

# Sales Data Analysis Towards A.R. Dairy Food Private Limited, Dindigul Dist

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## ABSTRACT

This study analyzes sales data trends at A.R. Dairy Food Pvt. Ltd. (Raaj Milk) to improve decision-making. Using Chi-square, correlation, and one-sample tests, it identifies key customer preferences and sales patterns. Findings show a strong link between product quality and customer recommendations, along with sales forecasting challenges due to data inconsistencies. Recommendations include AI-driven analytics, automated data collection, and personalized marketing. The study highlights the importance of data-driven strategies in optimizing sales performance and customer satisfaction. Future research can explore AI and blockchain for better sales insights.

## INTRODUCTION

A.R. Dairy Food Pvt. Ltd. (Raaj Milk), is a leading dairy brand with a production capacity of 2 lakh liters per day. This study aims to help the company by analysing its sales data thoroughly and offering insights to boost business growth and improve decision-making.

### Objectives of the Study:

- To analyse the company's business model, production processes, and supply chain management.
- To evaluate the company's market position, growth strategies, and competitive advantages within the dairy industry.
- To assess the company's commitment to quality, innovation in milk processing technology, and adherence to food safety standards.
- To measure consumer satisfaction and the effectiveness of the company's customer service initiatives.

## REVIEW OF LITERATURE

Several studies have been conducted on sales data analysis, predictive analytics, and business intelligence to enhance decision-making and performance:

1. "*Predictive Analytics in Sales Forecasting*" – Highlighted the use of AI and machine learning to improve sales predictions and demand estimation.
2. "*Impact of Big Data on Sales Performance*" – Examined how businesses utilize big data to optimize pricing strategies, customer segmentation, and inventory management.
3. "*Correlation between CRM and Sales Growth*" – Found that effective CRM systems significantly enhance customer retention and revenue generation.
4. "*Application of Regression Analysis in Sales Trends*" – Demonstrated how statistical techniques like regression

models help businesses identify key factors influencing sales performance.

- "Role of Data Visualization in Sales Decision-Making" – Showed that tools like Tableau and Power BI improve the interpretation of sales trends, aiding strategic planning.

### RESEARCH METHODOLOGY

- Research Design:** Descriptive research is used to systematically analyse and interpret consumer sentiment, company's performance, market position
- Sample Size & Technique:** The study includes 125 respondents, selected through stratified random sampling.
- Data Collection:** Primary data was collected through structured questionnaires covering demographics, usage patterns, and satisfaction levels.
- Statistical Tools Used:**
  - Simple Percentage
  - Chi square test
  - Correlation
  - One-sample test

### DATA ANALYSIS

#### SIMPLE PERCENTAGE

#### AGE GROUP OF RESPONDENTS

AGE	NO OF RESPONDENT	PERCENTAGE (%)
18-24 years	57	45.6%
25-35 years	34	27.2%
35-50 years	32	25.6%
Above 50	2	1.6%
<b>Total</b>	<b>125</b>	<b>100</b>

The above table indicates the age group of respondents. Out of 125 45.6% are aged between 18-24 years, 27.2% of respondents belong to the age group 25-35 years, 25.6% are belong to the age group of 35-50 years and 1.6% respondents belongs to the age group above 50 years.

#### LIKELIHOOD OF RECOMMENDING RAAJ MILK PRODUCT TO OTHERS

RATING	NO OF RESPONDENTS	PERCENTAGE (%)
5	48	38.4%
4	37	29.6%

3	24	19.2%
2	10	8%
1	6	4.8%
<b>Total</b>	<b>125</b>	<b>100</b>

The above table indicates the likelihood of respondents recommending Raaj Milk products to others. Out of 125 respondents, 38.4% rated it as 5, 29.6% rated it as 4, 19.2% rated it as 3, 8% rated it as 2, and 4.8% rated it as 1.

**CHI-SQUARE:** Conducted to identify significant relationships between categorical variables, such as the association between purchase location and freshness satisfaction level.

**Purchase Location\*Freshness Satisfaction Level**

		Average	Excellent	Good	Poor	Total
Purchase Location	Local shop	3	27	39	0	69
	Online	2	0	5	0	7
	Other: _____	1	3	1	1	6
	Supermarket	2	13	27	1	43
<b>Total</b>		<b>8</b>	<b>43</b>	<b>72</b>	<b>2</b>	<b>125</b>

**Chi-Square Test**

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	22.586 <sup>a</sup>	9	.007	.017
Likelihood Ratio	18.438	9	.030	.023
Fisher-Freeman-Halton Exact Test	18.838			.011
N of Valid Cases	125			

a. 12 cells (75.0%) have expected count less than 5. The minimum expected count is .10.

If X<sup>2</sup> value is greater than 0.05%, it is said to be alternative hypothesis. Whereas X<sup>2</sup> value is lesser than 0.05%, it is said to be null hypothesis.

