	1	4	3

Note:— The cost of production is high due to the high cost of sugar.

(5) *Lemon Squash* (45 deg. Brix)

		Rs.	A.	P.
1. Lemons 38 at Re. 1—0—8 per 100	...	0	6	4
2. Sugar 13 lb. 11 oz. @ Re. 0—9—0 per lb.	...	7	11	0
3. Preservative, K. M. S. 9 grams @ Re. 0—3—6 per oz.	...	0	1	2
4. Charcoal, 1 basket at Re. 1 per basket	...	1	0	0
5. Labour 1 man-day	...	1	0	0
Total cost of 17 x 24 oz. bottles of squash	...	10	2	6
Hence, cost of contents of one bottle	...	0	9	7
Add (1) cost of bottle and cork	...	0	6	3
(2) over-head charges	...	0	2	0
Hence, cost of 1 x 24 oz. bottle of lemon squash	...	1	1	10

(6) *Pineapple*

1. Pinea
2. Lime
3. Suga
4. Prese
5. Cha
6. Labo

Tota

Hen
Add

Hen

(7) *Water-me*

1. Wat
2. Lim
3. Sug
4. Pres
5. Cha
6. Lab

Tot

He
Ad

H

(8) *Passion*

1. Pa
2. Su
3. Pr
4. Ch
5. La

T

H
A

Note

	Rs.	A.	P.

(6) *Pineapple Squash* (50 deg. Brix)

		Rs.	A.	P.
1.	Pineapples, 12 @ Re. 0—8—0 each ...	6	0	0
2.	Limes, 150 @ Re. 1 per 100 ...	1	8	0
3.	Sugar, 16 lb. 5 oz @ Re. 0—9—0 per lb. ...	9	3	0
4.	Preservative, K. M. S. 10 grams at 0—3—6 per oz. ...	0	1	3
5.	Charcoal 1 Basket @ Re. 1 per basket ...	1	0	0
6.	Labour 1 man-day ...	1	0	0
	Total cost of contents of 20 x 24 oz. bottles of squash ...	18	12	3
	Hence, cost of contents of one bottle ...	0	15	0
	Add (i) cost of bottle and cork ...	0	6	3
	(ii) overhead charges ...	0	2	0
	Hence, cost of 1 x 24 oz. bottle of pineapple squash ...	1	7	3

(7) *Water-melon Squash* (55 Deg. Brix.)

		Rs.	A.	P.
1.	Water-melons 6 ...	2	8	0
2.	Limes 250 @ Re. 1 per 100 ...	2	8	0
3.	Sugar 27 lb. 3 oz. @ Re. 0—9—0 per lb. ...	15	4	8
4.	Preservative, sodium benzoate 23. 4 gr. @ Re. 0—14—6 per oz. ...	0	12	2
5.	Charcoal 1 Basket ...	1	0	0
6.	Labour 1 man-day ...	1	0	0
	Total cost of contents of 27 x 24 oz. bottles ...	23	0	10
	Hence, cost of contents per bottle ...	0	13	8
	Add (i) cost of bottle and cork ...	0	6	3
	(ii) overhead charges ...	0	2	0
	Hence, cost of 1 x 24 oz. bottle of watermelon Squash ...	1	5	11

(8) *Passion Fruit Squash* (55 Deg. Brix.)

		Rs.	A.	P.
1.	Passion fruit 14 lb. at Re. 0—4—0 per lb. plus freight ...	4	10	0
2.	Sugar 6 lb. 5 oz. @ Re. 0—9—0 per lb. ...	3	9	0
3.	Preservative, K. M. S. 3. 4. grams at 1. 5. pies per gram ...	0	0	5
4.	Charcoal 1/4 basket at Re. 1 per basket ...	0	4	0
5.	Labour 1/4 man-day ...	0	4	0
	Total cost of contents of 6 x 24 oz. bottles ...	8	11	5
	Hence, cost of contents of one bottle ...	1	7	3
	Add (i) cost of bottle and cork ...	0	6	3
	(ii) overhead charges ...	0	2	0
		1	15	6

Note :— The cost of fruit and sugar is very high.

