



# Consumer Behavior and Attitudes in Purchasing Vegetables



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## Abstract

Vegetables are consumed by many on a daily basis to fulfill their nutrient requirements. Consumers spend a considerable amount of their income on vegetables. However, the patterns and decisions in purchasing and attitudes may vary from one person to another. Understanding this behavior is important in decision making along the supply chain and in development of policies. 100 randomly selected vegetables consumers from Kandy district of Central Province in Sri Lanka participated in a study carried out to determine the behavior during purchasing of vegetables. The results of this study concluded that the behavior of consumers is affected by the price, health factors, the quality of vegetables, home gardening and the situation. Consumers prefer to purchase a variety of vegetables including the organically produced.

**Keywords:** Consumer behavior; Patterns in purchasing; Vegetables

## Introduction

Consumption of vegetables is a cheap mean of fulfilling nutrient requirements. However, its significance in diet is determined by the culture. In Sri Lankan agriculture, vegetables are a sub sector that is considered to be important by both the farmers and consumers. A majority of Sri Lankans consume vegetables on a daily basis along with the country's staple food rice. According to Household Income and Expenditure Survey 2016, 8% of total household expenditure on food and drink in Sri Lanka is spent on vegetables. Hence, vegetables are one of the frequently purchased food items in the country.

Consumers behave differently during purchasing of vegetables. Factors affecting the behavior of consumers are both endogenous and exogenous. Endogenous or internal factors include the needs and motives, learning, self-concept, personalities and attitudes whereas culture, reference group, family and socio-economic situation are considered to be exogenous or external factors [1,2]. The decision in buying fruits and vegetables are based on analysis of cognitive and emotional elements with a little effect from advertising or other campaigns [3,4] and they value freshness, appearance and price more than other characteristics [3,5]. The choice of the market place and vegetables, frequency of shopping, amount spend on vegetables and factors considered during purchasing vary from one consumer to another. The store choices of consumers in purchasing vegetables in Sri Lanka ranges from modern supermarkets to traditional fair system known as

*Pola*. The new retail format of supermarkets and hypermarkets tend to develop their range of fresh fruits and vegetables to meet a growing demand [6,7]. Modern retailers also provide the other benefits such as availability of all products under one roof and convenience. However, consumers also purchase vegetables at unorganized retailers and traditional fairs owing to various other factors. Even though a majority of households consume vegetables daily, the frequency of purchasing vegetables vary depending on several factors. Some buy them for 2-3 days given that they have the luxury of a refrigerator [1]. The variability in climate associated with the topography of Sri Lanka allows the cultivation of different types of vegetables increasing the choices available to the consumers.

The modern consumer has a concern regarding the safety and quality of the food products [8]. The niche products including organic and locally grown food are becoming more popular [9]. Consumers either seek to purchase environmentally friendly food products or become health conscious about what they eat increasing the demand for organic food in the market [1]. However according to Rosairo [10], in Sri Lanka, a majority of buyers are unable to consume organic vegetables due to a range of specific reasons.

Understanding the behavior of consumers and attitudes during purchasing of vegetables can have many positive impacts. It is useful for the vegetable supply chain actors to

know and understand the shifts in patterns in demand and underlying determinants of the changes while providing better information for the formulation of agricultural policies that foster development of market demand through local food producers and traders [6]. At present, consumers recognize their influence over products and stores. Thus, understanding consumer needs and preferences would help the retailers and suppliers to anticipate the changes that may happen in the future [11]. The study was carried with the objective of assessing the behavior of consumers and their attitudes in relation to the purchasing of vegetables. The major factors influencing the purchasing of vegetables, selection of outlets, constraints faced, attitudes towards organic and environmental friendly vegetables, post purchase losses and cultivation of vegetables in the home garden were explored during the study.

### Methodology

Data were collected through a self-administered or interviewer administered questionnaire. 100 consumers were selected randomly from the district of Kandy, Central Province, Sri Lanka. The participants were above the age of 18 years and were either primarily or jointly responsible for grocery shopping in their household. The questionnaire gathered data regarding demography, vegetable purchasing frequency, locations and amount spent, types purchased, factors influencing, and problems faced, behavior during purchasing of vegetables, attitudes and experience in purchasing organic vegetables and home gardening. Descriptive statistical analysis to calculate frequencies was carried out using IBM SPSS software version 24. Data were graphically illustrated using MS EXCEL (2013).

