A Study on Market Prospects of Aachi Diarice in Chennai

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ABSTRACT
Market Prospects delivers timely commodity market and outlook information prior to spring planting. Interviews with leading experts inform farmers about changing production and market conditions that will influence production levels and prices of the major Saskatchewan crops in the coming year.

Key words: Market prospects, Diarice(product), Buyers behaviour.

MARKET PROSPECTS
RURAL INDIA with its traditional perceptions has grown up over the years, not only in terms of income, but also in terms of thinking. The rural markets are growing at about two time faster pace than urban markets, not surprisingly, rural India accounts for 60 percent of the total national demand.

According to a survey conducted by Mckinsey in 2007, rural India with a population of 630 million (approximately) would become bigger than total consumer market in countries such as South Korea or Canada in another 20 years and it will grow at least four times its existing size.

The retail sector has a huge potential for growth as a study shows that opportunities in rural retail sector were estimated to be over $34 billion in the year 2007, which is expected to touch $43 billion by the year 2011. It can be seen from the market that companies like Reliance, Subhisksha are expanding in the rural market. ITC has launched its first rural mall ‘Chaupal Sagar’, which offers products ranging from FMCG to electronic appliance to automobiles. Indian Oil is planning to invest $189.10 in the rural areas during the financial year 2010.

Defining product and brand failures
A product is a failure when its presence in the market leads to:

- The withdrawal of the product from the market for any reason;
- The inability of a product to realize the required market share to sustain its presence in the market;
- The inability of a product to achieve the anticipated life cycle as defined by the organization due to any reason; or,
- The ultimate failure of a product to achieve profitability.

Product failures and the product life cycle
Most products experience some form of the product life cycle where they create that familiar- or a variant-form of the product life cycle based on time and sales volume or revenue. Most products experience the recognized life cycle stages including:

1. Introduction
2. Growth
3. Maturity (or saturation)
4. Decline

In some cases, product categories seem to be continuously in demand, while other products never find their niche. These products lack the recognized product life cycle curve.

Failure, Fad, Fashion or Style?
It is important to distinguish a product failure from a product fad, style or a fashion cycle. The most radical product life cycle is that of a fad. Fads have a naturally short life cycle and in face, are often predicted to experience rapid gain and rapid loss over a short period of time – a few years, months, or even weeks with online fads. One music critic expected “The Bay City Rollers” to rival the Beatles.
Do you know who they are? And the pet rock lasted longer than it should have, making millions for its founders.

A “fashion” is what describes the accepted emulation of trends in several areas, such as clothing and home furnishing. The product life cycle of a “style” also appears in clothing as well as art, architecture, cars and other esthetic-based products. The “end” of these product life cycles does not denote failures, but marks the conclusion of an expected cycle that will be replaced and repeated by variations of other products that meet the same needs and perform the same functions.

STATEMENT OF THE PROBLEM
Diarice is the rice with herbal properties developed specially for diabetic patients. It can also be consume safely by non-diabetics. Though the percentage of diabetics in Chennai city has increased exponentially there are no takers for diarice.
Therefore this study tries to find out the reason for the sluggish sales of diarice. Based on the reasons the study also plans to develop suitable marketing strategies.

NEED FOR THE STUDY
This product (Aachi diarice) was launched two years back by Aachi Masala Food (p) ltd. Now the sales are presently almost standstill for reason unknown to the management. Therefore this study had been taken up to understand the reason as to why the consumer of Chennai has not accepted this product, to add the dilemma 35% of Chennai citizen is diabetic. But the mystery remains that a product developed for diabetic patients has not found any takers.

SCOPE OF THE STUDY
Developing a market strategy for Aachi diarice based on feedback received from diabetic patients in Chennai is the aim of the study. Herein lays its scope.

OBJECTIVES OF THE STUDY
Primary Objective:
• To develop a marketing strategy for Aachi diarice.

Secondary Objective:
• To learn the reason behind the sluggishness of Aachi diarice.
• Elicit opinion about market for diarice from diabetic patients.
• To develop a marketing strategy for Aachi diarice.

HYPOTHESIS CONSIDERED FOR THE STUDY
Hypothesis considered for the study are as follows:
• Most of the diabetic patients may not be aware of the existence of diarice which could help them in normalizing their sugar level.
• There may be a willingness among diabetic patients to use Aachi diarice when they become aware of its benefits.
• Customers may be willing to buy Aachi diarice in small handy packages.
• The market for Aachi diarice could be increase by distributing through medical shops only.
• The current MRP of diarice which is Rs. 55 per kg may be the reason behind the sluggish sales.

