

1 PEANUT BUTTER

1.1 Introduction

Peanuts have considerable nutrients and are consumed in different forms all over the world since long. Peanut butter is one such product consumed in large quantities especially in western countries since many years. It is not very popular in India and the domestic market is dominated by milk butter. Hence, the promoters must target growing export market and should be financially sound. The technology is available indigenously and it is advisable to engage a technical consultant to ensure quality.

Peanuts are rich in unsaturated fats and other nutrient that may improve Glucose and insulin homeostasis. It also helps in reducing diabetes. It can serve as substitute for red or processed meats. It is very much popular in western countries. Americans eat almost 7 pounds of peanuts and peanut butter per capita. Thus, there is much scope for export from India.

1.2 Objective

The primary objective of the model report is to facilitate the entrepreneurs in understanding the importance of setting up unit of peanut butter. This model report will serve as guidance to the entrepreneurs on starting up such a new project and basic technical knowledge for setting up such a facility.

1.3 Raw Material Availability

The major districts in MP where groundnut is grown are Shivpuri, Chhindwara, Tikamgarh, Barwani, Jhabua, Khargone, Betul, Datia, Seoni and Dhar.

The all-important raw material will be good quality groundnuts in shell. MP has good production of groundnut in the country and it ranks seventh in the country with 3.18% of the total production. Thus, availability would not be a problem. But the promoters should always be in touch with the market and should buy directly from the farmers.

Indian peanuts are popular all over the world with large exports every year. But unfortunately, our market share is primarily confined to raw peanuts and value-added products like blanched & roasted peanuts and peanut butter has very negligible contribution.

1.4 Market Opportunities

Indian peanuts are popular all over the world with large exports every year. But unfortunately, our market share is primarily confined to raw peanuts and value-added products like blanched & roasted peanuts or peanut butter have very negligible contribution. Consumption of peanut butter is yet to pick up in the country and the project must concentrate on foreign buyers. Peanut butter is very popular in the USA, the UK, Holland, Australia, New Zealand, South Africa, South East Asian and Gulf countries. These are all very large and growing markets and can be tapped as majority of them import substantial quantity. There must be very strict quality control. Around 80% of sale has to be by way of exports and the promoters may like to have registration as an Export Oriented Unit (EOU).

Though India is world's largest producer of peanuts, however, manufacturing of peanut butter is not a significant activity. There may be one or two units in India which manufacture peanut butter on medium scale. No large scale unit is still established in the country. The two major hurdles are 1) peanut butter is not accepted product on mass basis in India because of its nutty flavour and, 2) huge capital investment required in setting up the unit. However, in view of liberalization in industrial policy of India, it is now right time to set up such units to eat lucrative export revenue.

Looking to growing health consciousness for low calorie and high protein food, the consumption and uses of peanut butter is bound to increase in the coming decade.

1.5 Project description

1.5.1 Applications

Peanut butter is an ideal substitute for milk butter. It is a low calorie, high protein product. Compared to milk butter, its price is very competitive. But it has not yet become popular in our country and is rarely used by individual consumers.

Peanut butter is most commonly used in sandwiches and as a spread. It is widely used in bakeries and confectioneries. Other uses are in cookies, frosting, cakes, salads, salad dressing, cupcakes, pies, stuffed celery, muffins, biscuits, apples, soup, peanut butter rolls, brownies, vegetable sauces, corn bread, meat loaf, boiled custard, sweet potatoes etc. It is also used in ice-cream and in chocolates. It is also used as table butter in USA and other western countries as being low in calories compared to butter milk.

1.5.2 Critical factors for success and achieving better quality

- Variety and quality of whole peanuts play important role in producing peanut butter of superior quality.
- Operations such as blanching, roasting and high- pressure pressing of peanuts have predominant effects on producing peanut butter of better quality and consistency
- Proportion and quality of other ingredients added in the peanut butter also contribute making butter for better taste and aroma.
- It is necessary to produce peanut butter strictly confirming to the standards as per international specifications and consumer demand.
- Right selection of technology and equipments play key role in overall success of the project.
- It is necessary to either having a tie up or buy back arrangement before venturing into this project.

1.5.3 Capacity of the Project

The rated capacity for the peanut processing unit is 1350 MT per annum.

1.5.4 Manufacturing process

It is possible to buy raw peanuts instead of shelled peanuts or peanut pods. But it is advisable to install groundnut shelling plant to ensure quality of the all-important input which determines the ultimate quality of butter. The manufacturing process is briefly described hereunder.

1.6 Groundnut Pre-cleaning & Shelling

Good quality groundnut pods are sorted out and de-stoned before shelling them in openers.

1.7 Peanut Grading

Shelled peanuts are graded according to sizes to ensure only big or bold peanuts are taken up for process.

1.8 Peanut Roasting & Blanching

This is a critical stage. Roasting is done at around 160O C for 40-60 minutes depending upon the moisture contents. Roasting reduces water contents to around 1% which increases the shelf life of peanuts and helps develop flavor. After roasting, peanuts are cooled and then blanched (removal of outer red skin). After blanching each peanut is inspected to remove discolored (grey or black) nuts.

