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Organic food consumer behavior in Hermosillo, Sonora, Mexico

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ABSTRACT

Objective: To describe and characterize the behavior of organic food consumers in Hermosillo, Sonora, in order to identify whether this location constitutes a potential market for said products.

Design/Methodology/Approach: We asked consumers at points of purchase to answer a questionnaire. Then we analyzed the resulting data with descriptive and inferential statistics.

Results: There is a market segment acquainted with organic products and willing to buy them. This segment is unsatisfied with the local offer of fruits and vegetables. The purchase of organic food increases among consumers who care about their diet and health, and who show positive attitudes toward the environment.

Study limitations/Implications: The study focuses on a specific geographic area. Therefore, extrapolation of results must be done cautiously.

Findings/Conclusions: Overall, there is a potential local demand for organic fruits and vegetables. Adequate marketing and segmentation strategies are necessary to address the identified consumer profile so that traders and farmers can position their products in the market.

Keywords: Consumer behavior, Organic food purchasing, Lifestyles.

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INTRODUCTION

Conventional agriculture meets a large part of the world's food demand. This type of agriculture prioritizes monoculture, the use and development of technical agricultural implements, and the employment of synthetic inputs—mainly fertilizers, pesticides, and herbicides (Leaños Luna, 2006; Pichardo, 2006). Although conventional agricultural practices increase productivity (Ortega, 2008), they have been linked to human health damage and numerous environmental problems: wherever this agriculture takes place, it impacts ecosystems and biodiversity (FAO, 2018; WWF, 2018).

The state of Sonora, located in northwestern Mexico, has a remarkable agricultural production. In 2020 it contributed to the production of 44 agricultural products, reaching one of the first three places in production volume for 14 of them and contributing 7% of the value of agricultural production in Mexico (SIAP, 2020). Several researchers have

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analyzed possible environmental consequences derived from agricultural production in the state. The presence of various agrochemicals/pesticides in different environmental matrices (water, soil, and food) as well as in biological samples of the resident population (blood, semen, breast milk) has been proven, even in the case of agricultural fields abandoned for more than ten years (Albert, 2006; Camarena-Gómez *et al.*, 2020; Cantú *et al.*, 2019; Cejudo *et al.*, 2012; Leal *et al.*, 2014; Silveira-Gramont *et al.*, 2018).

To attend to this situation, alternative types of agricultural production are emerging, more respectful of environmental balances and safer for human health. One of these alternatives is organic agriculture (WHO and FAO, 2007). However, moving from one agricultural production model to another is not easy. Demand is one of the main reasons that motivate producers to transition from conventional to organic agriculture (Arias, 2015). Studying the consumer's perspective and behavior toward the organic food sector is therefore relevant. We must note that research in this area is extensive and diverse. The findings establish that purchase intent is related to aspects such as quality, care for the environment, and concern for good health (Bernabéu *et al.*, 2004; De Moura *et al.*, 2012; De Olde *et al.*, 2020; Gutiérrez *et al.*, 2012). Moreover, various factors affect the supply and demand of organic products: the lack of awareness about these products, their overprice compared to conventional foods, and a limited supply or scarce availability (Higuchi, 2015; Rodríguez *et al.*, 2002; Stolz *et al.*, 2011).

In Sonora, we identified at least ten institutions that produce organic food —a production destined mostly for the export market (Gómez *et al.*, 2008). In this context, studying the local demand for organic food and the factors that drive it can provide the necessary incentives for farmers in the region. On the one hand, farmers may feel encouraged to dedicate part of their production to the local market; on the other, conventional producers may want to consider transitioning to another agricultural production model.

Our objective is to describe and characterize the behavior of organic food consumers and, based on this, to find out whether there is a potential market for this production in Hermosillo, Sonora. We intend to do this through the description of their purchases, their willingness to pay, lifestyles, and attitudes toward the environment. With the information generated in this document, we intend to highlight benchmarks on which to focus marketing strategies to position such products in a potential market for organic foods.

MATERIALS AND METHODS

To fulfill the main objective of our research, we designed a questionnaire aimed at consumers over 18 years old. We obtained the sample using a probabilistic simple random sampling and applying the formula for infinite populations. The sampling error was 6%, and the confidence level was 95.5%. We applied a total of 277 questionnaires at points of purchase where organic products are offered (supermarkets and specialized stores) in the city of Hermosillo, Sonora.