## Results and Discussion

### Demographic status

The variations in demographic factors can influence on the behavior and attitudes of a consumer.

**Distribution of age:** Table 1 The majority of the respondents were from the age group of 31-45 years with a percentage of 43%. The age group of 45-60 years followed the majority. Only 6% were above the age of 60 years.

**Table 1:** Distribution of respondents based on age.

| Age (Years) | Percentage (%) |
|-------------|----------------|
| 18-30       | 16             |
| 31-45       | 43             |
| 46-60       | 35             |
| >60         | 6              |

**Table 2:** Distribution of respondents based on gender.

| Gender | Percentage (%) |
|--------|----------------|
| Female | 67             |
| Male   | 33             |

**Gender as a factor:** When the gender of respondents who are responsible for grocery shopping in the households was considered as a factor, 67% were females and 33% were male (Table 2).

**Level of formal education:** (Table 3) Only a minority of 5% had received a lower level of formal education. 44% had passed the Advanced Level examination and 39% were degree holders.

**Table 3:** Distribution of respondents based on formal education.

| Level of Education           | Percentage (%) |
|------------------------------|----------------|
| Below Ordinary Level         | 5              |
| Passed Ordinary Level        | 12             |
| Passed Advanced Level        | 44             |
| Undergraduate Degree         | 31             |
| Post Graduate Qualifications | 8              |

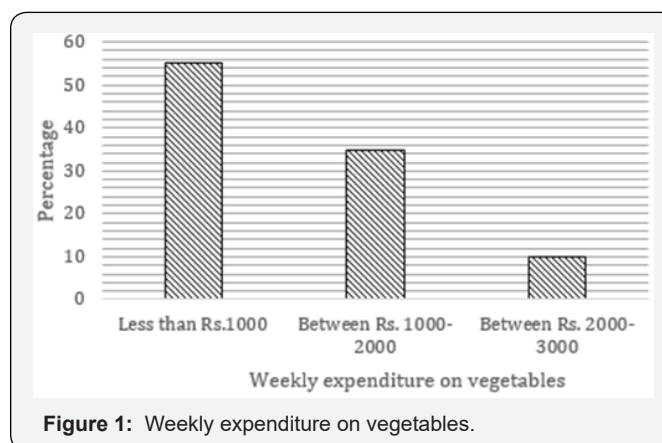
**Household size:** The majority of respondents had a family with 3-5 members. 2 or less numbers were present in 9% of families while 10% had more than 5 members (Table 4).

**Table 4:** Distribution of respondents based on household size.

| House Hold Size (Number) | Percentage (%) |
|--------------------------|----------------|
| ≤2                       | 9              |
| 3-5                      | 81             |
| >5                       | 10             |

### Expenditure on vegetables

The weekly expenditure on vegetables by each respondent varied as follows (Figure 1). 55% of respondents spent less than Rs.1000 per week for vegetables while the expenditure of 10% was at the highest range of Rs.2000-3000. Choice of vegetables, household size, income and location of purchase are a few factors that can influence this variation among the respondents.



**Figure 1:** Weekly expenditure on vegetables.

### Location of purchase

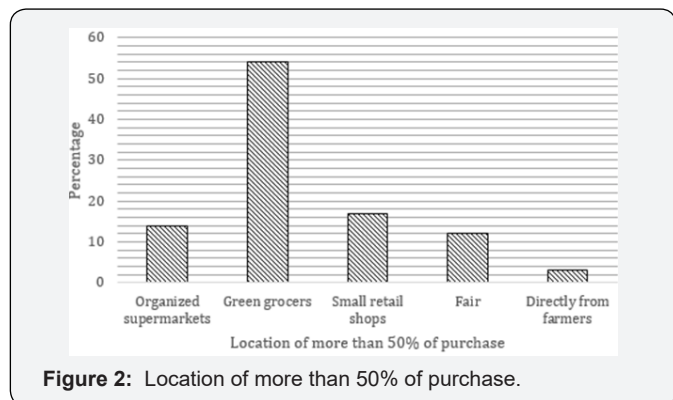
The store choice depends on socioeconomic background of consumers, their personality, and past purchase experience [12-14]. Sinha et al. [15] and Balaji [12] state that demographics and

individual values also can affect this choice (Table 5).