RESEARCH METHODOLOGY
• Research can be defined as “A scientific systematic research for pertinent information on a specific topic”.
• Research comprises defining and redefining problems, formulating hypothesis on suggested solutions, collection, organizing and evaluating data, making deduction and reaching conclusions and at last carefully listening the conclusion to determine whether they fit the formatting hypothesis.
A research technique refers to the behaviour and instruments we use in performing research operations.

**Research designs**
A research design is the arrangement of conditions for collection and analysis of data in manner that aims to combine relevance to the research to the research purpose with economy in procedure. Descriptive research is applied in this project.

**SOURCES OF DATA**

**Primary data**
The primary data related to the topic of “A Study on Market prospects of Aachi Diarice in Chennai for Aachi Masala Food Pvt Ltd” were collected directly from the associates through a questionnaire. The questionnaire has been chosen as the total for collection data. A well-structured non-disguised was made use to collect the relevant data for the study. The questionnaire was framed such a way as to elicit the required information. The primary data was collected from 100 (sample size 100) diabetic patients from common public in Chennai.

**Secondary data**
The secondary data was collected through industry profile, books, and internet. Through secondary data basic information, measures undertaken by various organizations and opinions of a few industries can be obtained.

**Data collection**
- There are several ways of collecting the appropriate data, which differ considerably in context of money costs, time and other resources. With regard to this study questionnaire method of data collection is followed.
- The researcher and respondents come in contact with each other when questionnaire method of survey is adopted.
- Questionnaire are given to the respondents with a request after completing the same.
- Before applying this method, a pilot study can be completed which reveals the weakness, if any of the questionnaire.

**Sample design**
- All items under consideration in any field of inquiry constitute a population.
- Sample design is a definite plan determined before any data are actually collected for obtaining a sample from a given population.
- Deciding the way of selecting a sample is popularly known as sample design.
- With regard to this study simple random sampling was used. It is one of the types in probability sampling. When population elements are selected randomly on uniform size then if they are selected randomly and if every element get a chance equally, it can be called as random or unrestricted sampling.

**Statistical tools:** The statistical tools used in this research are follows:
1. ANOVA
2. Chi-square
3. Correlation
4. Regression
5. Friedman Test
6. Wilcoxon Signed-Rank Test
7. T-test
Wilcoxon rank sum Test

**Null Hypothesis: H₀:** There is no significant difference between income and amount spent on medicines.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Cases</th>
<th>Mean of rank</th>
<th>Sum of rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income &lt; amount spent on medicines</td>
<td>36</td>
<td>44.17</td>
<td>1590.00</td>
</tr>
<tr>
<td>Income &gt; amount spent on medicines</td>
<td>56</td>
<td>48.00</td>
<td>268.00</td>
</tr>
<tr>
<td>Income = amount spent on medicines</td>
<td>8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[
Z = \left| \frac{T - E(T)}{V(T)} \right|
\]

Where \( T \) = smallest sum of ranks

\[
E(T) = N \cdot (N+1) / 4 = (92 \cdot 93) / 4 = 2139
\]

\[
V(T) = \sqrt{N \cdot (N+1) \cdot (2N+1) / 24} = \sqrt{92 \cdot 93 \cdot 185 / 24} = 256.812
\]

\[
Z = \left| \frac{268 - 2139}{256.812} \right| = 7.29
\]

The table value of \( Z = 1.96 \)

Calculated value 7.29 is > Tabulated value 1.96

**INFEERENCE**

Since the calculated value of \( Z \) is greater than table value of \( Z \), reject the null hypothesis at 5% level of significance. Hence there is a significant different difference between income and amount spent on medicine.

Wilcoxon rank sum Test

**Null Hypothesis: H₀:** There is no significant difference between income and quantity preferred.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Cases</th>
<th>Mean of rank</th>
<th>Sum of rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income&lt;quantity prefer</td>
<td>22</td>
<td>39.23</td>
<td>863</td>
</tr>
<tr>
<td>Income&gt;quantity prefer</td>
<td>42</td>
<td>28.98</td>
<td>1217</td>
</tr>
<tr>
<td>Income=quantity prefer</td>
<td>36</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[
Z = \left| \frac{T - E(T)}{V(T)} \right|
\]

