

# Consumer Awareness and Acceptance of Sugar Baby and Century Watermelons

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**Abstract:** Watermelon (*Citrullus lanatus*) is very popular and nourishing fruit in the world. It belongs to Cucurbitaceae family. This study was done to analyze the consumer awareness of different varieties of watermelons. Varieties such as Sugar Baby and Century were taken to determine consumer awareness. Data was collected from 200 panelists by generating google form. To analyze the results descriptive and inferential statistics were used. Most of the panelist in this study were female with modern education. 77.9% of panelist were aware about Sugar Baby watermelon and around 79.2% of them have consumed it. 80.6% of them were aware about Century Watermelon but 80.4% of them have consumed it. Due to the underutilization of this crop peoples do not know that this crop does exist. This study was done so that people may know that these varieties also exist and can be utilized and consumed.

**Keywords:** Awareness, Century, consumption, *Citrullus lanatus*, Fruit, Nutritious, Sugar Baby.

## 1. Introduction

Watermelon (*Citrullus lanatus*) is a plant species in the family Cucurbitaceae, which was originally originated in Africa. Cucurbitaceae family is ranked among the highest in the plant species and most of this species is used for consumptions by humans. It is a large, sprawling annual plant with coarse, hairy pinnately-lobed leaves and yellow flowers with deep green smooth thick exterior rind with grey or light green vertical stripes, inside the fruit is red in colour with small black seeds embedded in the middle third of the flesh. Watermelons range in shape from round to oblong (Seed and Techniques 2014). As the production of crop increases annually there have been enormous challenges in agro waste management. Utilising discarded fruits and value addition of agro waste helps in reduction of environmental impacts (Souad et al. 2012).

Watermelon is usually developed all around the world and generally grow in warm season. (Alam et al. 2013). Waste generated during utilisation of watermelon can be used to produce various by products. Seed oil can be extracted from watermelon seeds which can be used for cooking (Biswas et al. 2017). Products such as jam can be prepared by using watermelon rind and seeds (Quadri and Rao 2018). Bakery products such as cakes can be prepared from watermelon rinds (Al-sayed and Ahmed 2013). varieties such as Sugar baby and Century are underutilised and are little known. Research carried for consumer acceptance of watermelon varieties is not done

yet. By this study we can know about consumer knowledge, acceptance of these varieties and comparison between consumption of both varieties of watermelon.

## 2. Material and Method

### A. Consumer Awareness and Acceptance of Sugar Baby and Century Watermelon

The study was undertaken in the Kapurthala which is north western geopolitical zone of Punjab. Watermelons were selected from this region because it is the major contributor for the growth of Sugar Baby and Century watermelon. Sampling involved selection of Watermelon varieties from local farmer's market. To know about awareness regarding varieties of watermelon around 200 respondents were selected. Google forms were generated and consigned to individual. To assess the socioeconomic characteristics and knowledge of consumption, existence, acceptance of both varieties for respondent's descriptive statistics was used. To examine the relationship between respondent's acceptance and characteristics of Century and Sugar Baby Watermelon Chi-square analysis was used.

## 3. Result and Discussion

Table 1  
Respondent's Socioeconomic Characteristics

Characteristic	Frequency	Percentage
<b>Age</b>		
<20	35	9.6
20-29	88	44.4
30-39	39	19.7
40-49	17	8.6
>49	19	9.6
<b>Sex</b>		
Male	92	46
Female	108	54
<b>Education</b>		
Primary	3	1.5
Secondary	46	23.1
Graduation	93	46.7
Post-graduation	34	17.1
Doctorate	9	4.5
No former education	3	1.5
<b>Marital status</b>		
Single	107	54.6
Married	87	44.4
Other	2	1

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According to the Table 1., data obtained from google form it was seen that peoples of age between 20-29 shows major contribution for the consumer awareness of watermelons from overall panellist. Maximum frequency of these peoples was 88 i.e., 44.4%. peoples of 40-49 shows minor contribution among the consumer awareness of watermelon i.e., 17 i.e., 8.6 % among overall panellist. It was seen that 106 females show major contribution i.e., 55.20 % and 86 males show contribution i.e., 44.8% among overall panellists. Among all panellist maximum peoples were graduated. 93 peoples were graduated i.e., 46.7%. least of them i.e., 3 peoples were having primary or no former education i.e., 1.5%. significantly it was seen that 107 peoples were single in case of marital status i.e., 54.6% and 87 of them were married i.e., 44.4%.