		Rs.	A.	P.
(9) *Cashew-apple Syrup* (60 deg. Brix).				
1. Cashew-apple, 750 @ Re. 0—0—3 per 10 fruits ...		1	2	9
2. Limes 215 @ Re. 1 per 100 ...		2	2	5
3. Sugar 27 lb. 10 oz. @ Re. 0—9—0 per lb. ...		15	9	0
4. Preservative, K. M. S. 23.5 gram @ Re. 0—3—6 per oz. ...		0	3	0
5. Charcoal 1 basket ...		1	0	0
6. Labour 1 man-day ...		1	0	0
Total cost of contents of 24 x 24 oz. bottles ...		21	1	2
Hence, cost of contents per bottle ...		0	14	1
Add (i) cost of bottle and cork ...		0	6	3
(ii) overhead charges ...		0	2	0
Hence, cost of 1 x 24 oz. bottle of cashew-apple syrup ...		1	6	4
(10) *Fruit cocktail*				
1. Chinee orange squash 4 x 24 oz. bottles at 1—9—9 each ...		6	7	0
2. Pineapple squash 4 x 24 oz. bottles at 1—7—3 each ...		5	13	0
3. Tomato juice 2 x 24 oz. bottles at 1—1—1 each ...		2	2	2
Total cost of 10 x 24 oz. bottles of Fruit cocktail ...		14	6	2
Hence, cost of 1 x 24 oz. bottle ...		1	7	0
(11) *Tomato juice*				
1. Tomatoes 24 lb. at Re. 0—8—0 per 3 lb. ...		4	0	0
2. Common salt 2⅓ oz. ...		0	0	1
3. Charcoal 1 basket ...		1	0	0
4. Labour ½ man-day ...		0	8	0
Total cost of contents of 10 x 24 oz. bottle ...		5	8	1
Hence, cost of contents per bottle ...		0	8	10
Add (i) cost of bottle and cork ...		0	6	3
(ii) overhead charges ...		0	2	0
Hence, cost of one 24 oz. bottle of tomato juice ...		1	1	1

Note :— The cost of tomatoes is very high.

III. JAMS, JELLIES AND MARMALADES.

		Rs.	A.	P.
(1) *Mango Jam.* (Bangalora)				
1. Mangoes, Bangalora. 74 fruits weighing 73½ lb at Re. 0—0—9 per lb. ...		3	7	2
2. Sugar 35½ lb. at Re. 0—9—0 lb.		19	13	3
3. Tartaric Acid, 6 2/3 oz. at Re. 0—3—6 per oz. ...		1	7	4
4. Charcoal 2 Baskets at Re. 1 per basket ...		2	0	0
5. Labour 2 man-days		2	0	0
Cost of 38 x A 2½ cans of jam (85 5/8 lb) ...		28	11	9

Rs.	A.	P.
1	2	9
2	2	5
15	9	0
0	3	0
1	0	0
1	0	0
21	1	2
0	14	1
0	6	3
0	2	0
1	6	4
6	7	0
5	13	0
2	2	2
14	6	2
1	7	0
4	0	0
0	0	1
1	0	0
0	8	0
5	8	1
0	8	10
0	6	3
0	2	0
1	1	1
3	7	2
19	13	3
1	7	4
2	0	0
2	0	0
28	11	9

		Rs.	A.	P.
Hence, cost of one lb.	...	0	5	4
Cost of one A 2½ can jam	...	0	12	1
Add (i) cost of can	...	0	4	0
(ii) overhead charges	...	0	2	0
Hence, cost of 1 A 2½ can mango jam	...	1	2	1

(2) *Mango Jam.* (Neelum)

		Rs.	A.	P.
1. Mangoes, Neelum 133 at Rs. 5/- per 100	...	6	10	8
2. Sugar 16 lb. 8 oz. at Re. 0—9—0 per lb.	...	9	4	6
3. Tartaric acid, 87-4 grams at Re 0—3—6 per oz.	...	0	10	11
4. Charcoal 1¼ baskets at Re. 1 per basket	...	1	4	0
5. Labour 1 man-day	...	1	0	0
Cost of 417/16 lb. of jam (18 cans-A 2½ size)	...	18	14	1
Hence, cost of one lb. jam	...	0	7	3
Cost of contents of one A 2½ can	...	1	0	9
Add (i) cost of can	...	0	4	0
(ii) overhead charges	...	0	2	0
Hence, cost of one A 2½ can mango jam	...	1	6	9

