

THE ROLE OF INNOVATIVE MODELS IN PROMOTING ORGANIC FOOD QUALITY-ASSURANCE

Bobe Magdalena¹, Procopie Roxana² and Toma Maria – Alexandra³

^{1) 2) 3)} Bucharest University of Economic Studies, Romania

E-mail¹⁾: magdalena.bobe@com.ase.ro; E-mail²⁾: roxana.procopie@com.ase.ro;

E-mail³⁾: toma.maria.a@gmail.com

Abstract

The notion of quality draws significant interest from both consumers and producers, resulting in market competition, a highly promoted mechanism of globalization, within which only innovative products or services surviving the economic environment. Nowadays, the need for safety and security, both for the individual and the environment, resulted in the development of multiple sustainable sectors, like the organic food market, that grew from a niche market to an independently global sector, due to the advantages that organic brings in terms of quality.

But how can consumers identify an organic food product by measuring its quality characteristics, that are not so easy to identify even after purchase and consumption?

Thereby, the present paper aims to highlight the importance of guarantee and quality-assurance programs in shaping the consumer's behaviour towards buying organic. The starting point is a literature review that contributes to identifying and understanding the need of visual guarantees (like organic logos, certification codes) that the consumer has a first impact with and which will stand a basis for the research – analysing the option of an organic food quality-assurance model. The model's characteristics are designed based on the results of previous studies conducted by the authors, that have as a geographic coordinate Romania's organic food market. Multiple layers of the computerized model have been identified as being critical, starting with the acknowledgment sequence and the link with the actual product, the sector guarantees regarding food safety (traceability, nutritional information, risk elements) and additional guarantees (quality management systems and their impact on the final product).

Keywords

organic food, quality-assurance, innovative model, consumer behaviour

JEL Classification: Q13, Q18, Q52, O13,

Introduction

Innovation is one of the modern economy responses to the dynamic and complex environment in which it operates, adding value by using quality characteristics (Iosif & Tăchiciu, 2016). Therefore, quality and innovation can be considered two interrelated notions, that shape multiple sectors, starting with complex domains like IT, but also including habitual markets like the food market.

In this context, agriculture and food products have evolved, the nutritional dimension changing in order to meet the needs of modern consumers. Trending food products involve new assortments like functional food, special diet dedicated products (gluten-free, lactose-free, sugar-free), food supplements, organic food or genetically modified food, each of them being the result of multiple social and cultural factors, that shape both the consumer's and producer's emerging needs.

Beside socio-cultural aspects, the economic factors have driven a constantly growing food demand, a trend projected also for the future, as reaching year 2050, agriculture will need to produce almost 50 percent more food, feed and biofuel than it did in 2012 (FAO, 2017), taking into consideration the evolvement of the demographic factor, that according to the United Nations will reach a global population of about 9.73 billion, by the same year.

Thus, in order to meet the food safety and security requirements, the organic food industry has evolved rapidly, building a global market of 89.7 billion US dollars in 2016 (IFOAM, 2018). Unlike most conventional food industries that declined during the last global financial crisis, the demand for organic food steadily increased and has continued to do so, more and more countries promoting organic agriculture (Massey et al, 2018).

In other words, the global demand of such products is growing, but, at a deeper analyse, one can identify that the organic market faces an unequal distribution in terms of consumption. This leads to different hypotheses, from the organic potential of the region, to the climate conditions, but also to the consumer behaviour, that, due to different perspectives or beliefs, does not embrace organic food as a consumption habit.

Previous studies conducted by the authors (Toma et al, 2017; Bobe et al, 2016) have identified different patterns regarding the consumer's perception on organic food and a set of determinants that drive the buying decision. As a geographic coordinate Romania was chosen because of its dissimilarity regarding production and consumption of such products. Romania is a highly productive country in the organic industry, that has one of the lowest levels of consumption in Europe (IFOAM, 2016).