Where \( T \) = smallest sum of ranks

\[
E(T) = N \cdot (N+1) / 4 = (64 \cdot 65) / 4 = 1040
\]

\[
V(T) = \sqrt{N \cdot (N+1) \cdot (2N+1) / 24} = \sqrt{64 \cdot 65 \cdot 164 / 24} = 149.532
\]

\[
Z = \left| \frac{863 - 1040}{149.532} \right| = 1.18
\]

The table value of \( Z = 1.96 \)

Calculated value 1.18 is > Tabulated value 1.96

**INFEERENCE**

Since the calculated value of \( Z \) is lower than table value of \( Z \), accept the null hypothesis at 5% level of significance. Hence there is no significant difference between income and quantity preferred.
Friedman Two-Way ANOVA

Null hypothesis $H_0$: There is no significant difference between Amounts spend on diabetic medicines, Average price of the rice, Usage of Diarice at Rs.55, willing to buy diarice.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean rank</th>
<th>Sum of rank (R)</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount spend on diabetic medicines</td>
<td>2.61</td>
<td>261</td>
<td>68121</td>
</tr>
<tr>
<td>Average price of the rice</td>
<td>3.90</td>
<td>390</td>
<td>152100</td>
</tr>
<tr>
<td>Usage of diarice at Rs.55</td>
<td>2.10</td>
<td>210</td>
<td>44100</td>
</tr>
<tr>
<td>Willing to buy diarice</td>
<td>1.39</td>
<td>139</td>
<td>19321</td>
</tr>
</tbody>
</table>

\[ \sum R^2 = 283642 \]

No of cases = 10

Degrees of freedom = $N - 1 = 3$

\[
\chi^2 = \frac{12 \sum R^2}{N(K)(K+1)} - 3 N (K + 1)
\]

\[
\chi^2 = \frac{12 (283642)}{100 (4)(5)} - 3 (100) (5)
\]

\[
\chi^2 = 201.852
\]

Calculated value of $\chi^2 = 201.852$

Table value of $\chi^2 = \chi^2 4 - 1,5\%$

\[ = \chi^2 3.5\% \]

\[ = 7.815 \]

INFERENCEn Since the calculated value of Chi-square is greater than the table value of chi-square, reject the Null Hypothesis at 5% level of significance. Hence there is significance difference.

Paired t Test

Null Hypothesis: $H_0$: There is no significance difference between convenient outlet for purchase and placing order in restaurants.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>S.D</th>
<th>Paired differences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>S.D</td>
<td>Mean</td>
</tr>
<tr>
<td>Convenient outlet</td>
<td>1.96</td>
<td>0.751</td>
<td>0.6400</td>
</tr>
<tr>
<td>Placing orders in restaurants</td>
<td>1.32</td>
<td>0.4688</td>
<td></td>
</tr>
</tbody>
</table>

\[
t = \frac{|d|}{s/\sqrt{n}}
\]

Where $d = x - y$

\[|d| = \Sigma d / n = 64 / 100 = 0.64\]

\[S = \sqrt{\Sigma (d - d)^2 / n - 1}\]

\[= \sqrt{\Sigma (d - d)^2 / 99} = 0.8229\]

\[\sqrt{\Sigma (d - d)^2} = 0.8229 \times \sqrt{99} = 8.188\]

Therefore $t = \frac{|0.64|}{0.8229/\sqrt{100}}$

\[= 7.77\]

Therefore calculated value of $t = 7.77$

Table value of $t = t_{n-1}, 5\%$

Table value of $t = t_{100-1}, 5\%$

Table value of $t = t_{99}, 5\% = 1.96$
INFECTION

Since the calculated value of t is greater than table value of t, reject the null hypothesis at 5% level of significance. Hence there is significance difference between convenient outlet for purchase and placing orders in restaurants.

Paired t Test

Null hypothesis: $H_0$: There is no significance difference between willingness to use diarice and willingness to use diarice @ Rs.55

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>S.D</th>
<th>Paired differences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>S.D</td>
<td></td>
</tr>
<tr>
<td>Willingness to use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Willingness to use diarice @ Rs.55</td>
<td>1.7</td>
<td>0.4606</td>
<td>0.5800</td>
</tr>
</tbody>
</table>

\[
t = \frac{|d|}{S/\sqrt{n}}
\]

Where \(d = x - y\)

\[
|d| = \sum d / n = 64 / 100 = 0.64
\]

\[
S = \sqrt{\sum (d - d)^2 / n - 1}
\]

\[
\sqrt{\sum (d - d)^2 / 99} = 0.4960
\]

\[
\sqrt{\sum (d - d)^2} = 0.4960 \times \sqrt{99} = 4.935
\]

Therefore \(t = \frac{0.58}{4.935/\sqrt{100}} = 11.693\)

Therefore calculated value of t = 11.693

Table value of t = $t_{n-1}, 5\%$

Table value of t = $t_{100-1}, 5\%$

Table value of t = $t_{99}, 5\% = 1.96$

INFECTION

Since the calculated value of t is greater than table value of t, reject the null hypothesis at 5% level of significance. Hence there is significance difference between willingness to use diarice and willingness to use diarice @ Rs.55.