**Table 5:** Location of purchase.

| Location of Purchase   | Percentage |
|------------------------|------------|
| Organized Supermarkets | 31         |
| Green Grocers          | 76         |
| Small Retail Shops     | 44         |
| Fair                   | 32         |
| Directly from Farmers  | 10         |

Most of the respondents visited more than one location to purchase vegetables. Green grocers were visited by 76% which was the common location. 31% selected organized supermarkets, 44% used small retail shops and 32% purchased vegetables from fair. Green grocer was selected by a majority 54% of respondents as the location where more than 50% of vegetables were purchased. This was followed by small retail shops with a value of 17%. The least choice was the direct purchasing from farmers (Figure 2).



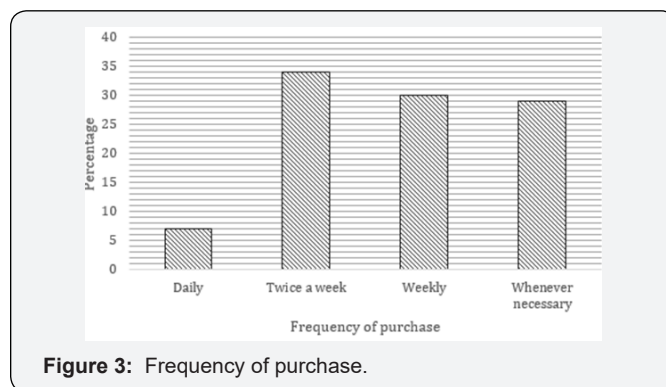
**Factors considered in determining the location of purchase**

**Table 6:** Factors considered in selection of the location.

| Factors Considered in Selection of the Location | Percentage |
|---|------------|
| Proximity to House                              | 36         |
| Easiness of Selection                           | 43         |
| Lower Prices                                    | 38         |
| Good Quality Products                           | 59         |
| All Under One Roof (Convenience)                | 29         |

The respondents selected all the factors they consider in selecting a store to purchase vegetables. Availability of good quality products was the common determinant among the respondents. Also, the easiness of selection was considered by 43% which was followed by the determinant of 38% of respondents, the lower prices at the selected store. A similar result where the store was chosen considering the quality of products was revealed in studies carried out in Kenya by Research Solutions Africa (RSA) Ltd [16] and in India by Anuradha [1] (Table 6).

**Frequency of purchase**



(Figure 3) 34% respondents purchased vegetables twice a week. Weekly purchasing was also common among them with a value of 30% followed by the percentage of respondents who purchased vegetables whenever necessary.

**Types of vegetables purchased**

The commonly purchased category of vegetables by consumers out of two categories that are commonly available in Sri Lanka varied as follows. These two categories of vegetables are based on the different climatic zones in the country where vegetables are cultivated (Table 7).

**Table 7:** Types of vegetables consumed.

|  | Percentage |
|--|------------|
| Up Country Vegetables                  | 16         |
| Low Country Vegetables                 | 4          |
| Decision Changes According to the Need | 80         |

80% of consumers mentioned that the decision of the category changes according to the need. However, up country vegetables were purchased by 16% and low country vegetables by 4% despite the situation.

**Table 8:** Types of frequently consumed vegetables

|                        | Percentage |
|------------------------|------------|
| Up Country Vegetables  |            |
| Carrot                 | 86         |
| Beet Root              | 44         |
| Knol Khol              | 18         |
| Radish                 | 21         |
| Cabbage                | 31         |
| Low country Vegetables |            |
| Brinjal                | 60         |
| Snake Gourd            | 20         |
| Luffa                  | 29         |
| Pumpkin                | 65         |
| Okra                   | 16         |

The respondents selected the two frequently consumed vegetables from each category. Carrot was consumed by 86%

which was the commonly consumed up country vegetable and pumpkin consumed by 65% was the common low country vegetable (Table 8).

