

SRI RENGA SWEETS LTD. – INVENTORY PLANNING FOR PEANUT BRITTLE

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Dr.V. Kannan¹, Prof. S. Karthikeyan²Dr.G. Amudha³ wrote this case solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

In September 2017, Mr.Ramanujan, the newly appointed manager of sales and distribution for Sri Renga Sweets Ltd. a small scale company producing peanut bars, convened a meeting with the owners of the company Mr. Lakshmi Narayanan and Mr.Hayagreevan. He told the owners "If the ingredient inventory that was purchased and managed by the firm is not re-examined and re-worked to the firm's advantage then soon the final products based on these ingredients will cease to yield the kind of profits that the firm expects." The owners asked Ramanujan to work on that. Ramanujan's task was to prepare a comprehensive forecasting and inventory management plan with a view to minimize the cost of managing the supply chain by optimal use of resources, better forecasting and improvement in the ingredient inventory purchasing system. Most importantly, he had to decide how much and when to order the ingredients involved in one of the company's most popular products, the "Peanut Brittle" a crispy bar made of peanuts, butter and dry fruits.

THE COMPANY

Sri Renga Sweets Ltd. was a company producing sweets and snacks of traditional value in Tiruchirappalli. The company began its operations in 2005, and was fairly known in the region. Since 2010, Sri Renga Sweets Ltd. had been making many varieties of sweets and snacks and the unique strength of its operations lay in its adaptability to customers' tastes and preferences.

The company had come a long way from its inception. Mr.Lakshmi Narayanan with his brother Mr.Hayagreevan established Sri Renga Sweets Ltd. The brothers started their career as a wholesale trading agent for sweets and snacks. They later planned to shift from trading to production of sweets and snacks of native taste. As the business grew up, the company expanded the varieties of sweets and snacks.

SALES AND DISTRIBUTION

Sri Renga Sweets Ltd. had about 15 dealers and a sales force of 40 people. Its sales and distribution network operated from Tiruchirappalli to almost all the towns and cities of Tamil Nadu. The firm was working to extend its distribution to Andhra Pradesh, Karnataka and Kerala.

THE PREDICAMENT

Shri Renga Sweets Ltd. produced a number of sweets and snacks, including the most famous of its products, a peanut bar named peanut brittle. It was also one of the high priced product. The retailers sold the product loose but the company packaged it in bags of 20 bars each. These bags were then packaged into cartons of 100 bags each. Peanut Brittle had different ingredients from the normal sweets and snacks produced by Shri Renga Sweets Ltd. including peanuts, butter, white sugar, light corn syrup, baking soda and dry fruits. Each peanut brittle bar weighed 40 grams. In order to maintain the high quality of the product, Shri Renga Sweets Ltd. was forced to use high-grade, fresh ingredients, thus ensuring that there was not a large inventory of Peanut brittle bars. However, this meant that the product could not remain in storage for an extended period of time.

The sales team was aware that the demand of this product followed a seasonal variation. It had reviewed the last five years' sales records and concluded that the demand peaked during the festivals and marriage seasons (see Exhibit 2).

The sales team of Shri Renga Sweets Ltd. managed the regions and was responsible for transportation, stocking and distribution. Primary distributors were concerned about the sales and distribution as they had experienced very impactful seasonal variations in the products that they bought and sold. The shipments took around 12 days to arrive from the day of placing the order. Because of the nature of the food product, it needed careful handling and had to be transported and stored properly to maintain it fresh, crispy and brittle. The ordering cost was relatively high as the product traversed long distances across Tamil Nadu and the need for proper storage added to the cost, which amounted to INR 5,000 per order. This included cost of communication, paper trails, service and other taxes, and all kind of taxes clearances. The monthly carrying cost of the cartons amounted to 2.5 per cent of the cost of the goods. According to company records, the cost of each carton was INR 20,000.

ISSUES IN SALES AND DISTRIBUTION

In planning the ordering and inventory for the year, Ramanujan's decision became even more complex because the sales and distribution team needed to determine what levels of stock should be maintained to keep meeting the expected service levels of 90 per cent. For this purpose, the store's manager scouted, collected and compiled the data from 2012 to 2016 along with other information pertaining to all the factors/parameters that would help the company make an informed decision.

Peanut Brittle was prepared using four primary ingredients: Peanuts (13.51 grams per bar), Butter (1.57 grams per bar), White Sugar (10.81 grams per bar), dry fruits (2.43 grams per bar), light corn syrup (8.11 grams per bar), water (3.19 grams per bar) and baking soda (.38 grams per bar).