Thus, Romanians don't buy organic food due to the high prices of these products, this representing a consumer pattern that has multiple sub-reasons like: the lack of knowledge regarding what organic food is, the lack of confidence that a product is 100% organic and it's not counterfeit, the misunderstanding regarding the eco-labelling of these products, and that the quality declaration comes from an unknown producer and not a recognised governmental body, a complex agriculture legislation that is not understood by all consumers or that is not promoted enough in terms of the strict regulations that it promotes in the sector of organic food. In other words, the Romanian consumers are missing the main guarantees that the organic sector brings and the phenomenon is caused not by the lack of these guarantees but by the need of an organic food quality – assurance programme.

Given these conditions, the main objective of the present paper is to define the main characteristics for a computerised quality-assurance model. This quality assurance model should help consumers, at any time, by using modern technologies (smart-phones, QR code scanning), to access an official database, that can give all the needed information regarding the organic product that the consumer is about to buy. The simple listing of the product in the database should be a sign that the food product is labelled as organic and is certified by specialized body.

The research methodology starts with a literature review in order to identify and analyse a set of immediate-impact guarantees that Romanian consumers can identify before buying an organic food product (visual guarantees). The identified items will be treated as variables for our model. Thus, the characteristics of the model will be defined so that the computerized application should be able to optimize the consumer's buying decision towards organic food products, based on a better understanding of their benefits versus costs.

1. Organic Food – consumer trust vs credence goods perception

Organic agriculture and the organic food productive sector have continuously evolved during the past decades, organic agricultural land reaching almost 58 million hectares, according to the last global survey developed by IFOAM at the beginning of 2018. Because of its important status worldwide and the involved restrictions, developing a clear, harmonized but also severe legal framework became a necessity for the legal bodies and promoters that act in this field.

Beside implementing a unitary and well-documented legislation, the strategy of the organic food sector also highlights two important process, namely the certification and labelling of organic food products. In the context of the market of organic food, where consumer's trust is a delicate issue, since consumers are not able to verify whether a product is an organic product, not even after consumption (Janssen and Hamm, 2012), certification and labelling become 2 important aspects.

The certification process represents the adherence of producers to organic agriculture and the organic food sector, while labelling of organic food with specific certified logos represents a trigger for the consumer at the market point that the inspected product is authentic and certified as being organic. Thus, certification and labelling are the two main tools intended for the consumer, that can be identified in real time, before buying a food product.

Many European countries have adopted the European legislation so that only products that are obtain according to the law can be labelled and sold as organic, biologic or ecologic. According to the European Union legislation (Regulation no 834/2007), these three terms or any combination of them define the same concept: food products obtained using techniques that respect the principles of organic farming and organic food processing.

The existence of three terms that designates the same products can generate a first point of confusion for the consumer, especially related to imported products, as each country in the European Union chooses on of these terms to define these products in the national legislation. So, a consumer can encounter organic food products (that come from England, Cyprus, Ireland or Malta), ecological food products (originated from Denmark, Lithuania, Poland, Romania, Slovenia, Sweden, Hungary) or biological food products (produced in Austria, Belgium, Bulgaria, France, Greece, Italy, Luxembourg or Netherlands).

But why should organic products be labelled specifically? From a notional point of view, organic agriculture and organic food products are superior in many directions (nutritional, environmental) than the classic conventional food systems (Toma et al, 2017), benefits that come with higher costs and need to be explained to the consumer in order to understood and drive the buying decision in a positive way. These overall benefits result from applying the organic principles, promoted by legislation, in the production process of these food products and not exactly to the end-product. So, it rather hard for the consumer to see that the organic principles were applied when analysing an end product, at the supermarket shelf.

In this context, organic food products can be considered credence goods, for which consumers do not have reliable information that allows to evaluate their quality and their attributes cannot be ascertained even after purchase or consumption of the product (Ford, et al 1988).

