

Analysis of Indian Powdered Concentrates Market for Entry of Tropicana

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Abstract

PepsiCo is set to roll out flagship juice brand Tropicana in a powder format, pitching it directly against global rival Cadbury-Kraft, which sells Tang, as well as home-grown firm Rasna.

The paper provides an analysis of the powdered concentrates market with respect to Indian powdered concentrates industry. Its main purpose is to determine the attractiveness and feasibility for a new entrant – Tropicana in the market. The paper begins with a brief introduction to the problem at hand. It talks about the requirements of the paper and gives an idea of the suggested approach to solve the problem.

The research matrix attempts to structure the problem to reach an appropriate solution. The research design introduces the questions to be answered to solve the problem. The problem has been dealt with using a two stage approach. In the first stage, an explorative study of the industry has been done along with qualitative research including projective techniques, interviews with industry experts.

The explorative research gives an overall market picture for powdered concentrates and looks at the current market trends and also surveys the prevailing competitive landscape. Future projections for the industry have also been looked at in this part. The next stage deals with quantitative research obtained through questionnaire administration. The responses obtained are analysed rigorously to test expected trends and form new inferences. The explorative study followed by quantitative analysis leads to the final recommendations in the report which answers the research problems.

Key Words

Indian Beverages Industry, Powdered Concentrate Industry, Fruit Juice Industry, Opportunity Analysis.

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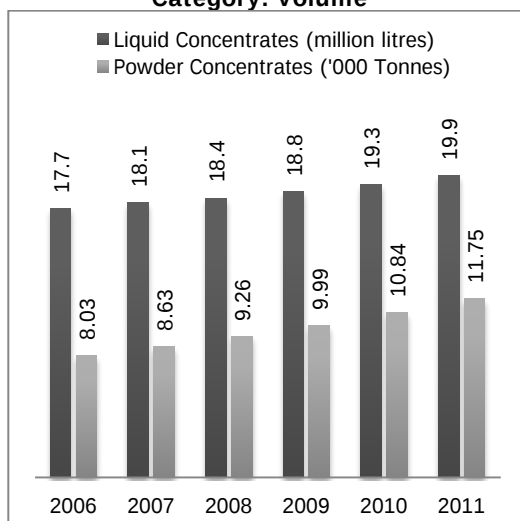
INTRODUCTION

As of 2011, the total value sales of concentrates was Rs 4.2 billion, registering an annual growth of 9%. 2011 saw increasing intensity of competition as new players entered the concentrates category. Powder concentrates has been the promising category, posting stronger total volume growth, at 8%. Also, unit prices for concentrates saw a 6% hike over the course of the year. Rasna, of Pioma Industries Ltd, continues to be the dominant market leader with Rooh Afza being a distant second in the liquid concentrates category and Tang in the powder concentrates category. The concentrates market in India is expected to expand at a CAGR of 3% in total volume terms in the next 5 years.

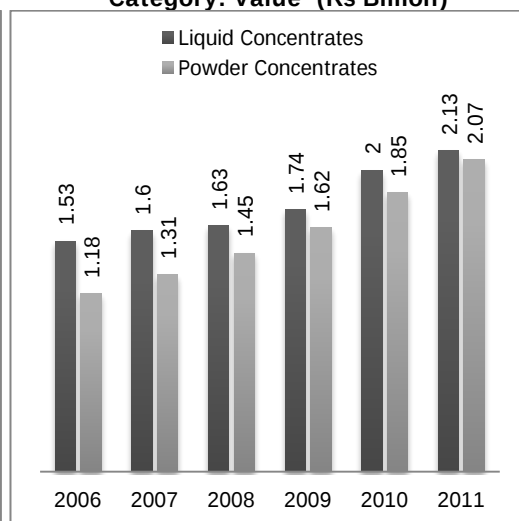
Volume growth of concentrates remained slow in 2011. The category is more saturated in urban areas, with consumers increasingly switching to fruit/vegetable juice or other ready-to-drink products that are considered to be more convenient. As a result, companies such as Pioma Industries Ltd have started to focus on more rural areas by launching products at low price points. Sachets of powder concentrates, priced as low as Rs0.50, Rs 1 and Rs 2, are being launched to increase sales outside the major cities.

The 2011 total value growth of 9% was lower than the 15% rise recorded in 2010. This is because products in the concentrates category are losing their appeal when compared with ready-to-drink alternatives that are seeing a significant expansion in terms of presence on the shelves of supermarkets and hypermarkets. Sale of concentrates is being adversely affected by the increasing shift of young urbanites towards RTD soft drinks formats owing to their convenience, with a lack of a need for preparation and speed of consumption.

Off-Trade Sales of Concentrates by Category: Volume



Off-Trade Sales of Concentrates by Category: Value (Rs Billion)



Off-trade value sales of powder concentrates grew by 12% in 2011 which was higher than the growth rate recorded by liquid concentrates (6%). This is because consumers are shifting from liquid concentrates to other ready-to-drink beverages, which are considered healthier than liquid concentrates. Manufacturers who are active in powder concentrates are seeking to appeal to middle-income consumers, stressing this product type's economical pricing; the category therefore registered stronger growth. The average unit price of concentrates increased by 6% in total value terms in 2011. Manufacturers' input costs have increased by more than the price hikes but they have opted not to pass these on to consumers. This is because the category largely targets middle-income consumers who are sensitive to price increases. Powder concentrates are mainly marketed more for semi-urban and rural consumers also witnessed a stronger price rise than liquid concentrates.