(3) *Plum Jam*

		Rs.	A.	P.
1. Plums — sour — 14 lb at Re. 0—5—0 per lb.	...	4	6	0
Freight from Coonoor	...	0	12	0
2. Sugar, 10 lb. @ Re. 0—9—0 per lb.	...	5	10	0
3. Charcoal, ¾ basket at Re. 1 per basket	...	0	12	0
4. Labour — 3/4 man-day	...	0	12	0
Total cost of 19½ lb. jam	...	12	4	0
Hence, cost of 1 lb. jam	...	0	10	1
Cost of jam in an A 2½ can (2½ lb.)	...	1	9	2
Add (i) cost of can	...	0	4	0
(ii) overhead charges	...	0	2	0
Hence, cost of an A 2½ can of plum jam	...	1	15	2

(4) *Pineapple Jam.*

		Rs.	A.	P.
1. Pineapples 4 at Re. 0—8—0 each	...	2	0	0
2. Sugar 3 lb. 11 oz. @ Re. 0—9—0 per lb.	...	2	1	2
3. Limes 5 @ 2 pies each	...	0	0	10
4. Charcoal ½ basket at Re. 1 per basket	...	0	8	0
5. Labour 1/3 man-day at Re. 1 per day	...	0	5	4
Total cost of 5½ lb. jam	...	4	15	4
Cost of 1 lb. jam	...	0	14	5

		Rs.	A.	P.
Cost of 2½ lb. jam (1 A 2½ can)	...	2	4	1
Add (i) cost of can	...	0	4	0
(ii) head charges	...	0	2	0
Hence, cost of an A 2½ can of pineapple jam.	...	2	10	1

Note:— The cost is very high on account of the high cost of fruit.

(5) Jak Jam

		Rs.	A.	P.
1. Jak fruit. 2 @ Rs. 1—8—0 each	...	3	0	0
2. Sugar 9 lb @ Re. 0—9—0 per lb.	...	5	1	0
3. Tartaric acid 48 gr. @ Re. 0—3—6 per oz.	...	0	6	0
4. Charcoal, 1 basket	...	1	0	0
5. Labour 1 man-day	...	1	0	0
Total cost of 17 lb. jam	...	10	7	0
Hence, cost of 1 lb. jam	...	0	9	10
Cost of 2½ lb. jam (A 2½ can)	...	1	8	7
Add (i) cost of can	...	0	4	0
(ii) overhead charges	...	0	2	0
Hence, cost of an A 2½ can of jak jam	...	1	14	7

(6) Banana Jam.

		Rs.	A.	P.
1. Bananas. 61 @ Rs. 2—2—0 per 100	...	1	4	8
2. Sugar 7¼ lb. Re. 0—9—0 per lb.	...	4	1	3
3. Tartaric acid, 38 gram @ Rs. 0—3—6 per oz.	...	0	4	9
4. Charcoal ½ basket at Re. 1 per basket	...	0	8	0
5. Labour ½ man-day	...	0	8	0
Cost of 5 x A 2½ cans (13 3/8 lb. jam)	...	6	10	8
Cost of 1 lb. of jam	...	0	8	0
Cost of jam in an A 2½ can	...	1	5	4
Add (i) cost of can	...	0	4	0
(ii) overhead charges	...	0	2	0
Hence, cost of an A 2½ can of banana jam	...	1	11	4

(7) Custard apple Jam.

		Rs.	A.	P.
1. Custard apples, 54 @ Rs. 5/- per 100	...	2	11	2
2. Sugar, 3 lb. 3 oz. @ Re. 0—9—0 per lb.	...	1	12	7
3. Tartaric acid, 17 gram @ Re. 0—3—6 per oz.	...	0	2	2
4. Charcoal, 1/8 Basket @ Re. 1 per basket	...	0	2	0
5. Labour 1/8 man-day at Re. 1 per day	...	0	2	0
6. Cost of 5 lb. 5 oz. jam	...	4	13	11

	Rs.	A.	P.
2	4		
2 0	4	1 0 0	
0	2		
	2	10	1

it.

