

Coconut Water Production in Sri Lanka: A Market Research Report

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Contents

Executive Summary	2
1 Introduction	2
2 Market Overview	2
2.1 Coconut Industry in Sri Lanka	2
2.2 Coconut Water Production	2
2.3 Key Players in the Market	2
3 Research Methodology	3
3.1 Research Aims (RAs)	3
4 Data Collection and Sampling	3
4.1 Fieldwork Methods	3
4.2 Sampling Methods	4
4.3 Questionnaire Design	4
5 Street Survey (Personal face-to-face)	4
5.1 Sampling Technique	5
5.2 Questionnaire (verbally communicate)	5
5.3 Statistical Analysis	6
5.3.1 Descriptive Statistics	6
5.3.2 Chi-Square Test of Independence	6
5.3.3 Confidence Intervals	7
5.3.4 ANOVA (Analysis of Variance)	9
5.3.5 Regression Analysis	9
6 Online Questionnaire	10
6.1 Sampling Technique	10
6.2 Questionnaire	10
6.3 Statistical Analysis	11
6.3.1 Descriptive Statistics	11
6.3.2 Clustering Kokanati customers	12
6.3.3 Chi-Square Tests	13
6.3.4 Hypothesis Testing for Means and Proportions	13

7 Interpretation of Hypothesis Testing Results	15
8 Conclusion	15
9 References	15

Executive Summary

This report provides an in-depth analysis of Sri Lanka's coconut water production market, focusing on marketing King Coconut water under the brand "Kokonati." King Coconut, native to Sri Lanka, is highly valued for its hydrating properties. The research aims to maximize profit and customer loyalty by exploring market dynamics, identifying key players, and assessing growth potential, while gathering insights into production processes, market trends, and consumer preferences.

1 Introduction

We have observed a rising demand for coconut water attributed to its numerous nutritional benefits. This beverage is not only delicious but also highly nutritious making it a preferred choice for many consumers. The purpose of this research is to conduct an in-depth analysis of the coconut water production market in Sri Lanka. The study aims to understand market dynamics, identify emerging trends, and evaluate the competitive landscape. The primary goal is to equip stakeholders with data-driven insights and actionable recommendations to enhance their strategies within the coconut water industry.

2 Market Overview

2.1 Coconut Industry in Sri Lanka

Sri Lanka is the fourth largest global exporter of fresh and dried coconut products, such as desiccated coconut, coconut water, brown fibre, and virgin coconut oil. The industry is crucial to the economy, producing about 2.5 billion coconuts in 2023, contributing 12% to the agricultural GDP, and employing over 700,000 people.

2.2 Coconut Water Production

Demand for coconut water has surged due to its health benefits and refreshing properties. In 2023, Sri Lanka exported over 20 million liters of coconut water, generating around USD 50 million. The market includes bottled coconut water, flavored coconut water, and coconut water-based beverages.

2.3 Key Players in the Market

Key players in the market include Harmless Harvest, Vita Coco, and local brands such as Ceylon Coconut Company and Coco Lanka. These companies have established a strong

market presence through quality products, effective marketing strategies, and extensive distribution networks.

3 Research Methodology

The research methodology integrates exploratory, descriptive, and causal research designs. A mixed-method approach will be employed combining qualitative and quantitative research techniques. Fieldwork will include face-to-face interviews and online surveys.

Hypotheses will be formulated for each research objective, and statistical methods such as ANOVA and Chi-Square tests will be used to analyze the phenomena under examination. The K-means clustering method will be applied to identify homogeneous consumer groups. Additionally, Multiple Linear Regression will be employed to predict average annual consumption based on demographic and consumer behavior data.

3.1 Research Aims (RAs)

The research will gather detailed information on the following:

- Production processes and techniques used by coconut water producers.
- Market trends and consumer preferences.
- Challenges and opportunities within the industry.
- Understand any customer pain points to identify areas for improvement in product quality, packaging, and customer service.
- Evaluate the effectiveness of its sustainability initiatives and identify opportunities for further improvement.