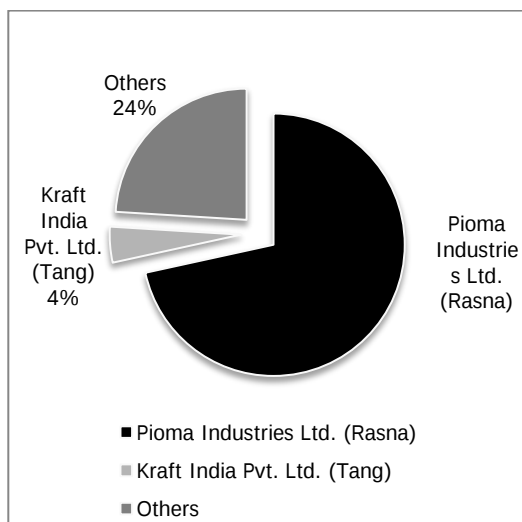
Operators of liquid concentrates have revamped and expanded their portfolios by launching fortified concentrates with added essential nutrients or health-based ingredients. With growing health consciousness in India, manufacturers are seeking to position liquid concentrates as a healthy, natural and refreshing drink. For example, Kraft Jacobs Suchard India Pvt Ltd has introduced Tang variants enriched with iron and vitamins A, B and C, while Pioma Industries Ltd introduced Rasna Fruit Plus with added calcium, vitamin C and Glucose. Attractive packaging in PET bottles is used to support sales of liquid concentrates. Off-trade channels accounted for almost all concentrates sales in 2011. Independent small grocers remained the primary sales channel as it accounted for 79% of off-trade volume sales in 2011. The on-trade presence of concentrates is limited. In some cases, liquid concentrates products are used to prepare cocktails while others are used as flavouring agents for food and beverage preparations. The direct consumption of liquid concentrates in the RTD format is negligible in comparison with carbonates, bottled water and fruit/vegetable juice.

The middle- and lower-income groups were the primary consumers of concentrates in India in 2011. Products within the powder concentrates category are popular among children, whereas liquid concentrates are consumed during large gatherings as this format is considered to offer greater economy. Pioma Industries led off-trade volume and value sales of concentrates in 2011 as its flagship brand Rasna maintained its dominance of the category. With an 80% share of concentrates off-trade value sales in 2011, the company dominated both liquid concentrates and powder concentrates. The company had the fastest growth in urban areas, stemming partly from its newly-launched Rasna Fruit Plus range. Constant innovation coupled with marketing techniques targeting the rural population has helped the company retain its leadership status.

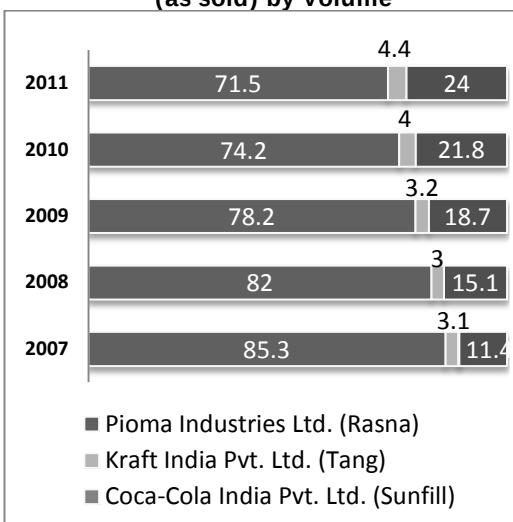
Hamdard (Wakf) Laboratories witnessed the biggest rise in off-trade value share in 2011, rising by half a percentage point to 5% in concentrates as a whole. The company's flagship brand RoohAfza registered a 10% off-trade value share in liquid concentrates in 2011, up from 8% in 2010. Being a relatively mature and low-volume growth category, concentrates is dominated by domestic manufacturers. Apart from Pioma Industries Ltd, Hamdard (Wakf) Laboratories, Mala's Fruit Products, Guruji Products Pvt Ltd and Manama Farms & Foods were all ranked within the top 10 in concentrates as a whole and have a significant presence in liquid concentrates in 2011.

Tang (Kraft Jacobs Suchard India Pvt Ltd) is the only international brand in within powder concentrates, while Kissan Fruit Kick (Hindustan Unilever Ltd) was the only brand by an international manufacturer in liquid concentrates. It should be noted, however, that in 2011 Coca-Cola India Pvt Ltd has re-entered the powder concentrates category with its brand Fanta Fun Times. This follows the unsuccessful performance of its brand Sunfill, which was withdrawn in 2004. Fanta Fun Times was launched at a low price point in order to compete with the leading brand, Rasna. Pioma Industries Ltd, however, launched Rasna Fruit Plus Singles, a product that the company claims dissolves within five seconds and claims to offer greater nutritional value.

Market Share by Volume (2011)



Company Shares of Powder Concentrates (as sold) by Volume



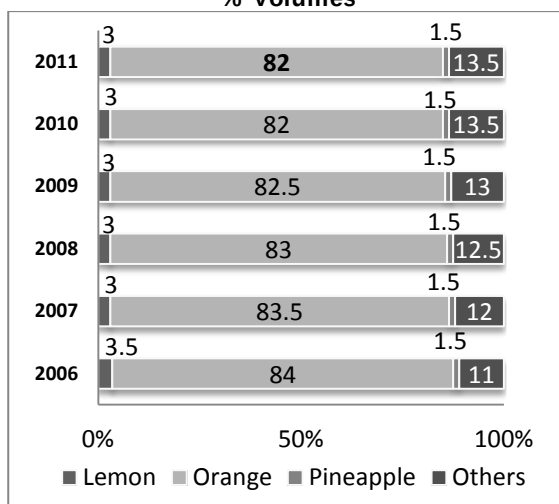
The concentrates category is likely to see an upsurge in sales if manufacturers introduce more fortified products. Furthermore, in order to differentiate their offerings, manufacturers are expected to develop products that are considered exciting and different to appeal to the young urban population. The powder concentrates category already offers fortified products under the Rasna brand and liquid concentrates is expected to follow this trend. Sugar-free products have already been launched in powder

