

XII CONGRESO DE ECONOMÍA AGRARIA

La Sostenibilidad
Agro-territorial desde
la Europa Atlántica

Lugo

4 - 6 Sept 2019



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PORTUGUESE CONSUMER: ATTITUDE AND BEHAVIOR TOWARDS CONSUMPTION OF CHESTNUTS

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Abstract

Worldwide, there is ever more increase in health consciousness. Consumers are far more information-seeking and nuts carry an overall healthy image. In Portugal, in addition to its functional benefits, chestnut carries rich emotional associations. Chestnut is deeply rooted in the Portuguese economy, gastronomy, and cultural heritage, as shown by the Portuguese saying: “In Saint Martin’s day; we eat chestnuts and drink the wine”. This work intends to comprehend the behaviour of Portuguese chestnut consumers, preferences, uses, purchasing habits and perceptions on the benefits of chestnut consumption. A cross-sectional study was carried on based on a sample of 320 individuals. Consumers inquired acquire, on average, 6.5 Kg/year. Most of them buy fresh chestnuts and do so occasionally, mainly in commercial stores, fairs or directly to the producer. They prefer to buy chestnut unpackaged and most valued attributes are quality, size, and price. The awareness about the distinct benefits of chestnuts is somewhat sketchy, as a great part of respondents have bad or insufficient knowledge about its nutritional properties. The results signal the need to better communicate the nutritional qualities and potential beneficial health effects of chestnut consumption and bet in R&D of new food, therapeutic and cosmetic products from chestnut.

Key-words: Chestnut, Consumer, Preferences, Purchase habits

1. Introduction

Castanea sativa Miller (sweet chestnut) is a broadleaved species with a long-range scattered distribution across the Mediterranean region of Europe and western Asia [Míguez-Soto et al. (2019)]. Best growing conditions for the chestnut tree are located at altitudes higher than 500 meters with low temperatures in winter, as can be found in northeast Portugal [Ribeiro et al. (2007)]. The North of Portugal is the main production region [Rosa et al. (2017)]. Thus, economically, chestnut is one of the more important trees in the north of Portugal [Benhadi-Marin et al. (2013)]. Most Portuguese chestnut production is exported. Frozen chestnut is mainly exported to France, Italy and Spain, whereas fresh chestnut mainly to Brazil and Europe. The remaining production is for domestic consumption [Rosa et al. (2017)]. Simple or processed, chestnut is a product of high potential and very versatile. Its nutritional features, in particular, rich in carbohydrates, low glycemic index, cholesterol-free, low calorie, rich in proteins and vitamin C, making it a food associated with healthy diets. Nutritionally, nuts are similar to brown rice and therefore a substitute for potatoes, rice, and wheat. Plus, the chestnut meal is sweet and has no gluten so this product is a healthy alternative for celiac patients [Cernusca et al. (2008)]. The "Portuguese Chestnut" is known internationally for its organoleptic quality and excellent aptness for industrial transformation [Laranjo (2013)]. The objectives of this study are to know the preferences and habits of purchase and consumption of the chestnut and the uses and knowledge of consumers regarding the fruit nutritional properties.

2. Material and Methods

An observational, quantitative, descriptive and cross-sectional study was performed based on a non-probabilistic sample of 320 individuals. Data collection took place from April to May 2018, based on the application of a questionnaire to Portuguese consumers, in stores and large commercial areas. Then, the data were edited and analysed using the IBM SPSS Statistics version 25.0. The data analysis involved the use of descriptive statistics, namely, the calculation of the mean and standard deviation, in the case of quantitative variables; and absolute and relative frequencies, in the case of qualitative variables.

3. Results

Respondents had, on average, 35.1 years old (SD = 16.9). Table 1 shows that most respondents lived in the districts of Bragança (41.3%), Porto (24.1%) and Vila Real (10.9%). They were female (50%), had

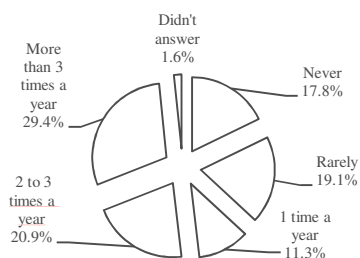
secondary education (71.3%), lived in households with 3 or more elements (54.7%) and had a monthly income of up to 1160 euros (53.8%).