4 Data Collection and Sampling

For this research, data will be collected using a combination of street surveys and online questionnaires, online statistical databases to estimate the variables for our analysis. Prior to the main survey, a pilot test will be conducted with 30 respondents from the target population for both the street survey and online questionnaire. The objective is to ensure that the questionnaires effectively address the research questions and identify any potential issues that could be costly in terms of time and money. Additionally, statistics from the pilot test such as the sample mean (\bar{X} value), sample proportion, and response rates will assist in determining the appropriate sample size for the actual survey.

4.1 Fieldwork Methods

- Face-to-Face Interviews: Street surveys on potential consumers and interview industry stakeholders including producers, distributors, and retailers.
- Online Surveys: Targeting consumers to understand their preferences, consumption patterns and any pain points.

4.2 Sampling Methods

For each fieldwork method, the corresponding sampling methodology will be detailed in the following sections.

The sampling frame will include a comprehensive list of coconut water consumers, potential customers, and producers. The itemized list below provides a brief description of each sampling method utilized.

- **Convenience Sampling:** This method involves selecting sample points based on ease of access and availability, allowing for quick and cost-effective data collection, though it may introduce bias and limit the generalizability of the results.
- **Random Sampling:** This method ensures that each sample point has an equal probability of being selected for analysis, thereby gathering unbiased data from consumers.
- **Stratified Sampling:** Ensuring representation across different segments of the market including consumers, producers and distributors.
- **Systematic Sampling:** This method involves selecting sample points at regular intervals from an ordered list, ensuring a representative and evenly distributed sample across the population.

4.3 Questionnaire Design

The questionnaire will be designed to capture relevant data for the proposed multivariate analysis. Key sections will include:

- **Demographic Information:** Age, gender, income, etc.
- **Consumption Patterns:** Frequency, volume, and occasions of coconut water consumption.
- **Preferences:** Preferred brands, flavors, and packaging.
- **Perceptions:** Health benefits, taste, and quality.

5 Street Survey (Personal face-to-face)

Street surveys will be used to gather input from non-coconut water drinkers through face-to-face interactions, ensuring higher quality responses. Trained surveyors will use iPads to communicate questions and record answers electronically, addressing misunderstandings and engagement issues. Despite being time-consuming and less cost-efficient, multiple surveyor teams will collect data efficiently across regions. To prevent fatigue, the survey will be concise, taking less than 10 minutes, with mainly closed-ended questions. Open-ended questions will be reserved for focus groups, and incentives will be provided to encourage participation.

5.1 Sampling Technique

To achieve comprehensive coverage of participants representing the population under investigation, we first employ stratified sampling techniques to identify specific regions. Within these regions, we then utilize convenience sampling methods. Specifically, survey interviewers will visit stores that are easily accessible to them and conduct interviews with customers. This approach ensures that the sample is both diverse and representative, while also being practical and efficient for the interviewers.

5.2 Questionnaire (verbally communicate)

This questionnaire is designed to gather information from potential customers, including those who do not currently consume Kokanati. If the respondent is a Kokanati customer, the questionnaire will continue with questions aimed at identifying potential areas for improvement.

Q1. Do you purchase coconut water?

Yes or No

Q2. What brand of coconut water do you consume? What other soft drinks do you consume (non coconut water consumer)?

Q3. How frequently do you purchase coconut water (soft drinks if non coconut water consumer)?

I. Once a week

II. Once a month

III. Once every 3 months

IV. Other -----

Q4. What flavor would you like most?

Q5-a. How enthusiastic are you on trying different coconut water flavors rather than your usual choice?

(Please select on the scale 1-5)

1 - Not at all, 5 - Very enthusiastic

Q5-b. How enthusiastic are you on trying coconut water rather than other soft drinks?

(Please select on the scale 1-5)

1 - Not at all, 5 - Very enthusiastic

Q6. What has been your preferred shopping method over the past year?