**Factors influencing how vegetables are purchased**

The price of vegetables was the common factor influencing how the vegetables are purchased by consumers. This was selected by 40%. In 33%, the decision was affected by the display in the store. 27% purchased vegetables as they pre planned (Figure 4).

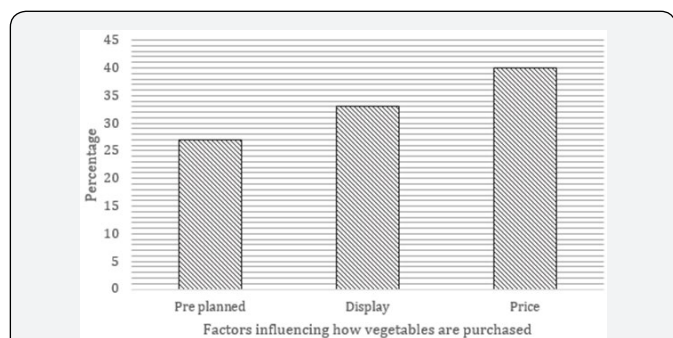


Figure 4: Factors affecting how vegetables are purchased.

**Considerations during purchasing**

The consumers selected two factors that they consider during purchasing of vegetables. These factors may determine the type, quantity or spending during purchasing of vegetables. 67% included health factors as one of the two important factors. A value for the price paid was considered by 40% (Table 9).

Table 9: Considerations during purchasing

| Consideration              | Percentage |
|----------------------------|------------|
| Health factors             | 67         |
| Taste                      | 39         |
| A Value for the Price Paid | 40         |
| Abundant in the Market     | 26         |
| Easiness in Preparation    | 28         |

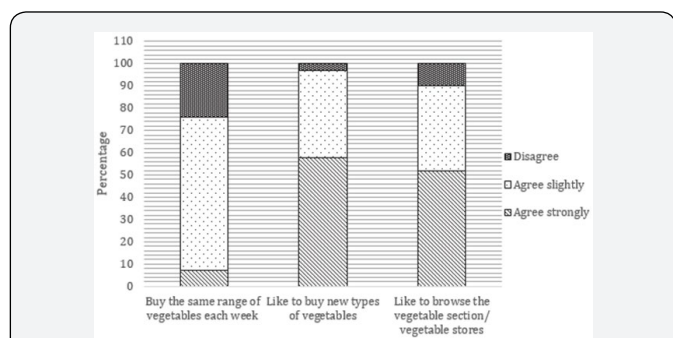


Figure 5: Behavior in purchasing vegetables.

**Behavior in purchasing vegetables**

69% slightly agreed with the fact that they purchase the same range of vegetables each week. However, 58% strongly agreed that they like to purchase new types of vegetables. This fact was disagreed by 3%. Likeness to browse the vegetable section or

vegetable stores during purchasing was strongly agreed by 52% (Figure 5).

**Problems faced during purchasing of vegetables**

The common problem faced by a majority of 36% consumers was the poor quality of vegetables. 29% faced the problem of use of synthetic agrochemicals on vegetables and 28% were affected by the fluctuation in prices (Figure 6).

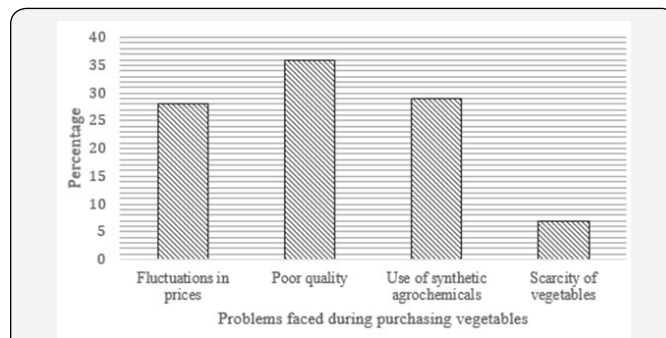


Figure 6: Problems faced during purchasing of vegetables.