There were different suppliers and vendors for each of the four main ingredients. The average costs associated with each ingredient (considering all the suppliers and vendors for various parameters like annual ordering costs, annual carrying costs, unit costs of the items with different levels of quantity procured, etc.) were available to the company (see Exhibits 3 to 8).

THE MEETING AND THE COURSE OF ACTION

A meeting was convened. The main agenda of the meeting was to discuss the twin issues of managing the purchase decisions on two fronts. 1) At the level of the company — they have to decide on the expected sales for 2018, based on past performances, and choose the right order size considering all the data available through various records and databases; 2) At the level of the vendors — Shri Renga Sweets Ltd. had to confront the problem of order quantity for the ingredients supplied by the vendors while factoring in various information, such as the bulk discounts available, cost of orders, cost of holding, etc. The goal was to minimize the annual cost of purchase by selecting the right quantity, which satisfied all the needs of the firm.

As Ramanujan was thinking about his task with respect to ordering the ingredients of Peanut Brittle, other related questions circled his mind: What were the short-term and long-term implications of these quantitative decisions on inventory management and other aspects of effectiveness, like quality and supply chain?

EXHIBIT 1: INGREDIENTS FOR MAKING PEANUT BRITTLE

S.No.	Name	Quantity(grams)	Price(in Rs)	Weightage
1.	White sugar	200	43 per kg	0.27
2.	Light corn syrup	150	150 per kg	0.20
3.	Water	59	---	0.08
4.	Peanuts	250	60 per kg	0.34
5.	Butter	29	380 per kg	0.04
6.	Baking soda	7	24 per kg	0.01
7.	Dry fruits	45	300 per kg	0.06
		740		1.00

Weight, Package and Price of Peanut Brittle

40g per piece, 20 pieces in packet and 100 packet in a carton.

SP: Rs 10 per piece, Rs 200 per packet, Rs 20000 per carton

EXHIBIT 2: DEMAND FOR BERO PEANUT BRITTLE (NUMBER OF CARTONS SOLD)

YEAR	2012	2013	2014	2015	2016
JAN	1113	1112	1344	1427	1545
FEB	1046	1050	1190	1292	1548
MAR	1164	1161	1328	1407	1689
APR	1347	1398	1583	1664	1928
MAY	1661	1835	1989	2133	2456
JUN	1748	1935	1955	2229	2417
JUL	1824	2024	2154	2333	2412
AUG	1812	2012	2210	2406	2292
SEP	1697	1944	2180	2400	2130
OCT	1457	1599	1755	2105	1679
NOV	1175	1352	1535	1814	1520
DEC	1670	1667	2016	2140	2318

EXHIBIT 3: COST DATA AVAILABLE FOR WHITE SUGAR

Holding cost (% of the cost/year)	40%
Ordering cost (INR/order)	1000
Quantity in kg	Price (INR/kg)
1 to 2000	43.30
2001 to 4000	43.20
4001 to 6000	43.10
ABOVE 6000	120.00

EXHIBIT 4: COST DATA AVAILABLE FOR LIGHT CORN SYRUP

Holding cost (% of the cost/year)	30%
Ordering cost (INR/order)	1200
Quantity in kg	Price (INR/kg)
1 to 1000	150.20
1001 to 2000	150.15
2001 to 3000	150.10
ABOVE 3000	150.05

EXHIBIT 5: COST DATA AVAILABLE FOR PEANUTS

Holding cost (% of the cost/year)	35%	
Ordering cost (INR/order)	800	
	Quantity in kg	Price (INR/kg)
	1 to 1250	60.90
	1251 to 2500	60.80
	2501 to 3570	60.70
	ABOVE 3750	60.60

EXHIBIT 6: COST DATA AVAILABLE FOR BUTTER

Holding cost (% of the cost/year)	25%	
Ordering cost (INR/order)	2100	
	Quantity in kg	Price (INR/kg)
	1 to 2500	382.00
	2501 to 5000	382.80
	5001 to 7500	382.60
	ABOVE 7500	382.40

EXHIBIT 7: COST DATA AVAILABLE FOR BAKING SODA

Holding cost (% of the cost/year)	35%	
Ordering cost (INR/order)	800	
	Quantity in kg	Price (INR/kg)
	1 to 1250	24.90
	1251 to 2500	24.80
	2501 to 3570	24.70
	ABOVE 3750	24.60

EXHIBIT 8: COST DATA AVAILABLE FOR DRY FRUITS

Holding cost (% of the cost/year)	35%	
Ordering cost (INR/order)	800	
	Quantity in kg	Price (INR/kg)
	1 to 1250	300.90
	1251 to 2500	300.80
	2501 to 3570	300.70
	ABOVE 3750	300.60