Online or Offline (Physical shops)

Q7. Rate your satisfaction with coconut water products over the past years.

Unsatisfied

Neutral

Satisfied

Very Satisfied

Q8. If unsatisfied, what issues have you encountered?

5.3 Statistical Analysis

Based on the responses from the survey in 5.2, both numerical and categorical statistical analyses can be conducted. The following statistical tests and methods will be utilized:

5.3.1 Descriptive Statistics

Descriptive statistics will be used to summarize the basic features of the data collected from the survey.

- Frequency distributions for categorical variables such as the purchase of coconut water (Q1), flavors (Q4), preferred shopping method (Q6), and satisfaction levels (Q7).
- Measures of central tendency (mean, median) and dispersion (standard deviation, range) for numerical scales such as enthusiasm for trying new flavors (Q5-a, Q5-b).

5.3.2 Chi-Square Test of Independence

The Chi-Square Test of Independence will be applied to determine if there is a significant association between two categorical variables.

- The relationship between purchasing Kokanati or Non-Kokanati coconut water (Q2) and satisfaction levels (Q7).

Example: Suppose we have the following observed data for the relationship between purchasing Kokanati or Non-Kokanati coconut water (Q2) and satisfaction levels (Q7):

Table 1: Observed Frequencies

	Unsatisfied	Neutral	Satisfied	Very Satisfied	Total
Kokanati	30	50	90	30	200
Non-Kokanati	20	40	70	20	150
Total	50	90	160	50	350

Table 2: Expected Frequencies

	Unsatisfied	Neutral	Satisfied	Very Satisfied	Total
Kokanati	28.57	51.43	91.43	28.57	200
Non-Kokanati	21.43	38.57	68.57	21.43	150
Total	50	90	160	50	350

The Chi-Square test statistic is calculated using the formula:

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i} \quad (1)$$

Where O_i are the observed frequencies and E_i are the expected frequencies.

$$\begin{aligned}
\chi^2 &= \frac{(30 - 28.57)^2}{28.57} + \frac{(50 - 51.43)^2}{51.43} + \frac{(90 - 91.43)^2}{91.43} + \frac{(30 - 28.57)^2}{28.57} \\
&\quad + \frac{(20 - 21.43)^2}{21.43} + \frac{(40 - 38.57)^2}{38.57} + \frac{(70 - 68.57)^2}{68.57} + \frac{(20 - 21.43)^2}{21.43} \\
&= \frac{1.43^2}{28.57} + \frac{1.43^2}{51.43} + \frac{1.43^2}{91.43} + \frac{1.43^2}{28.57} \\
&\quad + \frac{1.43^2}{21.43} + \frac{1.43^2}{38.57} + \frac{1.43^2}{68.57} + \frac{1.43^2}{21.43} \\
&= 0.07 + 0.04 + 0.02 + 0.07 + 0.10 + 0.05 + 0.03 + 0.10 \\
&= 0.48
\end{aligned}$$

The calculated Chi-Square test statistic is $\chi^2 = 0.48$. The degrees of freedom (df) for this test is calculated as:

$$df = (rows - 1) \times (columns - 1) = (2 - 1) \times (4 - 1) = 3$$

The critical value at the desired significance level $\alpha = 0.05$. The critical value for $df = 3$ at $\alpha = 0.05$ is approximately 7.815.

Since the calculated Chi-Square test statistic (0.48) is less than the critical value (7.815), we fail to reject the null hypothesis.

Conclusion: There is no significant association between the brand of coconut water consumed (Kokanati or Non-Kokanati) and the satisfaction levels. This suggests that the satisfaction levels are independent of whether the respondents consume Kokanati or Non-Kokanati coconut water.

- The relationship between Kokanati and other coconut water brands (Q2) and frequency of purchase (Q3).
- The relationship between other coconut water brands (Q2) and satisfaction levels (Q7).
- The relationship between purchasing coconut water (Q1) and the preferred shopping method (Q6).