Once we completed the fieldwork, we coded the information and elaborated a database with the IBM SPSS Statistics 25 software. Finally, we proceeded to conduct descriptive and bivariate analysis.

RESULTS AND DISCUSSION

The socio-demographics show that 71.8% of the sample are women. Of all participants, 70.7% are between 23 and 52 years old. The monthly family income ranges between 10,000 and 25,000 pesos in 64.9% of the cases. Of all participants, 54.4% have higher education; 54.1% are married; 38.9% have one or two children, while 38.2% have none.

Regarding consumption habits, 87% of the participants claimed to know what an organic product was, and 77.6% had bought one. Around 60.8% of consumers buy organic food at least once every two weeks. The points of purchase where they buy these products are supermarkets and specialized stores (37.8% and 34.0%, respectively). In addition, we must note that the most purchased organic foods are vegetables (22.4%) and fruits (13.8%), followed by other processed foods.

However, 44.8% of consumers indicated that they were not satisfied with the current offer of organic fruits and vegetables, mainly because there are not enough places that sell them (45.8%) or due to a lack of variety (15.6%). Consumers buy organic fruits and vegetables because they consider their quality to be superior (30.4%) and appreciate their health benefits (25.7%).

Price is a relevant variable in studies focused on organic certified foods, since their cost is higher than that of products without said certification. Of all participants, 92.5% stated that they would opt for organic fruits and vegetables if their price were the same as that of conventional produce. Were the price higher, only 39.4% would continue to buy them.

To characterize the attitudes of organic food consumers toward the environment, we analyzed the differences between people who had bought organic food in the last twelve months and those who had not. The analysis shows significant differences between the two categories. In the sphere of social awareness, the group that acquired organic products showed more concern regarding the need to prevent environmental degradation (4.59) and stated that the current societal order is destroying nature (4.52). In the sphere of individual awareness, organic food consumers are more willing to collaborate in conservation activities (3.97) and to use selective garbage containers (3.68) (Table 1).

Likewise, we found different lifestyles to produce contrasting behaviors between people who buy organic products and those who do not. Organic food consumers showed higher values regarding their concern for a balanced diet, a good health, and an active and balanced lifestyle (Table 2). In the food category, we found that organic food consumers frequently eat more fruits and vegetables (4.61), maintain a moderate intake of meats (3.91), try to eat foods without additives (3.86), and are mindful of the industrialized foods they consume (3.84). In the health category, we can observe that they are more agreeable to a periodic health check (3.78) and a number of them practice vegetarianism (2.32). In the category of active lifestyles, we noticed that they usually read product labels (4.12), exercise regularly (3.47), and collaborate with an NGO (3.97). Finally, in the balanced lifestyle category, we found that they seek to balance work with private life (4.09), lead an orderly and methodical life (4.01), try to reduce stress (3.96), and visit the dentist regularly (3.46).

Table 1. Attitudes toward the environment and purchase of organic products.

Lifestyles related to attitudes toward the environment		Purchased organics in the last 12 months			
Category	**Statements**	**Yes**	**No**	**F**	**U de Mann-Whitney**
Social awareness	If the necessary measures are not taken, the deterioration of the environment will be irreversible.	4.59	4.15	10.457	0.000*
	Today's civilization is destroying nature.	4.52	4.28	2.764	0.048*
	I am concerned about the consequences of human activity on climate change, and I act accordingly.	4.29	4.13	1.182	0.248
Individual consciousness	I collaborate in environmental conservation tasks.	3.97	3.59	4.88	0.005*
	I throw garbage in selective containers.	3.68	3.07	8.25	0.004*
	I prefer to consume recycled products.	3.22	3.09	0.327	0.685

Note: We use a five-point scale, where 5 equals total agreement and 1 total disagreement.
We performed the Kolmogórov-Smirnov test of normality; all the items had a value of 0.000. Items with a significance lower than 0.050 are considered abnormal.
*Significant association of less than 5% according to the Mann-Whitney U test.
Based in Fraj and Martinez (2002). Prepared by the authors based on the answers to the questionnaires.

Table 2. Lifestyles and purchase of organic products.