The calculated X<sup>2</sup> =95.008 is greater than the table value at five percentage, so alternative hypothesis is accepted. Therefore, it is concluded that there is a significant relationship between frequency of purchase and raaj milk products.

**CORRELATION:** Used to measure the strength and direction of the relationship between two variables.

**Descriptive Statistics**

	Mean	Std. Deviation	N
LIKELIHOOD OF RECOMMENDING PRODUCTS TO OTHERS	3.80	1.100	125
QUALITY OF RAAJ MILK PRODUCTS	3.91	.925	125

**Pearson Correlation**

	LIKELIHOOD OF RECOMMENDING PRODUCTS TO OTHERS	QUALITY OF RAAJ MILK PRODUCTS
LIKELIHOOD OF RECOMMENDING PRODUCTS TO OTHERS	Pearson Correlation 1	.736**
	Sig. (2-tailed)	.000
	N	125
QUALITY OF RAAJ MILK PRODUCTS	Pearson Correlation .736**	1
	Sig. (2-tailed)	.000
	N	125

\*\* . Correlation is significant at the 0.01 level (2-tailed).

If both the value increases, it is said to be positive correlation .Whereas one value increases and another one decreases, it is said to be negative correlation.

A Pearson correlation was run to determine the relationship between the quality rating of raaj milk products and the likelihood of recommending them to others. Whereas the quality rating of raaj milk products increases and the likelihood of recommending them to others also increases. So, there is a significant positive correlation between the quality rating of raaj milk products and the likelihood of recommending them to others.

**ONE-SAMPLE PERCENTAGE:** Used to compare the mean of a single sample to a known population mean to determine if there is a significant difference.

**One-Sample Statistics**

	N	Mean	Std. Deviation	Std. Error Mean
PRECEPTION OF VALUE FOR MONEY	124	2.13	.775	.070

MOST LIKED ASPECT OF RAAJ MILK PRODUCT	125	1.77	.774	.069
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**One-Sample Test**

	t	df	Sig. (2-tailed)	Mean Difference	Confidence Interval of the Difference	
					Lower	Upper
PERCEPTION OF VALUE FOR MONEY	30.579	123	.000	2.129	1.99	2.27
MOST LIKED ASPECT OF RAAJ MILK PRODUCT	25.541	124	.000	1.768	1.63	1.91

**One-Sample Effect Size**

	Standardizer <sup>a</sup>	Point Estimate	Confidence Interval		
			Lower	Upper	
PERCEPTION OF VALUE FOR MONEY	Cohen's d	.775	2.746	2.359	3.130
	Hedges' correction	.780	2.729	2.345	3.111
MOST LIKED ASPECT OF RAAJ MILK PRODUCT	Cohen's d	.774	2.284	1.949	2.617
	Hedges' correction	.779	2.271	1.937	2.601

a. The denominator used in estimating the effect sizes. Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor. A one-sample t-test was conducted to determine whether the means of perception of value for money and most liked aspect of raaj milk products significantly differ from zero. Both variables indicate that the results are statistically significant. The 95% confidence intervals show that the true mean differences are unlikely to be zero. Additionally, effect sizes (Cohen's d and Hedges' correction) were calculated to measure the practical significance. Both perception of value for money (Cohen's d = 2.746) and most liked aspect of raaj milk products (Cohen's d = 2.284) show large effect sizes, meaning the differences are not only statistically significant but also meaningful in practical applications. So, there is a significant difference between the sample means and zero for both variables, with large effect sizes indicating strong practical relevance.

**FINDINGS**

- The majority of the respondents (45.6%) are aged between 18-24 years.
- The majority of respondents (38.4%) are very likely to recommend Raaj Milk products.
- There is a significant relationship between frequency of purchase and raaj milk products.
- In Pearson Correlation, there is a significant positive correlation between the quality rating of raaj milk products and the likelihood of recommending them to others.
- There is a significant difference between the sample means and zero for both variables, with large effect sizes indicating strong practical relevance.

### CONCLUSION

Sales data analysis is essential for understanding customer behavior, identifying trends, and optimizing business strategies. This study examines Raaj Milk's sales using the Simple Percentage Method, Chi-Square Test, and Correlation Analysis to evaluate key factors influencing sales performance. The findings emphasize the importance of customer segmentation, predictive analytics, and CRM systems in improving sales forecasting and operational efficiency. While challenges like data inconsistencies and fragmented sources exist, solutions such as automated analytics, IoT-based insights, and visual analytics tools can enhance accuracy. By leveraging AI and blockchain, businesses like Raaj Milk can optimize pricing, strengthen market positioning, and improve customer satisfaction. Future research can explore these technologies to drive innovation and smarter decision-making in the competitive dairy industry.

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### WEBSITE

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