5.3.3 Confidence Intervals

Many of the survey responses can be used to derive point estimates and confidence intervals, providing a clearer understanding of the population distributions.

- Based on the responses to the question "Do you purchase coconut water?" (Q1), an estimate for the proportion can be computed.

Let \hat{p} be the sample proportion of respondents who purchase coconut water. This proportion is calculated as:

$$\hat{p} = \frac{\text{number of "Yes" responses}}{\text{total number of responses}}$$

The confidence interval for the population proportion P can be calculated using the formula for a $(1 - \alpha) \times 100\%$ confidence interval:

$$\hat{p} \pm Z_{\alpha/2} \sqrt{\frac{\hat{p}(1 - \hat{p})}{n}} \quad (2)$$

where:

- \hat{p} is the sample proportion,
 - $Z_{\alpha/2}$ is the critical value from the standard normal distribution for the desired confidence level.
 - n is the total number of survey responses.
- **In order to determine the required number of participants in the survey,** a sample size determination is performed based on the 30 sample points from the pivot survey. To estimate P to within e units with $100(1 - \alpha)\%$ confidence, we require a minimum sample size of:

$$n \geq \frac{(z_{\alpha/2})^2 p(1 - p)}{e^2}$$

where $z_{\alpha/2}$ is the z-value which cuts off $100\alpha/2\%$ probability in the upper tail of the standard normal distribution, and p is the sample proportion obtained from the pilot study with 30 observations mentioned in 4.

For example, if we assume $p = 0.5$, $Z_{\alpha/2} = 1.96$ for a 95% confidence level, and $e = 0.05$, we can calculate the required sample size n as follows:

$$n \geq \frac{(1.96)^2(0.5)(0.5)}{(0.05)^2} = \frac{3.8416 \times 0.25}{0.0025} = \frac{0.9604}{0.0025} = 384.16$$

Thus, the minimum number of required responders in the survey is approximately $n = 385$.

- A similar analysis can be conducted to estimate the proportions for other questions from the survey:
 - Proportions of Other Brand Customers (Q2): Determine the proportion of respondents consuming different brands of coconut water.
 - Proportions of Preferred Flavors (Q4): Estimate the proportion of respondents who prefer each flavor of coconut water.
 - Proportions of Satisfaction Levels (Q7): Calculate the proportion of respondents in each satisfaction category (Unsatisfied, Neutral, Satisfied, Very Satisfied).
- The purchasing levels indicated in Q3 can be utilized to calculate the average number of purchases per year. Considering this as the sample average, a confidence interval can be computed for the population mean of purchases per year using the formula

$$\bar{X} \pm t_{\alpha/2} \left(\frac{s}{\sqrt{n}} \right)$$

where \bar{X} is the sample mean, $t_{\alpha/2}$ is the critical value from the t-distribution (degree of freedom $n - 1$), s is the sample standard deviation, and n is the sample size. This interval provides an estimate range within which the true population mean of purchases per year is likely to fall, given the sample data. Note: If the sample size is larger than 30, the standard normal distribution will be used instead of a t-distribution.

- **A sample size determination** can be done for the population mean as well.

To estimate μ to within e units (number of purchases) with $100(1 - \alpha)\%$ confidence, we require a minimum sample size of:

$$n \geq \frac{(z_{\alpha/2})^2 s^2}{e^2}$$

where $z_{\alpha/2}$ is the z-value which cuts off $100\alpha/2\%$ probability in the upper tail of the standard normal distribution, and s is the sample standard deviation calculated from the pilot study with 30 observations mentioned in 4.

5.3.4 ANOVA (Analysis of Variance)

ANOVA will be used to compare the means of numerical responses across different groups.

- Comparing the mean enthusiasm for trying new flavors (Q5-a) among different frequency groups of coconut water purchase (Q3).