Table 2  
Respondent's Awareness and consumption of watermelons

Characteristic	Frequency	Percentage
<b>Place from where they buy fruits –</b>		
Natural or speciality stores	42	21.3
Large/corporate food stores	52	26.4
Small/ locally owned food stores	54	27.4
Local farmer's market/ open air market	49	24.9
<b>Consumption of Watermelons–</b>		
Yes	177	91.2
No	15	7.7
Maybe	2	1
<b>Know about health benefits of watermelon from –</b>		
Internet	105	53.8
Word of mouth	76	39
Newspaper articles and writeups by dieticians	55	28.2
Handouts and under the influence of other consumers	10	5.1
I don't know		
<b>Money spent on buying watermelon–</b>		
≤ 500	17	32
≥ 500	33	62
<b>Reason for including watermelon in diet –</b>		
To fill nutritional gap	103	52.6
To enhance metabolic activity	107	54.6
To enhance immunity of the body	104	53.1
To complete diet intake of the diet	103	52.6
To enhance growth and development of the body	97	49.5
To enhance stamina and energy	94	48
Do not consume	6	3.1
<b>Part of watermelon consumed –</b>		
Pulp/flesh	155	81.6
Juice	144	75.8
seeds	60	31.6

From Table 2., it came to know that mostly peoples prefer to buy watermelons from small or locally owned stores. 54 peoples i.e., 27.4 % were who used to buy from fruits from small/locally owned food stores i.e., Least of them prefers to buy watermelons from natural or speciality stores. 42 peoples i.e., 21.3%. around 177 peoples i.e., 91.2 % of them consumes watermelon and rest of 17 peoples i.e., 8.7% may or may not consume watermelons. According to this survey different sources were mentioned in case of health benefits. Major source from which peoples came to know about health benefits was word of mouth. 105 peoples i.e., 53.8% of them knows about health benefits as per the health benefits. Maximum money i.e.,

≥500 rupees which was spent for buying watermelons were in case of 33 peoples i.e., 62% and minimum i.e., ≤ 500 rupees was seen in case of 17 peoples i.e., 8.6 % among all. Most of the peoples 107 i.e., 54.6% that main reason of watermelon consumption on their diet was to enhance their metabolic activity and least 6 peoples i.e., 3.1% were those who don't even consumes the watermelons. It was seen that maximum 155 peoples i.e., 81.6 % were those who prefers to eat pulp/flesh of watermelon and least 60 peoples i.e., 31.6 % were those who prefers to consumes watermelon seeds.

Table 3  
Respondent's Awareness and consumption of watermelons

Characteristic	Frequency	Percentage
<b>Awareness of Sugar baby watermelon –</b>		
Yes	152	77.9
No	25	12.8
Maybe	18	9.2
<b>Consumption of Sugar baby watermelon –</b>		
Yes	156	79.2
No	18	9.1
Maybe	23	11.7
<b>Likeness appearance of Sugar baby watermelon –</b>		
Not at all – 0 – 1	10	5
2 – 3	62	31
Too much – 4 – 5	128	64
<b>Likeness taste of Sugar baby watermelon –</b>		
Not at all – 0 – 1	8	4
2 – 3	43	21.5
Too much – 4 – 5	149	74.5
<b>Likeness colour of Sugar baby watermelon –</b>		
Not at all – 0 – 1	8	4
2 – 3	47	23.5
Too much – 4 – 5	145	72.5
<b>Likeness of smell of Sugar baby watermelon –</b>		
Not at all – 0 – 1	6	3
2 – 3	47	23.5
Too much – 4 – 5	147	73.5
<b>Awareness of health benefits of Sugar baby watermelon –</b>		
Not at all – 0 – 1	11	5.5
2 – 3	54	27
Too much – 4 – 5	135	67.5
<b>Number of members in the respondent's family consuming Sugar baby watermelon –</b>		
0-1	2	1.1
2-3	65	34.2
4 and more	110	57.9
none	13	6.8