concentrates, which are also set to be replicated in liquid concentrates. Iced tea-flavoured powder concentrates are nascent but increasingly popular in the Indian market. Nestlé India Ltd is already present with such products and more players are set to enter with similar products. With the overall shopping experience changing in India, shoppers are eager to try new products, seeking taste and health attributes. Growth is thus set to be focused on more healthy, natural and low-calorie drinks, in particular organic and fruit-based varieties. Powder concentrates is expected to register a total volume CAGR of 8% over the forecast period, while liquid concentrates is expected to see a 3% CAGR. Innovation in powder concentrates, such as those products that do not require the addition of sugar, will lead to a simplification of the preparation process and make the products easier to transport. The upsurge in sales is expected to be driven by increases in rural areas as manufacturers such as Pioma Industries Ltd and Coca-Cola India are specifically targeting the rural population.

A shift is being seen in India towards healthier products. However, there is a perception among consumers that powdered drinks are relatively unhealthy, thus a potential threat to the growth of the concentrates category is fresh fruit/vegetable juice, which is expected to continue to see fast growth over the forecast period. Consumers are becoming increasingly health conscious and they are looking for natural products; this represents a challenge to operators in the concentrates category as such products are not considered to be natural. The satisfaction that the consumers derive from consuming fruit/vegetable juice product is generally not matched through the consumption of concentrates, which in turn could negatively impact concentrates sales.

Leading Flavours for Liquid Concentrates:

% Volumes

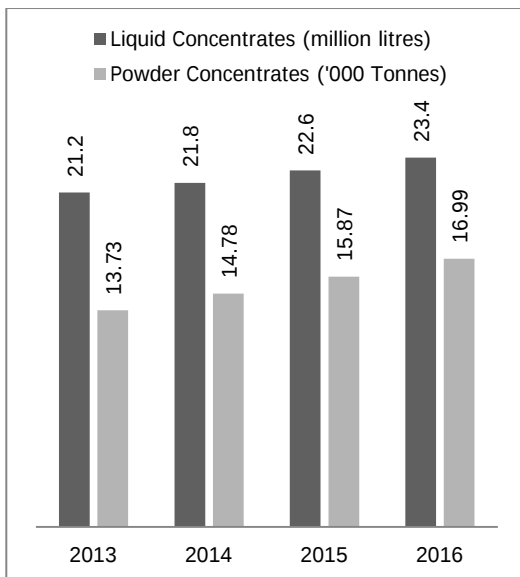


The new entrants, such as Fanta Fun Times and the re-launched Tang, are expected to perform well as they are already established on a global scale and their distribution networks are strong. They are also offered at low price points, a factor likely to favour a positive performance. Other players are expected to follow the lead of Pioma Industries Ltd, which is considered to be an innovator in the category. Pioma Industries Ltd announced a price hike of more than 5% for its Rasna brand in 2012, which

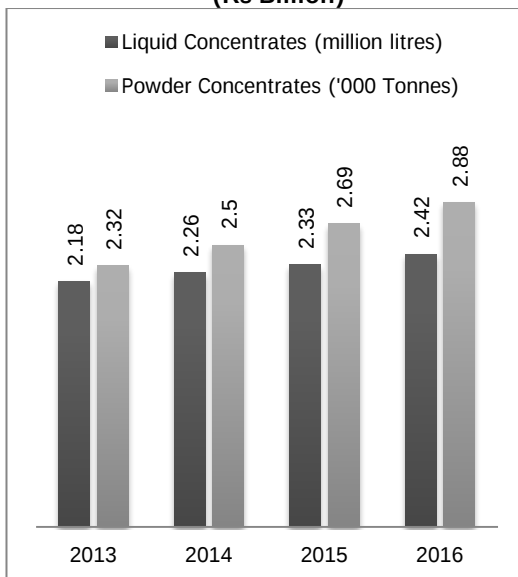
is likely to lead other players to increase their prices. Overall prices are set increase at a CAGR of 2% in constant value terms.

The concentrates category is set to continue losing share within soft drinks as a whole as consumers are shifting to read-to-drink formats due to their higher level of convenience.

Forecasted Category Sales by Volume



Forecasted Category Sales by Value (Rs Billion)



RESEARCH DESIGN

The problem of feasibility study of launch of Tropicana powdered mix can be tackled by answering the following research questions:

1. What is the market size of the product category in which Tropicana is being launched?
2. What is the market share of the competitors and their strategies in this category?
3. What is the target segment for this product?
4. What are the points of differentiation and points of parity for this product?
5. What are the barriers to entry in the market?

SAMPLING PLAN

The questionnaire was both printed and also created online. For the printed ones, response was taken directly from consumers through approaching them whereas for the online one, the link for the same was sent out to people via email. This was essentially a convenient sampling plan. The overall responses obtained were 79 out of which a few had not filled every part of the questionnaire. The targeted consumer segments were school and college students, employed individuals and homemakers. The age group targeted varied from 15 – 50.

HYPOTHESIS TESTING

Testing of Product Penetration

It can be said that a huge majority of the population were aware of and had consumed concentrates in some form (liquid or powdered) before. Hence, they were also expected to know about the attributes of the product. In order to gauge the penetration levels of consumers regarding concentrates, it was hypothesized that at least 95% of the population had consumed concentrates in some form at some part in their life. Let ' P_1 ' be the proportion of people who have consumed concentrates in their life. The Null and Alternate hypotheses are represented as follows:

Null Hypothesis [H_0]: $P_1 \geq 0.95$

Alternate Hypothesis [H_a]: $P_1 < 0.95$

1. Have you ever consumed concentrates? (Example: Rasna, Tang, Glucon D)				
	Answer	Bar	Response	%
1	Yes	0.9444444	68	94%
2	No	0.0555556	4	6%
			72	100%

po	0.95			Lower Tail Test
SD	0.025685	α	0.95	Reject Null ?
z	-0.38933	z-critical	-1.645	No

The hypothesis test is shown in above table. A confidence interval of 95% has been used to conduct the hypothesis test. As the result shows that null hypothesis can not be rejected and so, it can be concluded that a huge majority of people have consumed concentrates at some point of time and hence, the penetration for this product is extremely high.