Test hypothesis:

$$H_0 : \mu_{1\text{week}} = \mu_{1\text{month}} = \mu_{3\text{months}} = \mu_{\text{other}}$$

$$H_1 : \text{At least one pair of means is different}$$

where μ_{group} is the population mean enthusiasm of a given group.

5.3.5 Regression Analysis

The purchasing levels indicated in Q3 can be utilized to calculate the average number of purchases per year. This average can then be used in regression modeling against other variables in the survey.

$$\begin{aligned} \text{AvgPurchases} = & \beta_0 + \beta_1(\text{Brand}) + \beta_2(\text{EnthusiasmFlavor}) + \beta_3(\text{EnthusiasmCoconut}) \\ & + \beta_4(\text{ShoppingMethod}) + \beta_5(\text{Satisfaction}) + \epsilon \end{aligned}$$

where:

- AvgPurchases represents the average number of purchases per year.
- Brand is a categorical variable indicating the brand of coconut water consumed (e.g., Kokanati or Non-Kokanati).

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- `EnthusiasmFlavor` measures the enthusiasm for trying different coconut water flavors (Q5-a).
 - `EnthusiasmCoconut` measures the enthusiasm for trying coconut water over other soft drinks (Q5-b).
 - `ShoppingMethod` is a categorical variable indicating the preferred shopping method (Q6) (e.g., Online or Offline).
 - `Satisfaction` is an ordinal variable representing the satisfaction level with coconut water products (Q7) (e.g., Unsatisfied, Neutral, Satisfied, Very Satisfied).

6 Online Questionnaire

To gather customer ratings of Coconut water product performance, an online questionnaire is proposed to mitigate the potential bias for positive ratings associated with face-to-face interviews. This method offers participants anonymity and a comfortable environment to provide honest feedback, potentially reducing social desirability bias. To boost response rates a cover letter from a credible representative of Kokonati will be sent to participants along with an incentive upon completion of the questionnaire.

6.1 Sampling Technique

The sampling frame for this study is derived from the customers' databases from many different data vendors. This data consists of customer email addresses and other demographic data. We will employ a probabilistic method known as the Proportionate Two-stage Stratified Sampling technique. This method divides the sampling frame into different strata based on markets and customer segments (based on demographic data). Participants will then be randomly selected using Simple Random Sampling proportionate to the relative size of each stratum in the total population.

6.2 Questionnaire

Dear Participant,

Thank you for dedicating your valuable time to help us achieve our goals at Kokonati. This questionnaire will provide us with insights into your coconut water preferences, enabling us to enhance our service for you and the wider community. Your responses will be kept completely anonymous, and we highly appreciate your honest answers.

Demographic Information

Q1. What is your age group?

- I. Under 18
- II. 18-35
- III. 35-65
- IV. 65 and over

Q2. What is your gender?

- I. Male

-
- II. Female
 - III. Other
 - IV. Prefer not to say

Q3. What is your highest level of education?

- I. High school
- II. Bachelor's degree
- III. Master's degree
- IV. Doctoral degree
- V. Other (please specify) -----

Coconut Water Consumption

Q4. How often do you drink coconut water?

- I. Once or more than once a day
- II. Once a week
- III. Once a month
- IV. Not at all

Q5. Have you ever purchased an item from Kokonati? Yes, No

Q6. If your answer to Q5 was "No," why haven't you purchased items from Kokonati? (You may select one or more)

- I. Too expensive
- II. Lack of variety
- III. Dislike the taste of Kokonati
- IV. Haven't heard of Kokonati before
- V. Found a better alternative
- VI. Other (please specify) -----

Q7 How enthusiastic are you on trying coconut water rather than other soft drinks? (Please select on the scale 1-5)

1 - Not at all, 5 - Very enthusiastic

Q8. Rate your satisfaction with coconut water products over the past years. (Please select on the scale 1-5)

1 - Not at all, 5 - Very satisfy

6.3 Statistical Analysis

Based on the responses from the survey in 6.2, both numerical and categorical statistical analyses can be conducted. The following statistical tests and methods will be utilized:

6.3.1 Descriptive Statistics

Descriptive statistics will be used to summarize the basic features of the data collected from the survey.