**Attitudes and consumer behavior in purchasing organic vegetables**

Only 92% of respondents were aware about the organically certified food. 69% claimed that they do not know a market place where organically produced vegetables are sold. However, 73% had consumed organically produced vegetables at least once (Table 10).

Table 10: Accessibility to organic vegetables.

|  | Yes | No |
|--|-----|----|
| Do you know about certified organic products                       | 92  | 8  |
| Do you know a place where organically produced vegetables are sold | 31  | 69 |
| Have you ever consumed organically produced vegetables             | 73  | 27 |

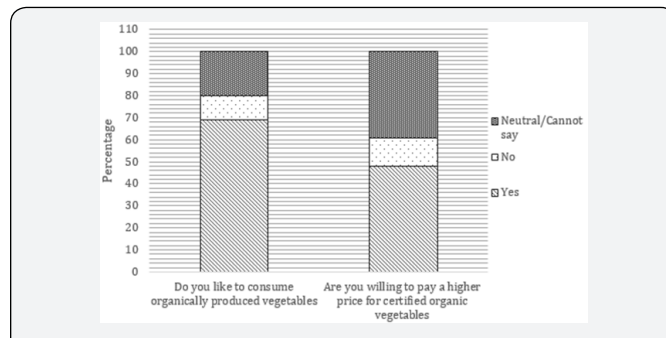


Figure 7: Attitudes towards organic vegetables.

69% of consumers stated that they like to consume organically produced vegetables while 11% did not like and 20% were neutral about it. The willingness to pay a higher price for certified organic vegetables was expressed by a majority of 48%. However, 39% mentioned that they cannot say about that decision (Figure 7).

### Consumer level wastage of vegetables

The wastage of vegetables after purchasing at a majority of households ranged from 1-5%. Only 2% had a wastage of above 10% (Table 11). The common factor contributing to the wastage was inedible portions. This was followed by rots, decays and physiological disorders and mechanical damages (Table 12).

**Table 11:** Consumer level wastage of vegetables.

| Consumer Level Wastage | Percentage |
|------------------------|------------|
| <1%                    | 14         |
| 1-5%                   | 65         |
| 6-10%                  | 19         |
| >10%                   | 2          |

**Table 12:** Factors contributing to the wastage of vegetables.

| Factors Contributing to the Wastage | Percentage |
|-------------------------------------|------------|
| Rot/Decay/ Physiological Disorders  | 28         |
| Inedible Portions                   | 30         |
| Weight Loss                         | 7          |
| Senescence                          | 10         |
| Mechanical Damages                  | 25         |

**Table 13:** Cultivation of vegetables in home gardens.

|   | Yes | No |
|---|-----|----|
| Cultivation of vegetables in home garden 35% respondents. | 35  | 65 |

**Table 14:** Management system in home gardens.

| Management System      | Percentage |
|------------------------|------------|
| Manages Organically    | 62.2       |
| Manages Conventionally | 13.5       |
| Manages Both Way       | 24.3       |

**Table 15:** Fulfilment of the vegetable requirement from home gardening.

| Fulfilment of the Requirement | Percentage |
|-------------------------------|------------|
| <5                            | 40.5       |
| 5-10%                         | 35.1       |
| 11-25%                        | 16.2       |
| 26-50%                        | 2.7        |
| >50%                          | 5.4        |

### Cultivation of vegetables in home garden

At present, many people tend to cultivate vegetables in their home gardens to fulfill a portion of their requirements. The cultivations can be maintained organically, conventionally using synthetic agrochemicals or as a combination of both 35% of respondents cultivated vegetables in their home gardens (Table 13). 62.2% of these cultivations were managed organically while 24.3% used both organic and conventional methods (Table 14). A majority of cultivators were able to fulfill less than 5% of their vegetable requirement through home gardening. However, home

gardens supported to fulfill more than 50% of the requirement of 5.4% of growers (Table 15).

### Conclusion

The consumers behave differently in making decisions during purchasing of vegetables. These decisions are affected by price, health factors, the quality of vegetables, home gardening and the situation. They prefer to purchase organically produced vegetables and also a variety of vegetables. Purchased vegetables are wasted by consumers mainly due to inedible parts.

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