Table 1. Characteristics of the participants

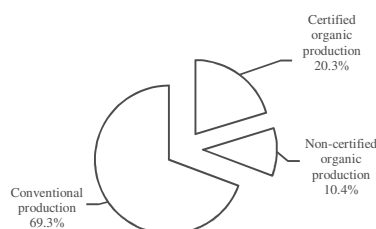
Variable	Groups	Frequencies	
		%	n
Gender	Male	49.7	159
	Female	50.0	160
	Didn't answer	0.3	1
District	Bragança	41.3	132
	Vila Real	10.9	35
	Porto	24.1	77
	Other	23.7	76
Household	1 person	23.8	76
	2 people	18.1	58
	3 people	26.3	84
	4 people	20.6	66
	5 or more people	7.8	25
	Didn't answer	3.4	11
Household monthly income	< 580 euros	22.2	71
	580 to 1160 euros	31.6	101
	1161 to 1740 euros	16.6	53
	1741 to 2320 euros	6.9	22
	2321 to 2900 euros	8.4	27
	> 2900 euros	11.0	35
	Didn't answer	3.4	11
Education	Can read and write	6.3	20
	1° cycle	5.6	18
	3° cycle	4.7	15
	3° cycle	14.4	46
	Secondary	40.3	129
	Higher	27.5	88
	Didn't answer	1.3	4

Most respondents are consumers of chestnuts (78.4%) and eat chestnuts two or more times a year (50.3%) (Graphic 1), and prefer chestnut produced under conventional agriculture system (69.3%) (Graphic 2).

Graphic 1. Frequency of consumption (N=251)

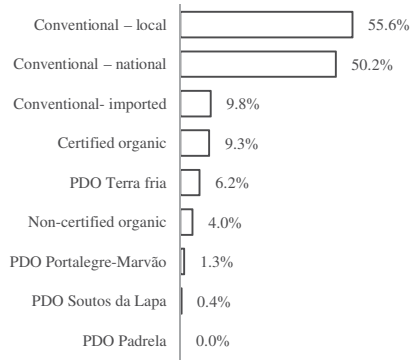


Graphic 2. Production system (N = 251)

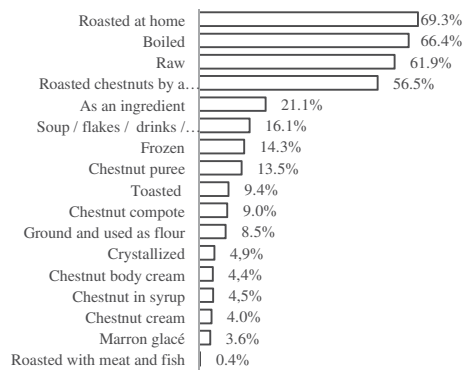


As shown in Graphic 3, the chestnut bought is essentially from conventional production, either local (55.6%) or national (50.2%). Consumers prefer to eat chestnuts roasted at home (69.3%), boiled (66.4%) or raw chestnuts (61.9%) (Graphic 4).

Graphic 3. Type of chestnut purchased (N = 225)

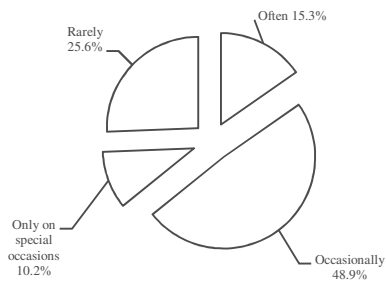


Graphic 4. Ways of use and consumption (N = 223)

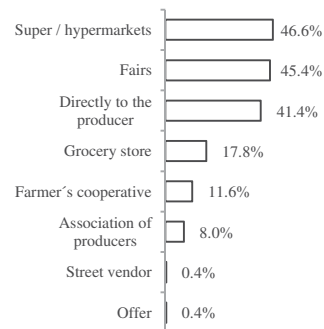


Regarding purchasing behaviour, most consumers buy raw chestnuts (77.0%), as shown in Graphic 5. Plus, 27.2% of them, purchase chestnuts regularly, and 49.8% does it on occasionally, in supermarket or hypermarket stores (46.6%), fairs (45.4%) or directly to the producer (41.4%) (Graphic 6), and prefer the bulk purchase (60.1%) (Graphic 7). The most valued attributes are quality (73.3%), size (66.9%) and price (61.0%) (Graphic 8). Consumers buy, on average, 6.5 kg/year and consider the average price of 3 €/kg as reasonable.