- Frequency distributions for categorical variables such as the purchase of coconut

water (Q1), gender (Q2), education (Q3), and consumption (Q4).

- Measures of central tendency (mean, median) and dispersion (standard deviation) based on how often they drink coconut water (Q4).

6.3.2 Clustering Kokanati customers

K-means clustering is an unsupervised machine learning algorithm that can be used to identify homogeneous groups of Kokanati customers based on their responses to the questionnaire. The variables used for clustering can include demographic information (age, gender, education), coconut water consumption patterns, purchase history, and factors considered important when purchasing coconut water.

1. Data Preparation: Convert categorical variables into numerical values using encoding techniques such as one-hot encoding. Normalize the data to ensure all variables contribute equally to the distance calculations.
2. Choosing the Number of Clusters: Use methods such as the Elbow Method to determine the optimal number of clusters k .
3. Running K-means Algorithm: Apply the K-means algorithm to partition the data into k clusters. Each customer will be assigned to the cluster with the nearest centroid.
4. Analyzing Clusters: Examine the characteristics of each cluster to identify common traits among customers within the same group.

Benefits to the Company:

- **Targeted Marketing:** By understanding the characteristics of each customer segment, Kokanati can tailor marketing strategies to address the specific needs and preferences of each group, leading to more effective and personalized marketing campaigns.
- **Product Development:** Insights from the clustering analysis can guide product development efforts. For example, if a particular cluster shows a strong preference for eco-friendly packaging, Kokanati can prioritize sustainable packaging solutions for that segment.
- **Customer Retention:** Identifying the key factors that drive satisfaction and loyalty within each cluster allows Kokanati to implement targeted initiatives to improve customer retention and reduce churn.
- **Resource Allocation:** Clustering helps in efficient allocation of resources by focusing efforts on high-value customer segments, ensuring optimal use of marketing budgets and resources.

6.3.3 Chi-Square Tests

The Chi-Square Test of Independence can be applied to determine if there are significant associations between categorical variables from the survey data. The following Chi-squared tests can be conducted:

- **Association between Age Group and Coconut Water Purchase (Q1 and Q4):** This test will help determine if there is a significant relationship between the respondent's age group and their frequency of coconut water consumption.
- **Association between Gender and Coconut Water Purchase (Q2 and Q4):** This test will evaluate whether there is a significant association between the respondent's gender and their coconut water consumption frequency.
- **Association between Education Level and Coconut Water Purchase (Q3 and Q4):** This test will assess if there is a significant relationship between the highest level of education attained and the frequency of coconut water consumption.
- **Association between Purchase of Kokanati and Reasons for Not Purchasing (Q5 and Q6):** This test will determine if there is a significant relationship between whether respondents have purchased Kokanati products and their reasons for not purchasing (e.g., too expensive, lack of variety).
- **Association between Important Factors in Purchasing and Coconut Water Purchase (Q8 and Q4):** This test will help identify if the importance of various factors (e.g., price, taste, eco-friendliness) is significantly associated with the frequency of coconut water consumption.
- **Association between Gender and Important Factors in Purchasing (Q2 and Q8):** This test will assess whether there is a significant relationship between the respondent's gender and the factors they consider important when purchasing coconut water.

For each test, the Chi-Square test statistic is calculated using the formula 1. And an example of a test is provided in the section 5.2.

6.3.4 Hypothesis Testing for Means and Proportions

Based on the survey data, various hypothesis tests can be conducted to analyze means and proportions. These tests will help understand the statistical differences between groups. Below are the hypothesis tests that can be performed:

- **One-Sample Proportion Test for Purchasing Kokanati Coconut Water (Q5):** This test can determine if the proportion of respondents who purchase Kokanati coconut water is different from a specified proportion.
 - **Null Hypothesis (H_0):** The proportion of respondents who purchase Kokanati coconut water is equal to a specified proportion (p_0).
 - **Alternative Hypothesis (H_1):** The proportion of respondents who purchase Kokanati coconut water is not equal to the specified proportion ($p \neq p_0$).