So, taking into consideration the fact that consumer's perception of food quality is multi-attribute, the organic food sector must identify and build new methods that aim the delicate issue of increasing consumer trust in buying organic food products. When buying a food product, the consumer's first experience includes either search or experience attributes, depending on if they are determined prior to consumption (for example aspect, colour, price) or after consumption (for example taste, durability). Attributes such healthier food (no usage of synthetic pesticides and fertilizers, rich in antioxidant) or environmental friendly involve a high level of uncertainty from the consumer perspective. These attributes act

interdependent and search attributes having a first contribution to the formation of quality expectation, followed by credence attributes, while experience attributes represent an important factor in building the consumer’s further buying choices (Figure 1).

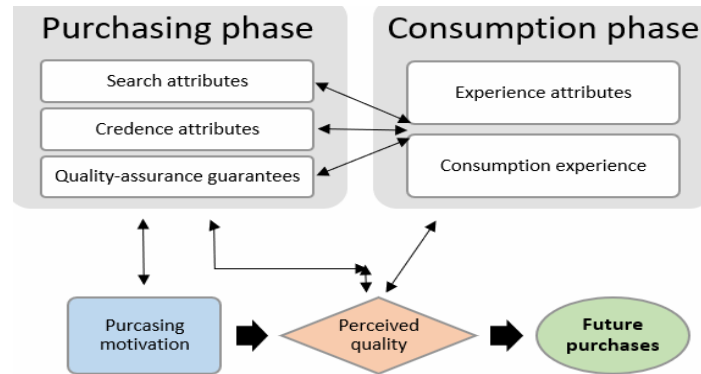


Fig. no. 1. Conceptual framework – The influence of credence attributes on buying organic food

Source: adapted from Resano et al, 2018

If a deeper analyse is conducted, regarding the most frequently addressed attributes when a buying decision is made for a food product (2 representative attributes from the search and experience categories), excluding the credence determinants, the results tend to favour conventional food (Table no 1).

Table no. 1. Conventional food vs organic food - Buying decision result

		Conventional food	Organic food
Search attributes	price	+	-
	appearance	+	-
Experience attributes	taste	-	+
	durability	+	-
Buying decision result		2+	2-

At a first glance, conventional food is cheaper than organic food, conventional food has a more attractive appearance than organic food (due to the fact that conventional agriculture uses fertilizers and pesticides, the end-products are more well-shaped and better coloured), conventional food has a longer self-life (due to the preservatives added in the end-product), leaving organic food to score only at the taste attribute (in general, as for some processed food products, the added flavours can determine conventional food to test better than organic food).

Thus, theory suggests that institutions such as governmental or third-party standards and certification, liability regimes and verifiable rules must be used to solve the credence problem and allow a market for items such as organic food to exist (Holland, 2015) as consumer trust in the product integrity of credence goods is of crucial importance, in particular if the credence attribute entails a premium price, as is the case of organic food (Golan et al, 2001).

So, an important aspect for the organic market is to have an informed consumer that can accept to purchase a good that is highly promoted by a set of characteristics that are visible at a first contact, that are confirmed by personal beliefs and other guarantees (like

certification codes, certification logos) which need to be acknowledged through information and education.

2. Modelling organic food guarantees as a resource for consumer trust. Case study on Romanian market

In order to support consumer's trust regarding credence goods and help consumers in identifying organic food products in contrast with conventional food products, most countries have introduced an organic food certification system, based on well-established legislation principles. This system in fact offers a guarantee that the product comes from organic farming and consumers are not deceived when purchasing the product at a higher price than the same conventional food product (Janssen and Hamm, 2012).

In close relationship with the organic certification process, the labelling process of organic food aims to properly inform consumers and eliminate any confusion or misunderstanding regarding the origin of an organic food product. Organic products are specifically labelled, a producer being allowed to use specific logos on the label, only after the certification process.

These instruments are important market components that have contributed to its development from an early period. Thus, Western European organic markets have a significant share in the food industry and the level of consumption is constantly growing in contrast with Eastern Europe, where an increasing organic production industry contrasts a low consumption level.