3	0	0
5	1	0
0	6	0
1	0	0
1	0	0
10	7	0
0	9	10
1	8	7
0	4	0
0	2	0
1	14	7

1	4	8
4	1	3
0	4	9
0	8	0
0	8	0
6	10	8
0	8	0
1	5	4
0	4	0
0	2	0
1	11	4

2	11	2
1	12	7
0	2	2
0	2	0
0	2	0
4	13	11

		Rs.	A.	P.
		0	14	8
Hence, cost of 1 lb. jam	...	2	4	8
Cost of 2½ lb. jam (1 x A 2½ can)	...	0	4	0
Add. (i) cost of can	...	0	2	0
(ii) overhead charges				
Hence, cost of an A 2½ can of custard apple jam	...	2	10	8

Note:— The cost is high since the yield of jam is low due to losses in handling small experimental lots.

(8) *Woodapple Jam.*

		Rs.	A.	P.
1. Woodapples, 9 at 0—0—6 each	...	0	4	6
2. Sugar, 1 lb. 8 oz. @ Re. 0—9—0 per lb.	...	0	13	6
3. Tartaric acid, 6·4 gram at Re. 0—3—6 per oz.	...	0	0	10
4. Charcoal 1/8 basket at Re. 1 per basket	...	0	2	0
5. Labour 1/8 man-day at Re. 1 per day	...	2	0	0
Cost 3 3/16 lb. of jam.	...	1	6	10
Hence, cost of 1 lb. jam	...	0	7	2
Cost of 2½ lb. jam (1 x A 2½ can)	...	1	1	5
Add (i) cost of can	...	0	4	0
(ii) overhead charges	...	0	2	0
Hence, Cost of an A 2½ can of Woodapple jam	...	1	7	5

(9) *Guava Jelly.*

		Rs.	A.	P.
1. Guavas, 36 lb. 14 oz. at Re. 0—1—0 per lb.	...	2	5	0
2. Sugar 32 lb —6 oz. at Re. 0—9—0 per lb.	...	18	3	5
3. Tartaric acid,, 5 oz. at Re. 0—3—6 per oz.	...	1	1	6
4. Charcoal 2½ baskets at Re. 1 per basket	...	2	8	0
5. Labour 2½ man-days at Re. 1 per day	...	2	8	0
Cost of 46 3/8 lb. of jelly	...	26	9	11
Hence, cost of 1 lb. jelly	...	0	9	2
Cost of 2½ lb. jelly (1 x A 2½ can)	...	1	6	11
Add (i) cast of can	...	0	4	0
(ii) overhead charges	...	0	2	0
Hence, cost of an A 2½ can of guava jelly.	...	1	12	11

(10) *Orange marmalade*

		Rs.	A.	P.
1. Marmalade oranges, 115 at Re. 1 per 100	...	1	2	5
2. Sugar, 13 lb. 7 oz. at Re. 0—9—0 per lb.	...	7	9	0
3. Charcoal, 1¼ baskets at Re. 1 per basket	...	1	4	0
4. Labour, 1 man-day	...	1	0	0
Cost of 17¼ lb. (7 A 2½ cans) of marmalade	...	10	15	5

	Rs.	A.	P.
Hence, cost of 1 lb. of marmalade ...	0	10	2
Cost of 1 x A 2½ can marmalade ...	1	9	1
Add (i) cost of can ...	0	4	0
(ii) overhead charges ...	0	2	0
Hence, cost of an A 2½ can of orange marmalade ...	1	15	1

IV. DRIED PRODUCTS.

(1) *Banana Figs*

	Rs.	A.	P.
1. Bananas (Pacha Arati, Local variety) 200 at Rs. 2 per 100	4	0	0
2. Sulphur ½ oz. at Re. 0—2—0 per oz. ...	0	1	0
3. Charcoal 2 baskets at Re. 1 per basket ...	2	0	0
4. Labour 1/4 man-day at Re. 1 per day ...	0	4	0
Cost of 6½ lb. of figs ...	6	5	0
Hence, cost of 1 lb. of banana figs, loose ...	0	15	6