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- **Two-Sample Z-Test for Mean Enthusiasm between Age Groups (Q1 and Q7):** This test can compare the mean enthusiasm for trying coconut water rather than other soft drinks between two different age groups. (We assume equal population variances for enthusiasm distributions.)
 - **Null Hypothesis (H_0):** The mean enthusiasm for trying coconut water rather than other soft drinks is the same for both age groups ($\mu_1 = \mu_2$).
 - **Alternative Hypothesis (H_1):** The mean enthusiasm for trying coconut water rather than other soft drinks is different between the two age groups ($\mu_1 \neq \mu_2$).
 - **Two-Sample Proportion Test for Purchasing Kokanati vs. Non-Kokanati (Q5):** This test can compare the proportion of respondents who purchase Kokanati products to those who do not.
 - **Null Hypothesis (H_0):** The proportion of respondents who purchase Kokanati is smaller than the proportion of those who do not ($\pi_1 < \pi_2$).
 - **Alternative Hypothesis (H_1):** The proportion of respondents who purchase Kokanati is larger than the proportion of those who do not ($\pi_1 \geq \pi_2$).
 - **Two-Sample Z-Test for Mean Satisfaction between Genders (Q2 and Q8):** This test can compare the mean satisfaction levels between male and female respondents. (We assume equal population variances for satisfaction distributions.)
 - **Null Hypothesis (H_0):** The mean satisfaction levels are the same for both genders ($\mu_1 = \mu_2$).
 - **Alternative Hypothesis (H_1):** The mean satisfaction levels are different between the two genders ($\mu_1 \neq \mu_2$).
 - **Two-Sample Proportion Test for Important Factors in Purchasing by Gender (Q2 and Q8):** This test can compare the proportion of male and female respondents who consider a specific factor (e.g., price, taste) important when purchasing coconut water.
 - **Null Hypothesis (H_0):** The proportion of male and female respondents who consider a specific factor important is the same ($p_1 = p_2$).
 - **Alternative Hypothesis (H_1):** The proportion of male and female respondents who consider a specific factor important is different ($p_1 \neq p_2$).

We assume that we have sufficient sample sizes ($n \geq 30$ for testing population mean) to utilize Z-distribution in the hypothesis testing suggestions above. Moreover, we assume samples are taken randomly and they are independent.

7 Interpretation of Hypothesis Testing Results

The results of the hypothesis tests in 5.3.2, 6.3.3, 5.3.4, and 6.3.4 provide insights into whether the observed differences or associations in the survey data are statistically significant. The general interpretation of these tests is as follows:

Rejecting the Null Hypothesis: If the p-value obtained from the hypothesis test is less than the chosen significance level (e.g., $\alpha = 0.05$), we reject the null hypothesis. This indicates that there is sufficient evidence to conclude that there is a statistically significant difference or association between the groups or variables being tested.

Failing to Reject the Null Hypothesis: If the p-value obtained from the hypothesis test is greater than the chosen significance level (e.g., $\alpha = 0.05$), we fail to reject the null hypothesis. This indicates that there is insufficient evidence to conclude that there is a statistically significant difference or association between the groups or variables being tested.

8 Conclusion

The coconut water production market in Sri Lanka holds significant potential for growth. By leveraging the insights from this research, stakeholders can enhance their strategies and capitalize on emerging opportunities. This report provides a comprehensive roadmap for understanding the market dynamics and making informed business decisions.

9 References

- Central Bank of Sri Lanka (2023). Annual Report.
- Coconut Development Authority (2023). Market Report.
- Industry Reports from Euromonitor International and MarketResearch.com.
- Academic publications and journals on the coconut industry in Sri Lanka.
- Ceylon Kokonati coconut water website.