Based on the literature review it can be observed that certification and labelling, as guarantee resources for building the consumer's trust in the organic food sector, are closely linked with the level of information that the consumer has regarding this sector. Past studies conducted by the authors have also resulted in highlighting the importance of information and education in developing a sustainable organic food market, mainly from a consumption point of view.

In order to identify how these 2 instruments can be improved, in the case of specific countries with less developed organic markets, an exploratory attempt was proposed for this paper. Romania was chosen as a geographic coordinate as previous researches of the authors exposed that Romanian organic food market is a growing market from a production point of view, while the consumption rates remain low (Toma et al, 2017).

At a more detailed analysis, the core of the organic farming system in Romania, a member state of the European Union since 2007, is based on the rules provided by the European Regulation no 834/2007. The existing Romanian legislative framework on the organic food sector has been continuously revised and improved in order to include different standpoints expressed by the European Union over the years. Beside production and processing, the legislation covers also the certification and labelling of organic food.

Thus, in Romania the inspection and certification of operators registered in the organic farming system is carried out by 15 private control bodies, which are accredited by the Romanian Accreditation Association or equivalent accreditation bodies of the European Union, signatory to the Multilateral Recognition EA-MLA Accreditation Agreement and approved by the Ministry of Agriculture and Rural Development to carry out this activity.

The result of the certification process, that is visible for the consumers, at a first inspection of the product, is the name and the code of the inspection body that carried out the last inspection of the operator. So, the role of the certification system is to guarantee the credence attributes of these food products, namely that they are produced in accordance with the requirements imposed by legislation applicable to organic production and that these products comply with the same principles and rules during all stages of production, starting with the primary production of the raw organic ingredients and ending with storage, processing, transport and purchase action of the final consumer, at the supermarket shelf.

Since July 2010, all prepacked organic products produced and sold in the European Union must be labelled with the mandatory EU logo (Regulation (EC) No. 834/2007). Besides the EU logo, there are several other voluntary organic certification logos in many European countries, which are owned by different kinds of organisations (Janssen and Hamm, 2012). Romania has a similar organic logo (“ae – Agricultura ecologică”), property of the Ministry of Agriculture and Rural Development, that can be used voluntarily next to the EU logo (the logos are presented in Figure no 2).



Fig. no. 2. Romania’s logos for organic food products

Source: MADR – AE Logos, 2018

Applying the EU logo to pre-packaged food is mandatory for EU products, but remains optional for imported products. The use of the EU Community logo must be accompanied by an indication of the place of production of the raw ingredients. This indication may be in the form of 'EU', 'non-EU' and/or the name of the EU Member State or non-EU country where the product or its raw materials were obtained.

So, these three elements represent the guarantees for a consumer when buying an organic food product. But in the context of food-fraud, consumers are reluctant to trust label logos and codes, for food products that usually sell at higher price than conventional food. Also, their lack of knowledge and information misunderstanding can cause insecurity during the buying decision, as multiple factors can differ from a product label to another (if the product is imported, if the raw material is produced in Romania or another EU country or non-EU country, if the raw material is imported and packed or processed in Romania).

On the other hand, inside the market segment more and more often producers and distributors tempt to substitute specific ingredients or even whole products in order to set an appropriate price for an aimed premium market, like the organic food market (Huck et al, 2016).

Having this situation as a starting point, a set of recommendations have been projected in order to build a better customer - market relationship and to transform Romanian food market in a more flexible sector, taking into consideration both consumers and producers demands.

Taking into consideration that all information regarding organic food is centralized by the Ministry of Agriculture and Rural Development, an institution that has more credibility with consumers than a third-party certification body, a metadata base must be available to the public, hosted on the Ministry’s official website – www.madr.ro.