Also, we can see that from Q2, the numbers of consumers who have consumed both liquid and powdered concentrates are also high. We have conducted a similar hypothesis testing for the powdered concentrate penetration in the market.

Let ' P_2 ' be the proportion of people who have consumed concentrates in their life. The null and alternate hypotheses are represented as follows:

Null Hypothesis [H_0]: $P_2 \geq 0.9$

Alternate Hypothesis [H_a]: $P_2 < 0.9$

2. Which all concentrates have you consumed?				
	Answer	Bar	Response	%
1	Liquid	0.8529412	58	85%
2	Powdered	0.8529412	58	85%
Total Respondent			68	100%

po	0.9			Lower Tail Test
SD	0.03638	α	0.95	Reject Null ?
z	-1.37437	z-critical	-1.645	No

The hypothesis test shown in above table depict that near about 85 percent of the respondents have tried powdered concentrates. Hence, it can be concluded from the results that the penetration of powdered concentrates is also very high in the market.

Testing of Importance of Attributes in Product

The objective of the research is to test the various attributes which influenced purchase decisions for powdered concentrates and to see how important each attribute was in influencing the purchase. The list of attributes that were considered is as follows:

- Taste
- Flavour
- Health Benefits
- Refreshing
- Natural
- Price
- Brand Image

After obtaining the responses of the people who have consumed powdered concentrates on the above attributes, hypothesis testing for each of these attributes was carried out as shown below.

Taste

It was hypothesized that at least 75% of the population would consider it to be a very important purchase decision factor.

Let ' P_3 ' be the proportion of people who mentioned taste as being very important for their purchase decision. The null and alternate hypotheses are represented as follows:

Null Hypothesis
Ho: $P_3 \geq 0.75$

Alternate Hypothesis
Ha: $P_3 < 0.75$

Question	Not Important	Neutral	Slightly Important	Very Important	Total Respondents	Mean
Taste	1	5	14	46	66	3.59
Po	SD	Pbar	z	z-critical	Lower Tail Test	
0.75	0.053	0.70	-0.995	-1.645	Reject Null?	No

The hypothesis test is shown in the above table. It can be concluded from the results that taste is indeed a very important factor influencing purchase decision.

Flavour

It was hypothesized that at least 60% of the population would consider it to be a very important purchase decision factor.

Let ' P_4 ' be the proportion of people who mentioned flavour as being very important for their purchase decision. The null and alternate hypotheses are represented as follows:

Null Hypothesis

Ho: $P_4 \geq 0.60$

Alternate Hypothesis

Ha: $P_4 < 0.60$

Question	Not Important	Neutral	Slightly Important	Very Important	Total Respondents	Mean
Flavour	0	7	19	39	65	3.49
Po	SD	Pbar	z	z-critical	Lower Tail Test	
0.6	0.061	0.60	0.000	-1.645	Reject Null?	No

The hypothesis test is shown in the above table. It can be concluded that flavour is indeed a very important factor influencing purchase decision.

Health Benefits

It was hypothesized that at least 50% of the population consider it to be a very important purchase decision factor.

Let ' P_5 ' be the proportion of people who mentioned health benefits as being very important for their purchase decision. The null and alternate hypotheses are represented as follows:

Null Hypothesis

Ho: $P_5 \geq 0.5$

Alternate Hypothesis

Ha: $P_5 < 0.5$

Question	Not Important	Neutral	Slightly Important	Very Important	Total Respondents	Mean
Health Benefits	4	14	25	24	67	3.03
Po	SD	Pbar	z	z-critical	Lower Tail Test	
0.5	0.061	0.36	-2.321	-1.645	Reject Null?	Yes

The hypothesis test is shown in the above table. Since we are able to reject the null hypothesis, it can be concluded from the results that health benefits are not very important in influencing purchase decision.

However, the same hypothesis was modified to 40% of the population instead of 50% where it was seen that the null hypothesis cannot be rejected. Hence, there is a small but significant proportion of the population who consider health benefits as a very important factor in the purchase.

Refreshing

It was hypothesized that at least 60% of the population consider it to be a very important purchase decision factor.

Let ' P_6 ' be the proportion of people who mentioned 'refreshing' as being very important for their purchase decision. The null and alternate hypotheses are represented as follows:

Null

Hypothesis

Ho: $P_6 \geq 0.60$

Alternate Hypothesis

Ha: $P_6 < 0.60$

Question	Not Important	Neutral	Slightly Important	Very Important	Total Respondents	Mean
Refreshing	1	6	28	31	66	3.35
Po	SD	Pbar	z	z-critical	Lower Tail Test	
0.6	0.060	0.47	-2.161	-1.645	Reject Null?	Yes

The hypothesis test is shown in the above table. It can be concluded from the results that 'refreshing' is not a very important factor influencing purchase decision for the majority of the population.

However, the same hypothesis was modified to 50% of the population instead of 60% where it was seen that the null hypothesis cannot be rejected. Hence, there is a significant proportion of the population who consider 'refreshing' as a very important factor in the purchase.

Natural

It was hypothesized that at least 50% of the population consider it to be a very important purchase decision factor.