In Table 3., case of Sugar Baby watermelon around 152 peoples i.e., 77.9 % of peoples were significantly aware about this variety and 18 peoples i.e., 9.2% were not sure about this variety. In case of consumption of sugar baby watermelon 156 peoples i.e., 79.2% were those who consumes this variety in major proportion and 18 peoples i.e., 9.2% were not sure that whether they consumed it or not. According of likeness of appearance it was seen that 128 peoples i.e., 64 % of them liked too much and 10 peoples i.e., 5% of them do not like appearance at all. In case likeness of taste 149 peoples i.e., 74.5% liked taste too much and 8 peoples i.e., 4% do not like taste of sugar baby at all. According to colour 145 peoples i.e., 72.5% liked the colour of sugar baby and 8 peoples i.e., 4% of them do not like colour of sugar baby at all. 147 peoples i.e., 73.5% of them like

the smell of sugar baby too much and 6 peoples i.e., 3 % do not like colour of sugar baby at all. In case of health benefits 135 peoples i.e., 67.5 among all were aware about health benefits of sugar Baby watermelon and 11 peoples i.e., 5.5% of them were not aware of health benefits of sugar baby watermelon. According to their family members 110 peoples i.e., 57.9% said in their families 4 and more peoples consume sugar baby watermelon and 2 peoples i.e., 1.1% said that minimum one people generally consumes sugar baby watermelon in their families.

Table 4  
Respondent's Awareness and consumption of watermelons

Characteristic	Frequency	Percentage
Awareness of Century watermelon –		
Yes	154	80.6
No	21	11
Maybe	16	8.4
Consumption of Century watermelon –		
Yes	152	80.4
No	18	9.5
Maybe	19	10.1
Likeness appearance of Century watermelon –		
Not at all – 0 – 1	9	4.5
2 – 3	58	29
Too much – 4 – 5	133	66.5
Likeness taste of Century watermelon –		
Not at all – 0 – 1	7	3.5
2 – 3	45	22.5
Too much – 4 – 5	148	74
Likeness colour of Century watermelon –		
Not at all – 0 – 1	5	2.5
2 – 3	57	28.5
Too much – 4 – 5	138	69
Likeness of smell of Century watermelon –		
Not at all – 0 – 1	6	3
2 – 3	51	25.5
Too much – 4 – 5	143	71.5
Awareness of health benefits of Century watermelon –		
Not at all – 0 – 1	11	5.5
2 – 3	48	24
Too much – 4 – 5	141	70.5
Number of members in the respondent's family consuming Century watermelon –		
0-1	8	4
2-3	64	34.4
4 and more	101	54.3
None	13	7

In Table 4., in case of Century watermelons around 154 peoples i.e., 80.6% were aware about this variety and 16 peoples i.e., 8.4% were not sure about awareness of this variety. Around 152 peoples i.e., 80.4 % among all has consumed century watermelon and 18 peoples i.e., 9.5 % did not consumed century watermelon. Around 133 peoples i.e., 66.5% liked appearance of century watermelon too much and 9 peoples i.e., 4.5% were those who do not like appearance at all. According to the likeness of taste of century watermelon 148 peoples i.e., 74 % of them liked the taste of century watermelon too much and 7 peoples i.e., 3.5% do not like taste at all. In case of likeness of colour 138 peoples i.e., 69 % were those who liked colour too much and 5 peoples i.e., 2.5% of them do not like colour at all. 143 peoples i.e., 71.5% were those who liked