Lifestyles	**Statements**	**Purchased organics in the last 12 months**			
		Yes	**No**	**F**	**Sig.**
Feeding	I frequently eat fruits and vegetables.	4.61	4.04	21.5	0.000*
	I control my salt intake.	4.04	3.83	1.463	0.234
	I eat red meat in moderation.	3.91	3.42	8.303	0.014*
	I try to eat food without additives.	3.86	3.52	4.043	0.076**
	I try not to eat industrialized foods.	3.84	3.44	5.311	0.064**
Health	I practice a vegetarian diet.	2.32	1.76	6.137	0.007*
	Periodically, I voluntarily check my health.	3.78	3.11	12.035	0.001*
	I visit the dentist regularly.	3.46	2.8	12.04	0.001*
Active	I read product labels.	4.12	3.19	31.92	0.000*
	I exercise regularly.	3.47	2.57	20.97	0.000*
	I collaborate with NGOs .	3.97	3.59	8.36	0.004*
	I belong to an association for the defense of nature.	1.87	1.48	3.4	0.075**
Balance	I try to balance work and private life.	4.09	3.81	3.25	0.088**
	I try to reduce stress.	3.96	3.56	5.32	0.068**
	I try to lead an orderly and methodical life.	4.01	3.48	13.06	0.002*

Note: We use a five-point scale, where 5 equals total agreement and 1 total disagreement.
We performed the Kolmogórov-Smirnov test of normality; all the items had a value of 0.000. Items with a significance lower than 0.050 are considered abnormal.
*, ** Significant association of less than 5% and 10% according to the Mann-Whitney U test.
Based in Fraj and Martinez (2002). Prepared by the authors based on the answers to the questionnaires.

Considering the results described above, we can observe that organic consumers in Hermosillo, Sonora, practice healthy lifestyles and have positive attitudes toward caring for the environment.

When comparing our findings with the results of other studies examining consumer behavior toward organic products, we were able to observe some similarities. Such is the case of the quality that consumers perceive in organic foods, an element that is a strong motivator for purchase (Basha *et al.*, 2015; Escobar *et al.*, 2015; Hempel, 2016). Likewise, health benefits constitute a leading purchase motivator, which is reflected in healthy lifestyles. Organic food consumers tend to practice healthy eating and review their health status (Bostan *et al.*, 2019; Chattopadhyay and Khanzode, 2019; Eisinger-Watzl *et al.*, 2015; Farías, 2018; Kranjac *et al.*, 2017; Thais, 2018). Coinciding with Chiciudean *et al.* (2019) and Kranjac *et al.* (2017), the results show that fresh fruits and vegetables are organic foods in demand. Consumers choose them mainly for health concerns and because they contain fewer chemicals. The limitations for their purchase are usually high prices and insufficient distribution channels.

Finally, compared to those who do not buy organic food, people who usually buy it showed more positive attitudes toward the environment (individual and collective awareness).

CONCLUSIONS

Our findings allowed us to characterize the consumers of organic products in Hermosillo, Sonora, Mexico, through the analysis of behavior, lifestyle, and attitudes toward the environment. The results confirm the existence of a market segment that consumes organic products in Hermosillo, Sonora. This market segment is unsatisfied with the local offer and represents an opportunity for businesses in the city, as well as for farmers in the region, who can feel motivated by buyers to transition to an organic agricultural production scheme. This research broadens our knowledge of consumer behavior regarding organic products. Sonoran consumers are driven to buy organically certified foods, especially fruits and vegetables, due to the quality and health benefits they perceive in them. In addition, these consumers have healthier lifestyles and more positive attitudes toward environmental conservation. We have established the existence of a potential market for organic fruits and vegetables in Hermosillo, Sonora. This latent demand can be expanded with appropriate marketing strategies that support traders and farmers to position their products in the market. To achieve this, providing information about the behaviors that characterize consumers of organic products and their purchase motivations is crucial. Efforts must therefore focus on the following: 1) Reinforcing contents related to caring for the environment; for example, displaying information regarding the production stages of the goods, such as the reduction of adverse effects on the environment derived from avoiding synthetic inputs (compared to conventional production). 2) Highlighting attributes related to health, *e. g.* the reduction of health risks linked to the continued use of agrochemicals in the conventional production process. 3) Segmenting the population according to lifestyle characteristics regarding food, concern for good health, and the willingness to sustain an active and balanced life.

We must note that this study is limited to a specific geographical area, so that extrapolating the results should be done cautiously. Our research provides some guidelines for further exploration. It is possible to expand the geographical scope and the extent of analysis, in addition to integrating more variables, such as consumers' health and innovations in organic products, among others.

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