Let ' P_4 ' be the proportion of people who mentioned 'natural' as being very important for their purchase decision. The null and alternate hypotheses are represented as follows:

Null Hypothesis

Ho: $P_7 \geq 0.50$

Alternate Hypothesis

Ha: $P_7 < 0.50$

Question	Not Important	Neutral	Slightly Important	Very Important	Total Respondents	Mean
Natural	1	12	22	31	66	3.26
Po	SD	Pbar	z	z-critical	Lower Tail Test	
0.5	0.062	0.47	-0.492	-1.645	Reject Null?	No

The hypothesis test is shown in the above table. It can be concluded that a 'natural' offering is indeed a very important factor influencing purchase decision.

Price

It was hypothesized that at least 50% of the population consider it to be a very important purchase decision factor.

Let ' P_7 ' be the proportion of people who mentioned price as being very important for their purchase decision. The null and alternate hypotheses are represented as follows:

Null Hypothesis

$H_0: P_7 \geq 0.50$

Alternate Hypothesis

$H_a: P_7 < 0.50$

Question	Not Important	Neutral	Slightly Important	Very Important	Total Respondents	Mean
Price	5	18	33	10	66	2.73
Po	SD	Pbar	z	z-critical	Lower Tail Test	
0.5	0.062	0.15	-5.662	-1.645	Reject Null?	Yes

The hypothesis test is shown in the above table. It is concluded from the results that price is not a very important factor influencing purchase decision.

Brand Image

It was hypothesized that at least 50% of the population consider it to be a very important purchase decision factor.

Let ' P_8 ' be the proportion of people who mentioned Brand Image as being very important for their purchase decision. The null and alternate hypotheses are represented as follows:

Null Hypothesis

$H_0: P_8 \geq 0.50$

Alternate Hypothesis

$H_a: P_8 < 0.50$

Question	Not Important	Neutral	Slightly Important	Very Important	Total Respondents	Mean
Brand	3	18	30	15	66	2.86
Po	SD	Pbar	z	z-critical	Lower Tail Test	
0.5	0.062	0.23	-4.431	-1.645	Reject Null?	Yes

The hypothesis test is shown in the above table. It is concluded from the results that Brand Image is not a very important factor influencing purchase decision.

Consumer Choice of Flavour

It was important to find out the product mix that Tropicana needed to introduce to the market. For this, consumers were asked to rank different flavours on their likeability. The different flavours used were:

- Lemon
- Mango
- Ice Tea
- Other
- Orange
- Pineapple
- Grape

Based on the answers received, hypothesis testing was conducted. It was considered that a flavor was liked by a consumer if it was in the top 3 ranks and that the consumer would go on to purchase that flavor. Using this, hypothesis testing was conducted as follows, where P represents the proportion of consumers who like the flavor based on him/her ranking the flavor in the top 3:

Null Hypothesis
Ho: $P \geq 0.80$

Alternate Hypothesis
Ha: $P < 0.80$

	Answer	1	2	3	4	5	6	7
1	Lemon	20	16	14	6	6	5	1
2	Orange	19	23	13	7	5	0	1
3	Mango	17	15	21	7	3	5	0
4	Pineapple	5	4	10	26	11	11	1
5	Ice Tea	3	6	7	14	27	10	1
6	Grape	1	3	3	7	16	37	1
7	Other	3	1	0	1	0	0	63
	Total	68	68	68	68	68	68	68

Flavour	Po	SD	Pbar	Z	z-critical	Lower Tail Test	
Lemon	0.8	0.049	0.74	-1.334	-1.645	Reject Null?	No
Orange	0.8	0.049	0.81	-0.182	-1.645	Reject Null?	No
Mango	0.8	0.049	0.78	-0.424	-1.645	Reject Null?	No
Pineapple	0.8	0.049	0.28	-10.732	-1.645	Reject Null?	Yes
Ice Tea	0.8	0.049	0.24	-11.642	-1.645	Reject Null?	Yes
Grape	0.8	0.049	0.10	-14.370	-1.645	Reject Null?	Yes
Other	0.8	0.049	0.06	-15.280	-1.645	Reject Null?	Yes

Based on the test results (above tables), it can be seen that three flavours stand out as clear favourites from the others. These three flavours are:

- Orange
- Mango
- Lemon

For all these flavours, our test results suggest that at least 80% of the population prefer these flavours and would be willing to buy these flavours. So, Tropicana should be looking to introduce the above three flavours in the market. Since the above flavours are almost equally liked by consumers, from our survey, there is no specific single best flavor among consumers. So, Tropicana should come out with all the three flavours during its launch.

Product Concept Believability

It was essential to test whether the product concept claimed by Tropicana, was believable or not. Q13 elicited information about the product concept believability from the consumers.

In order to gauge the product concept believability levels of consumers regarding the new product, researcher hypothesized that at least 65% of the population would believe that such a product could be manufactured. For this, whoever had marked Option 3 or 4 for Q13, researcher considered that they believed in the possibility of the product concept.

Let ' P_9 ' be the proportion of people who believed that such a product could be manufactured. The null and alternate hypotheses are represented as follows:

Null Hypothesis	Alternate Hypothesis
$H_0: P_9 \geq 0.65$	$H_a: P_9 < 0.65$

Sr.	Answer	Bar	Response	%
1	This product is impossible	0.0704225	5	7%
2	It may be possible, but unrealistic	0.2816901	20	28%
3	It should be possible for a good company to manufacture it	0.4929577	35	49%
4	This product is definitely possible	0.1126761	8	11%
5	Such a product exists	0.0422535	3	4%
Total			71	100%

po	SD	Pbar	z	α	z-critical	Lower Tail Test	
0.65	0.0566059	0.605634	-0.783774	0.95	-1.645	Reject Null?	No

The hypothesis test is shown in above table. A confidence interval of 95% has been used to conduct the hypothesis test. As the results show, we are not able to reject our null hypothesis and so, we can conclude that a majority of the consumers believe that such a product, as claimed by Tropicana, could be manufactured.