A well-structured informational program addressed to all consumers can help them better understand the organic market’s role in both their personal and environmental health. In order to meet all issues highlighted in the previous analysis, the computerized model should have 4 main layers of information (Figure no 3):

1. general information that can help consumers acknowledge organic food products cost and benefits and the certification and labelling matrix;

2. database check – the possibility to check any organic food products if it’s authentic or not (by adding one of its identification items in search area – product name, producer name, certification body cod) or by scanning a QR code listed on the products label;
3. organic food product information – after confirming that the product is genuine, consumers can have access to all the information from the label plus extra information that the producer wasn’t able to add on label due to space restrictions;
4. a section where consumers can address questions and queries, where they can highlight problems and add proposals.

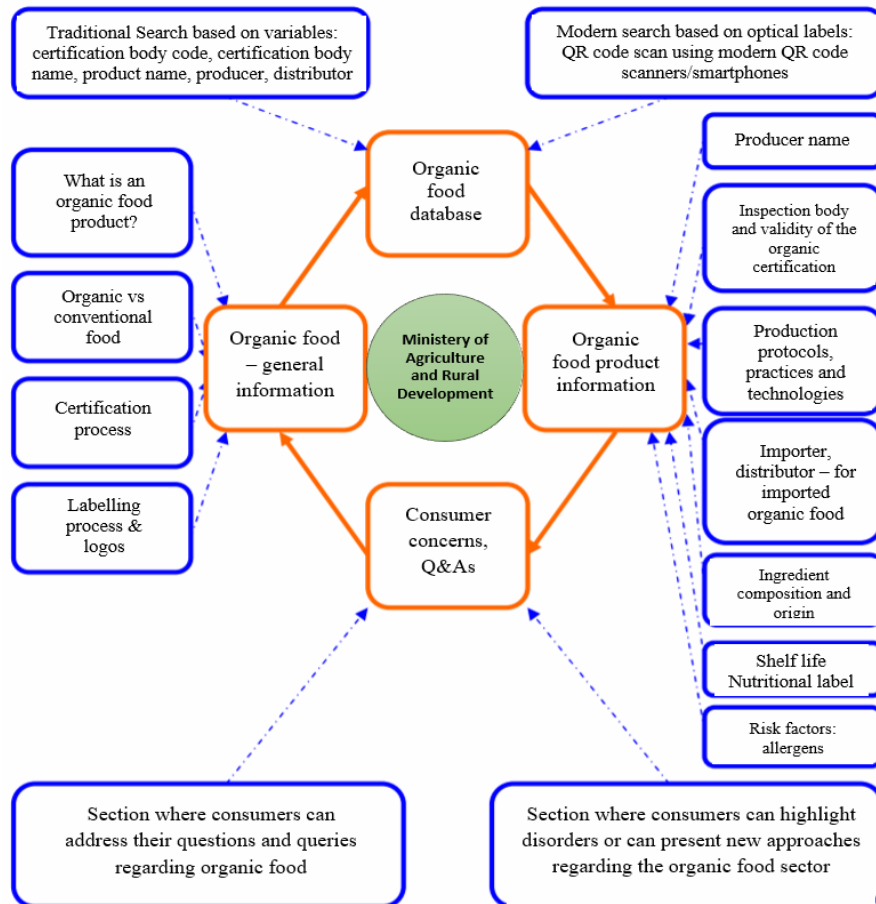


Fig. no. 3. Modelling organic food guarantees as a resource for consumer trust

So, due to the novelty involved, the organic farming sector confronts with consumer’s mistrust, which is a defining barrier, having a direct impact on national consumption levels. This barrier grows as consumers have no access to information and clear methods of recognizing organic products, thus, such informative and educational programs represent modern instruments to increase consumer trust in organic food products. Nevertheless, ‘authenticity’ must comply with labelling rules, raw-materials origin and composition, production protocols and technologies as well as genetic identity of the food product.