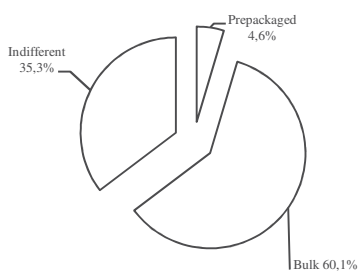
Graphic 5. Raw chestnut consumption frequency (N = 176)



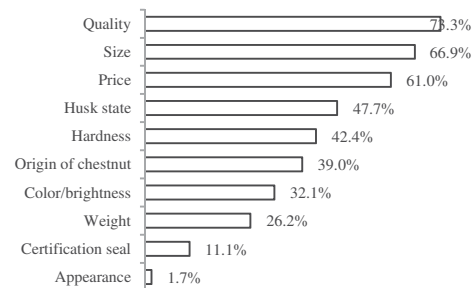
Graphic 6. Purchase place (N = 174)



Graphic 7. Raw chestnut package (N = 173)

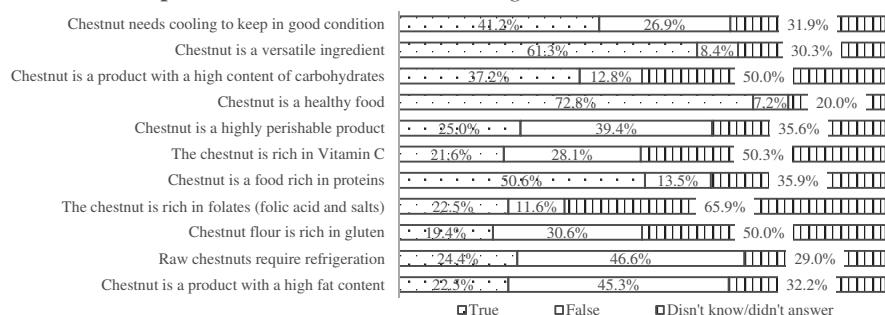


Graphic 8. Raw chestnut attributes (N = 172)

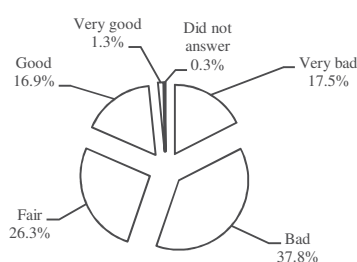


Graphic 9 show respondents' opinion regarding some statements about chestnuts characteristics and nutritional properties. It intends to assess their knowledge on chestnuts and its potential uses. The outcomes are summarized in Graphic 10 and show that the respondents' acquaintance regarding nutritional properties of chestnuts was very bad (17.5%) or bad (37.8%), which can partly be explained by the very low percentage of consumers with food restrictions (Graphic 12).

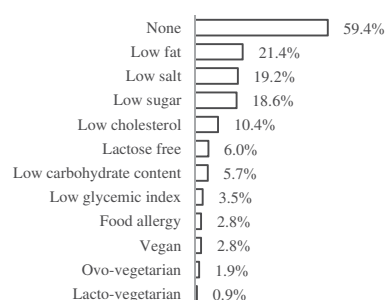
Graphic 9. Consumers understanding about chestnut (N=320)



Graphic 9. Chestnut knowledge level (N=320)



Graphic 10. Dietary restrictions (N = 318)



4. Conclusion

Regardless of Portuguese consumers' familiarity with this fruit, they are still unaware of the nutritional benefits of chestnuts. These results signal the need to better communicate the nutritional qualities and potential beneficial health effects of chestnut consumption. So it is recommended to develop information campaigns for consumers to promote consumption and bet in the development of new food, therapeutic and cosmetic products from chestnut.

Acknowledgements

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