Consumer Buying Intention and Brand Loyalty

Researcher believed that once Tropicana could introduce such a product in the market, consumers would be really willing to buy it. To find out whether this was true or not, information about consumer buying intention and also about customer brand loyalty was elicited.

In order to gauge the consumer buying intention of consumers regarding the new product, it was hypothesized that at least 65% of the population believe that such a product could be manufactured. For this, whoever had marked Option 1 or 2 for the concerned question, it was considered that they would be willing to try out the new product.

Let ' P_{10} ' be the proportion of people who were ready to buy the new product. The null and alternate hypotheses are represented as follows:

Null Hypothesis

Ho: $P_{10} \geq 0.70$

Alternate Hypothesis

Ha: $P_{10} < 0.70$

Sr. No.	Answer	Bar	Response	%
1	Definitely buy	0.1830986	13	18%
2	Most probably buy	0.4366197	31	44%
3	Might or might not buy	0.2816901	20	28%
4	Most probably not buy it	0.056338	4	6%
5	Definitely not buy it	0.0422535	3	4%
Total			71	100%

po	SD	Pbar	z	z-critical	α	Lower Tail Test	
0.7	0.0543852	0.619718	-1.476169	-1.645	0.95	Reject Null?	No

The hypothesis test is shown in the above table. A confidence interval of 95% has been used to conduct the hypothesis test. As the results show, null hypothesis cannot be rejected.

It was also hypothesized that at least 70% of the consumers were brand disloyal and would be willing to try out a product of another brand. In the concerned question, it was considered that those who had marked Option 3 and 4 are having less brand loyalty.

Let ' P_{11} ' be the proportion of people who are relatively brand disloyal. The null and alternate hypotheses are represented as follows:

Null Hypothesis

Ho: $P_{10} \geq 0.70$

Alternate Hypothesis

Ha: $P_{10} < 0.70$

Sr.	Answer	Bar	Response	%
1	I will look at other stores until I find the brand	0.238806	16	24
2	I will wait till this brand comes to my store	0.0597015	4	6%
3	I will look at a few store and buy the available one	0.4328358	29	43%
4	I will buy another brand from the same store	0.2686567	18	27%
Total			67	100%

po	SD	Pbar	z	z-critical	α	Lower Tail Test	
0.75	0.0529009	0.701493	-0.916949	-1.645	0.95	Reject Null?	No

The hypothesis test is shown in the above table. A confidence interval of 95% has been used to conduct the hypothesis test. As the results show, null hypothesis cannot be rejected. Therefore, it can be said that most of the consumers are not brand loyal.

On both the cases, it can be seen that null hypothesis cannot be rejected. Hence, it can be concluded that a majority of the consumers would be willing to buy the new product when it gets introduced in the market.

Multiple Regression Analysis

Overall satisfaction has been taken as a dependent variable and the different attributes identified for the product have been taken as the independent variables. The following independent variables have been used in the initial model:

- | | | | |
|------------|----------------------------|------------------|------------------------|
| i. Taste | ii. Flavour | iii. Healthy | iv. Refreshing |
| v. Natural | vi. Price(Value for Money) | vii. Brand Image | viii. Brand Preference |

The respondents were asked to rate the independent variables on a scale of 1-10 (with 10 being the highest). Also, they were asked to rate the dependent variable of overall satisfaction on a scale of 1-10 (The independent variable Brand Preference was rated on a scale of 1-5).

The data was collected for three separate brands of powdered concentrates:

- Rasna
- Tang
- Glucon D

After collecting the responses, a regression analysis was run with the initial model having all the independent variables. The analysis checked for all the assumptions necessary for regression, such as Linearity, Independence, Normality, Homoscedasticity, Multi collinearity.

Rasna

A test of significance was carried out for all the independent variables (Exhibit 10). It was observed that of the eight variables chosen, a few were not significant enough in the initial mode. The least significant one was removed from the model and another regression analysis was run. After the run, another test for significance was carried out. This process was continued till there were no insignificant variables. This process reduced the number of dependent variables from eight to three. These three variables gave an R^2 value of .801, signifying that 80.1% of the variability in the Overall Satisfaction can be explained using the narrowed down three variables. This shows that the Overall Satisfaction derived from a powdered concentrate for a consumer can be well explained using the independent variables – taste, brand image and brand preference.

Predictor	Coef	SE Coef	T	P	VIF
Constant	1.8761	0.4037	4.65	0.000	
Taste	0.33204	0.07351	4.52	0.000	2.740
Brand Image	0.27614	0.06582	4.20	0.000	1.798

Brand Preference	0.2511	0.1200	20.9	0.042	2.057
S = 0.642766 R-Sq = 80.1% R-Sq(adj.) = 78.9%, Also, we see that VIF < 4 for all the independent variables. Hence there is no multicollinearity.					

Analysis of Variance

Source		DF	SS	MS	F	P
Regression		3	83.343	27.781	67.24	0.000
Residual Error		50	20.657	0.413		
	Lack of Fit	35	13.074	0.374	0.74	0.776
	Pure Error	15	7.583	0.506		
Total		53	104.00			
Durbin-Watson Statistic = 2.32286, Hence There is no auto Correlation						

Overall Satisfaction = 1.88 + 0.332 Taste + 0.276 Brand Image + 0.251 Brand Preference

Sobel Test

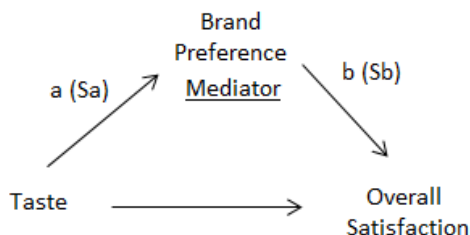


Figure 1: Sobel Test Model for Brand Preference as a Mediator Variable

a = raw (unstandardized) regression coefficient for the association between Taste and mediator.