1.9 Grinding

Peanuts are then ground in peanut butter mill in two stages to produce fine and creamy butter. The outlet temperature is around 65-75OC. All ingredients like salt, sugar and stabilizers are added during this process.

1.10 De-aeration

Air is incorporated into peanut butter during milling and subsequently it is removed in a vacuum.

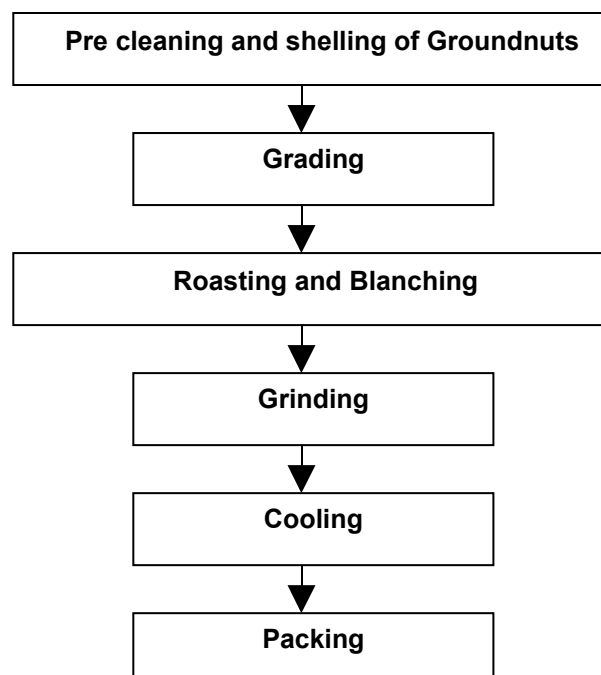
1.11 Cooling

A scraped surface heat exchanger is used for cooling. The outlet temperature depends upon the type of stabiliser used.

1.12 Filling and Packing

Peanut butter is filled in Pet Jars or metal drums as per the instructions of the buyer. Immediately after filling, the jars are vibrated to remove any remaining air bubbles. After keeping jars or drums for around 35-40 hours at around 20OC, the peanut butter sets completely and can be dispatched.

Recovery from groundnut shells or pods is 55% HPS groundnuts, 22% husk and balance 23% are splits or kapchi. Roasting of peanuts and removal of discoloured peanuts, results in further waste/loss of 5%. The process flow chart is as under:



1.13 Project component and cost

Major components of the projects and their costs are described in the table hereunder:

PARTICULARS	Unit	Qty	Cost/unit	Total
LAND & BUILDING				39.95
Land	SqM	1,000	250.00	2.50
Land Development				
Land Area		1,000	500.00	5.00
Building				
Production Block				
Storage of Raw Material	SqM	240	5,000.00	12.00
Administrative block	SqM	100	5,000.00	5.00
Decorticating Unit	SqM	50	5,000.00	2.50
Processing Unit	SqM	100	5,000.00	5.00
Packageing Unit	SqM	50	5,000.00	2.50
Storage For Finished Product	SqM	50	5,000.00	2.50
Contingencies		10%		2.95
PLANT & MACHINERY				660.00
Plant & Machinery	LS	1	55,000,000	550.00
Contingencies		20%		110.00
MISCELLANEOUS FIXED ASSETS				43.20
Furniture and Fixture	LS	1	700,000	7.00
Vehicles-Delivery LCV	No	1	600,000	6.00
Weighing Scale	No	1	500,000	5.00
DG Set	No	1	800,000	8.00
Others	LS	1	1,000,000	10.00
Contingencies		20%		7.20
PRE-OPERATIVE EXPENSES				51.51
Establishment		1	1,880,000	18.80
Preoperative Interest		1	2,070,600	20.71
Security Deposits		1	1,200,000	12.00
TOTAL				794.66

1.14 Plant and Machinery

The main plant and machinery equipments required for this project are Storage silos for whole groundnuts, pneumatic conveying system, nut huller and cleaner, destoner, sorting cylinders, vibrating sieve, steam roaster blanching unit, electronic colour sorter, hydraulic press, colloid mill, triple roller refining mill, material handling equipment, butter pasteurizer, automatic packaging machine. The total cost assumed is around Rs. 660 lakhs.

1.15 Building

The building development and construction will cost around Rs. 32.45 lakhs.

1.16 Miscellaneous Assets

A provision of Rs. 43.22 lakhs would take care of other items like furniture and fixtures, storage facilities, packing tables etc.

1.17 Preliminary & Pre-operative Expenses

There will be many pre-production expenses like registration, administrative and traveling charges, interest during implementation, trial run expenses etc. for which a provision of Rs. 51.51 is made.