smell of century watermelon too much and 6 peoples i.e., 3% of them do not like smell of century watermelon at all. In case of health benefits 141 peoples i.e., 70.5 % were those who were aware about health benefits too much and 11 peoples i.e., 5.5% were those who were not aware about health benefits at all. According to their families 101 peoples i.e., 54.3% among all were those in which around 4 and more of family members who consumes century watermelons and 8 peoples i.e., 4% was those in which only one people prefers to eat century watermelon in their families.

Table 5  
Respondent's Awareness and consumption of watermelons

Characteristic	Frequency	Percentage
Motivation behind buying Sugar Baby and Century watermelon	113	59.8
Nutritional information –	89	47.1
Under the influence of TV	101	53.4
commercial and media	97	51.3
Packaging	104	55
Reasonable price and quality	9	4.8
Taste and variety		
none		
Preference among varieties –		
Sugar Baby	135	75.4
Century	44	24.6
None	0	0
Consumption of any product made from watermelon –		
Yes	161	88.6
No	18	9.7
Maybe	7	3.8
Parts of watermelon generated as waste after its consumption		
Rind/ outer covering	63	33.5
Pomace/ remaining pulp after extraction of juice	117	62.2
Seed	8	4.3
Views about waste from watermelon can be used to make new by-products –		
Yes	150	78.5
No	10	5.2
Maybe	31	16.2
Kind of by-products can be produced from watermelon waste	<ul style="list-style-type: none"> <li>• Compost</li> <li>• Pickles</li> <li>• Animal food</li> <li>• Value added food such as cheese from white part of rind.</li> <li>• Jelly</li> <li>• Phytochemicals</li> <li>• Cake</li> <li>• Medicine</li> <li>• Manure</li> <li>• Edible films</li> <li>• Decorative items</li> <li>• Cosmetic products</li> <li>• Nutraceuticals</li> <li>• Medicinal natural extracts</li> </ul>	

In Table 5., Different characteristics were provided to each panelist from which it was came to know about what motivates them to buy century watermelons. It was seen that 113 peoples i.e., 59.8% of them chosen nutritional information which motivates them to buy century watermelons and 9 peoples i.e., 4.8 % were those who did not shown any interest in case of motivation for buying century watermelons. It was seen that

maximum 135 peoples i.e., 75.4% of them prefers to consumes Sugar Baby watermelons and minimum 44 peoples i.e., 24.6% were those who prefers to eat century watermelons. It was seen that maximum 161 peoples i.e., 88.6% said that they have consumed products which were made from watermelons and minimum 7 peoples i.e., 3.8 % were those were not sure whether they have consumed any product made from watermelons. 117 peoples i.e., 62.2% among all said that pomace/ remaining pulp after extraction of juice if that part of watermelon which is generated as waste and 8 peoples i.e., 4.3% were those who said that seeds as waste generated after consumption of watermelons.

According to panelist it was seen that maximum 150 peoples i.e., 78.5% said that watermelon waste can be used to make new by products and 10 peoples i.e., 5.2% of them claimed that watermelon waste cannot be utilized for generation of new by product. Many of them claimed that different types of by products can be produced from watermelon waste such as compost, pickles, wine, animal food, value added food such as cheese from white part of rind, jelly, antioxidants and phytochemicals, bakery product such as cake, medicine, manure.

The socioeconomic characteristics sex ( $\chi^2 = 101.848$ ), age ( $\chi^2$

$= 82.25$ ), educational status ( $\chi^2 = 107.75$ ), and marital status ( $\chi^2 = 90.394$ ) were not related to consumer preference of Sugar Baby and Century Watermelon allowing the null hypothesis to be accepted.

#### 4. Conclusion

This paper presented a study on consumer awareness and acceptance of Sugar Baby and Century Watermelons.

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