Sa = standard error of a .

b = raw coefficient for the association between the mediator and the Overall Satisfaction (when the Taste is also a predictor of the Overall Satisfaction).

Sb = standard error of b .

Null Hypothesis	Alternate Hypothesis
Ho: No mediation	Ha: Mediation

Test Results

Rasana				
		Test statistic:	Std. Error:	p-value:
a	.38133	4.279578	0.064334	0.00001872
b	.722			Too low
Sa	.052			To sense
Sb	.137			Mediation

Conclusion: null hypothesis cannot be rejected.

To ascertain the validity of the regression analysis, a number of tests were carried out to test for collinearity like the Durbin-Watson Test and VIF (Variance Inflation Factor) analysis and also Sobel Test to find out mediating effects. These tests prove that our

assumptions of non-collinearity and homoscedasticity are justified and thus the regression analysis using the chosen dependent and independent variables are valid.

Tang

A test of significance was carried out for all the independent variables. It was observed that of the eight variables chosen, a few were not significant enough in the initial mode. The least significant one was removed from the model and another regression analysis was run. After the run, another test for significance was carried out. This process was continued till there were no insignificant variables. This process reduced the number of dependent variables from eight to four. These three variables gave an R^2 value of .928, signifying that 92.8% of the variability in the Overall Satisfaction can be explained using the narrowed down four variables. This shows that the Overall Satisfaction derived from a powdered concentrate for a consumer can be extremely well explained using the independent variables – taste, refreshing, brand image and brand preference.

Predictor	Coef	SE Coef	T	P	VIF
Constant	0.1468	0.3092	0.48	0.637	
Taste	0.24690	0.06460	3.82	0.000	3.161
Refreshing	0.19588	0.04969	3.94	0.000	1.825
Brand Image	0.15164	0.05244	2.89	0.006	1.861
Brand Preference	0.80254	0.09492	8.45	0.000	2.114
S = 0.560741 R-Sq = 92.8% R-Sq(adj.) = 92.2%, Also, we see that $VIF < 4$ for all the independent variables. Hence there is no multicollinearity.					

Analysis of Variance

Source		DF	SS	MS	F	P
Regression		4	183.231	45.808	145.68	0.000
Residual Error		45	14.149	0.314		
	Lack of Fit	42	13.649	0.325	1.95	0.324
	Pure Error	3	0.500	0.167		
Total		49	197.380			
Durbin-Watson Statistic = 2.34643, Hence There is no auto Correlation						

Overall Satisfaction = $0.147 + 0.247\text{Taste} + 0.196\text{ Refreshing} + 0.152\text{Brand Image} + 0.803$

Sobel Test

a = raw (unstandardized) regression coefficient for the association between Taste and mediator.

Sa = standard error of a .

b = raw coefficient for the association between the mediator and the Overall Satisfaction (when the Taste is also a predictor of the Overall Satisfaction).

Sb = standard error of b .

Null Hypothesis

Alternate Hypothesis

Ho: No mediation Ha: Mediation

Test Results

Tang				
		Test statistic:	Std. Error:	p-value:
a	.287	3.662754	0.057827	0.00024952
b	.738			Too low
Sa	.054			To accept
Sb	.146			Mediation effect

To ascertain the validity of the regression analysis, a number of tests were carried out to test for collinearity like the Durbin-Watson Test and VIF analysis and also Sobel Test to find out mediating effects. These tests prove that our assumptions of non-collinearity and homoscedasticity are justified and thus the regression analysis using the chosen dependent and independent variables are valid.

Glucon D

A test of significance was carried out for all the independent variables (Exhibit 12). It was observed that of the eight variables chosen, a few were not significant enough in the initial mode. The least significant one was removed from the model and another regression analysis was run. After the run, another test for significance was carried out. This process was continued till there were no insignificant variables. This process reduced the number of dependent variables from eight to three. These three variables gave an R^2 value of .728, signifying that 72.8% of the variability in the Overall Satisfaction can be explained using the narrowed down three variables. This shows that the Overall Satisfaction derived from a powdered concentrate for a consumer can be well explained using the independent variables – taste, brand image, flavour and brand preference. The lesser dependence on Taste is understandable since Glucon D has only recently ventured into different flavours. Earlier, all powdered glucose products has similar taste.

Predictor	Coef	SE Coef	T	P	VIF
Constant	2.0420	0.5581	3.66	0.001	
Taste	0.09973	0.04499	2.22	0.032	1.130
Flavour	0.18249	0.4635	3.94	0.000	1.291
Brand Image	0.17417	0.05430	3.21	0.005	1.088
Brand Preference	0.6142	0.1050	5.85	0.000	1.170
All the independent variables are significant in this model S = 0.605943 R-Sq = 72.8% R-Sq(adj.) = 70.5% Also, we see that $VIF < 4$ for all the independent variables. Hence there is no multicollinearity.					

Analysis of Variance

Source		DF	SS	MS	F	P
Regression		4	46.185	11.546	31.45	0.000
Residual Error		47	17.257	0.367		
	Lack of Fit	43	16.757	0.390	3.12	0.137
	Pure Error	4	0.500	0.125		
Total		51	63.442			

Durbin-Watson Statistic = 2.12798, Hence There is no auto Correlation

Overall Satisfaction = 2.04 + 0.0997 Taste + 0.182 Flavour + 0.174 Brand Image + 0.614

Sobel Test

a = raw (unstandardized) regression coefficient for the association between Taste and mediator.

Sa = standard error of a .

b = raw coefficient for the association between the mediator and the Overall Satisfaction (when the Taste is also a predictor of the Overall Satisfaction).

Sb = standard error of b .