1.18 Working Capital Assessment

ITEMS	Year 1	Year 3	Year 5
STOCK OF RAW MATERIAL & PACKING MATERIAL	33.06	55.11	55.11
SUNDRY DEBTORS	101.25	168.75	168.75
TOTAL	134.31	223.86	223.86
MARGIN	33.58	55.96	55.96
MPBF	100.74	167.89	167.89
INTEREST ON WC	11.08	18.47	18.47

1.19 Means of Finance

EQUITY CAPITAL			43.96%	364.12
MOFPI SUBSIDY	25%	50.00	6.04%	50.00
TERM LOAN				
FINANANCIAL INSTITUTIONS		10.00%	50.00%	414.12
<i>-Payable half yearly Installments</i>	10	41.40		
TOTAL			100%	828.23

1.20 Cash flow statement

PARTICULARS	Year 1	Year 3	Year 5	Year 7
SOURCES OF FUNDS				
EQUITY CAPITAL	-	-	-	-
SUBSIDY				
NET PROFIT	40.73	169.18	164.97	164.73
(INTEREST ADDED BACK)				
DEPRECIATION	72.50	72.50	72.50	72.50
PRELIMINARY EXP.W/O	7.36	7.36	7.36	7.36
INCREASE IN TERM LOAN	-	-	-	-
INCREASE IN BANK BORROWINGS-WC	100.74	25.18	-	-
TOTAL	221.32	274.22	244.84	244.59

1.21 Projected balance sheet

PARTICULARS	Year 1	Year 3	Year 5	Year 7
LIABILITIES				
EQUITY CAPITAL	364.12	364.12	364.12	364.12
RESERVES & SURPLUS	38.23	236.43	501.84	793.82
TERM LOAN	372.72	207.12	41.52	-
BANK BORROWINGS-WC	100.74	167.89	167.89	167.89
TOTAL	875.80	975.56	1,075.37	1,325.83

1.22 Projected profit and loss account

PARTICULARS	Year 1	Year 3	Year 5	Year 7
INCOME	607.50	1,012.50	1,012.50	1,012.50
EXPENDITURE	486.91	763.46	767.66	767.91
VARIABLE	359.60	584.22	581.46	578.71
FIXED	127.31	179.24	186.20	189.20
GROSS PROFIT	120.59	249.04	244.84	244.59
PROFIT BEFORE TAX	(11.77)	123.79	136.14	146.26
RETAINED PROFIT	(11.77)	123.79	136.14	146.26

1.23 Key Indicators

NET PRESENT VALUE at current Inflation (Rs.in lakhs)	929.56
INTERNAL RATE OF RETURN %	21.65
AVERAGE DSCR	2.29
BREAK EVEN POINT %	66.28
PAY BACK PERIOD (YEARS)	4.68

1.24 Manpower Requirement

PARTICULARS	NO.
SUPERVISORY STAFF	
GENERAL MANAGER	1
ACCOUNTANT & ADMINITRATIVE OFFICER	2
MARKETING STAFF	3
WORKERS	
MANAGING PRODUCTION	1
MANAGER QC	1
SUPERVISORS	4
MAINT SUPERVISORS	2
SKILLED WORKERS	6
UNSKILLED WORKERS	10

1.25 Assumptions

Project and Financials			
Contingencies on Building			10%
Contingencies on Equipment			20%
Term Loan			50%
Rate of Interest on Term Loan			10%
Subsidy Considered	Subject to ceiling		25%
Expected time of Installation	Months		10
Moratorium	Months		6
CAPACITY			
Rated Capacity Per Annum	85% of Installed capacity	TPA	1350
Number of Operational Days	DAYS		270
Working Hours Per day	Hrs		20
CAPACITY UTILIZATION			
Year I			60%
Year II			85%
Year III			100%
SALES PRICE			
W S Price			75000
OTHER EXPENSE			
Commission			10.0%
Marketing Expenses			2.5%
POWER			
Connected Load	HP		300
DEPRICIATION AS PER COMPANY'S ACT			
BUILDING			3.34%
PLANT & MACHINERY			10.34%
MISC. FIXED ASSETS			7.07%
LAND & SITE DEVELOPMENT			1.63%
MAINTENANCE			
BUILDING			1.00%
PLANT & MACHINERY			3.00%
MISC. FIXED ASSETS			2.00%
LAND & SITE DEVELOPMENT			1.00%

1.25.1 Sources of technology

- Shreeji Nut Co, Jam Kandorna 360 405, Parmar Engg. Co, Jasdan, Gujarat
- John Fowler & Co Ltd, Bangalore
- Forsberg Agritech (I) Ltd, Makarpura, Vadodara
- Brimco Engg. Works, M24/1, Street No 9, Anand Parbat Indl. Area, New Delhi 110 005, Phone: 25726347, 6178 Fax:22145040
- Osaw Agro Inds. Pvt. Ltd., PO Bag No 5, Osaw Complex, Jagadbri Road, Ambala Cantonment 133 001. Phone: 2699167, 354, 547, Fax No 2699018
- Fowler Westrup India (P) Ltd., Plot No 250, Bommasandra Indl. Est, Ph-3, Bangalore 562 158. Ph: 2783299, Fax: 27832990
- Harvest Sortmac Shosha Pvt Ltd, Nutech Vikas, No.6, 1st Avenue, 100 Feet Road, Ashoknagar, Chennai 600 083. Ph: 24717588, Fax: 24717688
- FMC Inc. USA
- W.C. Cantrull Co. – USA
- Universal Machinery Corpo. Inc. - USA

The actual cost of projects may deviate on change of any of the assumptions.