Conclusions

One of the main determinants for the evolution of the organic food market is the level of knowledge and information that consumers have access to and their willingness to acknowledge that information. In other words, one cannot discuss about consumer’s trust in

the context of a market with no quality-assurance guarantees, or with low awareness on the existence and practicability of the existence quality-assurance guarantees.

The result of the study highlights that Romania holds resources that can be used as instruments for signalling and promoting organic food, more exactly certification processes and special label-logos, including the EU organic logo, implemented based on European regulations. Thus, the only missing element is the consumers' awareness in respect to these instruments.

As a solution, a consumer-based model was designed on the basic characteristics suitable for the Romanian organic food market in order to drive a positive purchase decision matrix. The 4 main layers of the model (general informational, authenticity check, product information, consumer feedback) represent a starting point for the consumer and facilitate the connexion between the consumer and the organic food market.

By integrating clear and complex educational and informational computerized program, accessible for the public form multiple devices (phones, laptops), the Romanian organic food market would be more adaptable to the consumer's demands and consolidating the consumer's trust and also the products' lifecycle can be extended by building a permanent interactive relationship between the consumer and the product.

References

- Bobe, M., Procopie, R. and Toma, M.A., 2016. *How do Romanian consumers perceive organic food? a market review. New Trends in Sustainable Business and Consumption. BASIQ International Conference 2016 - Proceedings*, pp. 32-39 [online] Available at: <http://conference.ase.ro/wp-content/uploads/2018/01/BASIQ_Volume2016.pdf> [Accessed 10 March 2018].
- Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91
- Ford, G. T., Smith, D.B. and Swasy, J.L., 1988. An empirical test of the search, experience and credence attributes framework. *Advances in Consumer Research*, 15(1), pp. 239–243.
- Food and Agriculture Organization, 2017. *The future of food and agriculture*. [online] Available at: <<http://www.fao.org/3/a-i6583e.pdf>> [Accessed 12 March 2018].
- Golan, E., Kuchler, F. and Mitchell, L., 2000. *Economics of food labelling*. Washington: U.S. Dept. of Agriculture, Economic Research Service.
- Holland, S., 2015. Lending Credence: Motivation, Trust and Organic Certification. *Agricultural and Food Economics*, 14(4), pp. 1-18.
- Huck, C. W., Pezzei, C. and Huck-Pezzei, V., 2016. An industry perspective of food fraud. *Current Opinion in Food Science*, 10, pp. 32-37.
- International Federation of Organic Agriculture Movements, 2018. *The world of organic agriculture*. [online] Available at: <<https://shop.fibl.org/CHen/mwdownloads/download/link/id/1093/?ref=1>> [Accessed 12 March 2018].
- Iosif, A.E. and Tăchiciu, L., 2016. Assessment of the Service Innovation System in the Region of Bucharest-Ilfov. *Amfiteatru Economic*, 18(41), pp. 8-24.
- Janssen, M. and Hamm H., 2012. Product labelling in the market for organic food: Consumer preferences and willingness-to-pay for different organic certification logos. *Food Quality and Preference*, 25, pp. 9–22.
- Massey M., O'Cass, A. and Otahal, P., 2018. A meta-analytic study of the factors driving the purchase of organic food. *Appetite*, 125, pp. 418-427.
- Ministry of Agriculture and Rural Development, 2016. *Organic Agriculture*. [online] Available at: <<http://www.madr.ro/agricultura-ecologica.html>> [Accessed 7 March 2018].

- Resano, H., Olaizola, A.M. and Dominguez-Torreiro, M., 2018. Exploring the influence of consumer characteristics on veal credence and experience guarantee purchasing motivators. *Meat Science*, 141, pp. 1–8.
- Toma, M. A., Bobe, M. and Procopie, R., 2017. *Organic vs conventional food. A sustainable consumption approach*. BASIQ International Conference 2017 - Proceedings, pp. 691-699. [online] Available at: <http://conference.ase.ro/wp-content/uploads/2018/01/Volum_BASIQ-2017.pdf> [Accessed 10 March 2018].