	Null Hypothesis	Alternate Hypothesis
Ho:	No mediation	Ha: Mediation

Test Results

Glucon D				
		Test statistic:	Std. Error:	p -value:
a	.058	0.941113	0.049242	0.346647
b	.799			Too high, reflect
Sa	.061			high chances
Sb	.121			Of mediation

To ascertain the validity of the regression analysis, a number of tests were carried out to test for collinearity like the Durbin-Watson Test and VIF analysis and also Sobel Test to find out mediating effects (Exhibit 12). These tests prove that our assumptions of non-collinearity and homoscedasticity are justified and thus the regression analysis using the chosen dependent and independent variables are valid. However, Sobel Test showed the presence of mediating effect between Taste and Brand Preference. For Glucon D, we can understand that Taste is not that important factor as people do not view it exactly similar to Rasna or Tang. So, we should look to remove Taste from the model itself and perform the further analysis.

Recommendations

Our first research problem was:

1. Is it feasible to launch Tropicana powder mix in the market?

To answer this question, we conducted exploratory research wherein we looked at secondary data from published sources and reports, qualitative methods like projective techniques, depth interview and interviews with industry experts. We were able to see that the market size and opportunity were pretty feasible for a player like Pepsico to enter. Also, we saw that the growth potential of the powdered concentrate market was promising (Off-trade sales grew by 12% in 2011-12). All these conditions pointed towards the feasibility of the Tropicana powdered mix launch.

In addition to these, we also looked at it from a quantitative point of view, by analyzing the information gained through questionnaire administration. The questionnaire tested the consumers on several parameters which helped us gauge the potential of Tropicana to gain acceptance in the market. We looked at Brand Loyalty, Product Concept Believability, Consumer Buying Intention to anticipate the feasibility of the product.

The results from the analysis were pretty encouraging. These were the key insights:

- i. Consumers were willing to switch products if they found something similar or even better
- ii. Tropicana's product concept was found to be pretty realistic by a large majority of the consumers and they believed that such a product could be manufactured by a big company
- iii. Also, once the product would be introduced in the market, a large majority of the consumers would be willing to purchase the product, indicating maximum chances of a high trial rate in the initial days of launch.

Hence, our recommendation for Tropicana is to go ahead and launch their new product in the market.

The second research problem that we set about to answer is as follows:

2. What should be the product-mix (in terms of flavours) decision for Tropicana?

To find out the suitable product-mix for Tropicana, we designed questions in the questionnaire so that the consumer choice about flavours could be captured. In addition to the product-mix in terms of flavours, we also wanted to answer the different attributes that were necessary for Tropicana to be successful in the market. This question arose from a linkage between the two research problems,

of feasibility and product-mix. Even with the right product-mix, Tropicana might not get accepted in the market if it did not provide consumers with the attributes that they expect in a powdered concentrate. Hence, in addition to deciding on the suitable product-mix, we also found out which attributes were considered essential for consumer satisfaction and thus leading to sales for a powdered concentrate. This was done on three current brands – Ransa, Tang and Glucon D. Based on the extensive analysis conducted on the data recovered from the questionnaire, these were our key insights:

- i. Orange, Mango and Lemon were found to be, by far, the most preferred flavours among consumers. Also, all three were almost similar in their preference across consumers. Hence, we decided that Tropicana should introduce all the three flavours in the market during their launch.
- ii. Taste was a very important attribute in the overall consumer satisfaction for all the three brands. This was more so for Rasna and Tang but a little weaker for Glucon D. This is understandable as the positioning of Glucon D is different from the other two. Pepsico needs to ensure that they get the taste element perfectly right from its launch itself.
- iii. Brand Preference was another important factor, more so for Tang and Glucon D. Tropicana is a leading fruit beverage company in India. Hence, it needs to leverage its existing goodwill to ensure that consumers prefer their brand. This would be built up only if the consumers find their product *tasty* enough.
- iv. Brand Image also played a significant role in the overall satisfaction. This is one area where Tropicana should not have a problem at all, especially in the urban areas, as Pepsico and Tropicana are well known names in the market and have a very good Brand Image among consumers.

Hence, our recommendation is that Tropicana should introduce three flavors – Orange, Mango and Lemon, at its launch. In addition to this, it needs to ensure that consumers find their product tasty, and also leverage its brand to ensure more trial and repurchase.

Limitations and Scope for Future Work

Limitations

One of the limitations of the survey was the sampling population used in this survey. Majority of the respondents were college students when we also required a good number of homemakers and school students as well. Due to this, the conclusions drawn and recommendations given would be more applicable to the college student demographic group.

In addition to the demographics, the number of respondents was close to 80, out of which some gave inconsistent responses. The survey would have been a better representative of the population at large if we had a larger number of respondents.

Future Work

The research problem of feasibility of Tropicana's launch was answered using exploratory and conclusive research. Further, we also looked at determining the appropriate product-mix for Tropicana. However, to be really successful in the market, there are a few things Tropicana needs to focus on also:

- **Pricing of the product:** The effect of price of the powdered concentrates on overall consumer satisfaction was briefly looked at during the regression modeling but was not found significant enough. A detailed pricing exercise needs to be done to ensure high trial and repurchase for the product.
- **Product Size (SKUs):** During the exploratory research, we found that the size of the product package had a significant impact on the purchase. Much of the growth in rural areas and among school children was driven due to the introduction of sachets. Hence, this is another crucial element in Tropicana's launch strategy.
- **Seasonal Variation:** The exploratory research also made us aware of the seasonal nature of the product. Hence, the strategies for driving trial and repurchase might need changes to cater to summers and winters.

Due to limited time and resources, we were unable to delve deeply into any of the above issues. These would make for interesting research and would be essential for Tropicana to form a sound marketing strategy during the launch of its new powdered mix.

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