Chi-Square for independence of attributes

Null Hypothesis: $H_0$: There is no significance relationship between income and willingness to buy.

<table>
<thead>
<tr>
<th>Income</th>
<th>Below 5000</th>
<th>5000 - 10000</th>
<th>10000 - 15000</th>
<th>15000 - 20000</th>
<th>Above 20000</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Willingness to buy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>12</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>-</td>
<td>28</td>
</tr>
<tr>
<td>No</td>
<td>44</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>4</td>
<td>72</td>
</tr>
<tr>
<td>Total</td>
<td>55</td>
<td>14</td>
<td>14</td>
<td>12</td>
<td>4</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>O</th>
<th>E</th>
<th>O-E</th>
<th>(0-E)^2</th>
<th>(0-E)^2/E</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>16</td>
<td>-4</td>
<td>16</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>12</td>
<td>4</td>
<td>16</td>
<td>1.3</td>
</tr>
<tr>
<td>44</td>
<td>40</td>
<td>4</td>
<td>16</td>
<td>0.4</td>
</tr>
<tr>
<td>8</td>
<td>10</td>
<td>2</td>
<td>4</td>
<td>0.4</td>
</tr>
<tr>
<td>8</td>
<td>10</td>
<td>2</td>
<td>4</td>
<td>0.4</td>
</tr>
<tr>
<td>12</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

\[\Sigma = 3.5\]
Calculated value of $\chi^2 = 3.5$
Table value of $\chi^2 = \chi^2(r-1) (c-1)$, 5%
Table value of $\chi^2 = \chi^2 (1) (4)$, 5%
Table value of $\chi^2 = 9.48773$
Calculated value of chi-square is lesser than table value of Chi-square. Hence Null hypothesis (H₀) is accepted.

Chi – Square for independence of attributes

**Null Hypothesis: H₀:** There is no significance relationship between profession and convenient outlet.

<table>
<thead>
<tr>
<th>Profession</th>
<th>Govt employee</th>
<th>Pvt employee</th>
<th>Business man</th>
<th>House wives</th>
<th>Others</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenient outlet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Super market</td>
<td>6</td>
<td>8</td>
<td>6</td>
<td>8</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>Provision store</td>
<td>2</td>
<td>2</td>
<td>8</td>
<td>20</td>
<td>12</td>
<td>44</td>
</tr>
<tr>
<td>Medical store</td>
<td>4</td>
<td>6</td>
<td>2</td>
<td>6</td>
<td>8</td>
<td>26</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>16</td>
<td>16</td>
<td>34</td>
<td>22</td>
<td>100</td>
</tr>
</tbody>
</table>

$$\Sigma = 19.94$$

Calculated value of $\chi^2 = 19.94$
Table value of $\chi^2 = \chi^2(r-1) (c-1)$, 5%
Table value of $\chi^2 = \chi^2 (2) (4)$, 5%
Table value of $\chi^2 = 15.5073$
Calculated value of chi-square is lesser than table value of Chi-square. Hence Null hypothesis (H₀) is accepted.

One way ANOVA

**Null Hypothesis: H₀:** There is no significance difference between quantity of rice consumed per day and quantity preferred.

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>Sum of Squares</th>
<th>Degree of freedom</th>
<th>Mean Square</th>
<th>Variance ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>4.409</td>
<td>4</td>
<td>1.102</td>
<td>F = 1.182</td>
</tr>
<tr>
<td>Within groups</td>
<td>88.591</td>
<td>95</td>
<td>0.933</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>93.000</td>
<td>99</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The test statistic is $F = \frac{\text{variance between groups}}{\text{variance between groups}} = \frac{1.102}{0.933} = 1.182$
Therefore calculated F = 1.182
Tabulated F at 5% level for (3, 96) degrees of freedom =2.68
INFERENCES

Since the calculated value of F is less than table value of F, accept the null hypothesis at 5% level of significance. Hence there is no significance difference between quantity of rice consumed per day and quantity preferred.