(2) *Banana Flour*

	Rs.	A.	P.
1. Bananas (Bontha Arati variety) 75 at Rs. 1—8—0 per 100 ...	1	2	0
2. Charcoal, 1 basket at Re. 1 per basket ...	1	0	0
3. Labour, 1/4 man-day at Re. 1 per day ...	0	4	0
Cost of 2½ lb. flour ...	2	6	0
Hence, cost of 1 lb. of banana flour (loose) ...	0	15	3

V. CANDIED PRODUCTS.

(1) *Ginger Candy*

	Rs.	A.	P.
1. Ginger 7 lb. at Re. 0—7—0 per lb. ...	3	1	0
2. Sugar, 4 lb. at Re. 0—9—0 per lb. ...	2	4	0
3. Charcoal, ⅓ basket at Re. 1 per basket ...	0	8	0
4. Labour ½ man-day ...	0	8	0
Cost of 3 lb. candy ...	6	5	0
Hence, cost of 8 lb. ginger candy loose ...	2	1	8

(2) *Citrus peel candy*

	Rs.	A.	P.
1. Sugar, 4 lb. at Re. 0—9—0 per lb. ...	2	4	0
2. Common salt, 1 lb. 13 oz. at 0—0—9 per lb. ...	0	1	3
3. Charcoal, 1/3 basket at Re. 1 per basket ...	0	5	4
4. Labour, 1/4 man-day ...	0	4	0
Cost of 3 lb. candy ...	2	14	7
Hence, cost of 1 lb. citrus peel candy (loose) ...	0	15	6

	Rs.	A.	P.

(3) Jak candy

		Rs.	A.	P.
1. Jak fruit one at Re. 0—12—0	...	0	12	0
2. Sugar, 3 lb. at Re. 0—9—0 per lb.	...	1	11	0
3. Charcoal, 1/3 basket at Re. 1 per basket	...	0	5	4
4. Labour 1/4 man-day at Re. 1 per day	...	0	4	0
Cost of 2 lb. candy	...	3	0	4
Hence, cost of 1 lb. of jak candy (loose)	...	1	8	2

Note :— The syrup can be bottled as " Jak syrup".

(4) Kumquat candy

		Rs.	A.	P.
1. Kumquats, 309 at Re. 0—2—0 per 100	...	0	6	2
2. Sugar, 9 lb. at Re. 0—9—0 per lb.	...	5	1	0
3. Charcoal, 1½ baskets at Re. 1 per basket	...	1	8	0
4. Labour 1 man-day	...	1	0	0
Cost of 7 lb. candy	...	7	15	2
Hence, cost of 1 lb. kumquat candy (loose)	...	1	2	2

Note :— The candying processes are spread over 8—10 days, but they can be carried out by persons engaged for the preparation of other products.

VI. PICKLES AND CHUTNEYS.

(1) Sweet Mnago Chutney

		Rs.	A.	P.
1. Mangoes — Bangalora, 30 fruits (25½ lb.) at Rs. 7—8—0 per 100		2	4	0
2. Sugar, 14 lb. at Re. 0—9—0 per lb.	...	7	14	0
3. Common salt, 14½ oz. at Re. 0—0—9 per lb.	...	0	0	8
4. *Spices, onion, chillies and ginger	...	1	11	0
5. Vinegar, 3⅝ lb. at Re. 0—12—0 per lb.	...	2	11	6
6. Charcoal 1¼ baskets at Re. 1 per basket	...	1	4	0
7. Labour 1 man-day	...	1	0	0
Cost of 24 3/8 lb. chutney	...	16	13	2
Hence, cost of 1 lb. sweet mango chutney, loose	...	0	11	1

Note :— The chutney may be packed in 1 lb. glass jars with bakelite caps. It is a very good product.

Spices, etc., used.

			Rs.	A.	P.
Cloves	6	tolas	0	4	0
Cinnamon	6	tolas	0	4	0
Cardamom	3	tolas	0	3	0
Mace	3	tolas	0	3	0
Aniseed	6	tolas	0	4	0
Cumin	6	tolas	0	2	0
Red Chillies	12	tolas	0	2	0
Onions	1½ lb.		0	3	0
Ginger	6	tolas	0	2	0
Total			1	11	0