FINDINGS

- When Wilcoxon Rank sum test was applied to the data collected, the calculated value of Z fell in the rejection region. The two variables used for the analysis are income and amount spends on medicine. As the Z value was greater than the critical value (table value) the null hypothesis had to be rejected. Therefore, it is confirmed that the amount spent on medicine has no relationship with the income level of the individual.

- From the study it is found that the income has no relationship with the quantity of diarice preferred for purchase. When Wilcoxon Rank sum test was applied to the data collected, the calculated value of Z fell in the acceptance region. The two variables used for the analysis are income and quantity of rice preferred for purchase. As the Z value was lower than the critical value (table value) the null hypothesis had to be accepted. Thereby, it was confirmed that the quantity of diarice preferred to be purchased has no relationship with the income level of the individual.

- On application of Chi – Square test for independence of attributes, a parametric test on the variables income and willingness to buy diarice, the calculated value fell in the acceptance region. This proves that there is no significant relationship between the two attributes. This finding is confirmed from percentage analysis (88% of respondents are willing to buy diarice irrespective of their income).

- On application of Chi – Square test for independence of attributes, on the variables profession and convenience of purchasing of diarice, the calculated value fell in the acceptance region. This proves that there is no significant relationship between the two attributes. Thereby, all categories of people are willing to buy from any outlet which is convenient to them.

- On application of Friedman Two-way ANOVA, as the calculated value of Chi-square (201.852) falls much beyond the critical value (7.815) into the rejection region, the null hypothesis was rejected. This proves that the responses to the four factors i.e. amount spent on medicine, average price of rice, willingness to buy diarice and usage of diarice at Rs.55 received from respondents have been significantly different.

- On application of paired t test on the mean of two variables convenient outlet for purchasing diarice and preference for meals cooked with diarice in restaurants, the calculated t value is 7.77 which fell beyond the critical region (critical value was found to be 1.96 for 5% level of significant and n-1 degree of freedom) therefore we reject the null hypothesis. This shows that there is a significant difference in the responses to the two variables, convenient outlet for purchasing diarice and preference for meals cooked with diarice in restaurants.

- On application of paired t test on the mean of two variables preference to use diarice and willingness to buy diarice at Rs.55, the calculated t value is 11.693 which fell beyond the critical region (critical value was found to be 1.96 for 5% level of significant and n-1 degree of freedom) therefore we reject the null hypothesis and thus there is significant difference between preference to use diarice and willingness to buy diarice at Rs.55. Thereby, 88% preferred to use diarice whereas 70% of respondents are not willing to buy diarice at Rs.55.

SUGGESTIONS

It is seen from the study that irrespective of income levels, profession or category there is a general willingness to buy diarice (88% of the respondents have given their willingness to buy Diarice). Also it is observed that irrespective of income level the amount spent by diabetics on medicines vary between Rs.500 and Rs.4000 per month. Further 14% of the respondents are observed to be spending more than Rs.4000 per month on medicines.
From the observation the above two paragraphs it is suggested that diarice has a big untapped market because the market has got both willingness to use the product and affordability. Affordability, because by using diarice alone the sugar level can be brought down to the normal level. Therefore the quantity of medicines used can be reduced to almost one fourth leading to similar reduction in amount spent on diabetic medicines. A feeling of wellness will also be felt by the diabetics because the normalisation in their sugar levels has been brought about using a natural product and not by excessive use of antibiotics.

It is suggested that diarice can be marketed in small quantities such as \( \frac{1}{2} \) kg, 1 kg and 2 kg packets priced at about Rs.40 and sold through supermarkets, provision stores and medical shops. As it is observed from the study that people prefer to order meals cooked from diarice in restaurants, it is suggested that the company also promote diarice through restaurants. Last but not least it is observed from the study that nearly 90% of the respondents have not heard about herbal rice, which could treat diabetics, it is suggested that the management take measures to promote diarice through advertisements in print media, radio and television. Print media would be apt and cheap because articles about diarice with its benefits could be informed to readers through local magazine and cook books.

**CONCLUSION**

The study was able to achieve all its objectives. It was able to suggest a marketing strategy for purchasing diarice.

**SCOPE OF FUTURE RESEARCH**

Future researcher may have to also include doctors, super markets and also close relatives of diabetic patients in their study in order to have overall view. This is necessary because the research is done a few months after the suggestions from this report are implemented.

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