# Consumer Perceptions on Organic Food in Cyprus

Andreas Petasis and Anthi Louroutziati

Abstract— In most European countries, consumer demand for organic is increasing. In Northern Europe, the state and professional bodies provide financial support to producers and information campaigns. So, is Cyprus on offer for organic crops? Is there a consumer response? Is the farmer aware of organic farming? The current study collects primary data to determine the perception of consumers regarding organic products in Cyprus at on hand, and secondly to examine if consumers in Cyprus are satisfied using organic food. For the purposes of this research, a structured questionnaire was used collecting 100 consumer responses from the Nicosia area of Cyprus. Results show that Cypriot consumer have favorable opinion and attitude towards organic food products, though there is much to be done to increase the consumption of organic food.

Index Terms—Agriculture, Farming, Organic Food.

#### I. INTRODUCTION

The purpose of today's conventional farming is to increase yield per acre using chemical fertilizers and pesticides, with high energy waste and growth enhancers. It leads to decoupling of production from the soil and to monocultures resulting in high water and soil pollution. The market is dominated and controlled by a small number of companies in production, wholesale and retail. Producers have become mere industrial product managers [1]. Overproduction is characteristic of today's agricultural model, squeezing intermediaries' prices from producers, destroying local regional markets. On the other hand, the effects of the chemicals used today by producers are directed against the world while destroying the natural and social environment. Finally, consumers find products of poor quality due to their increased processing quality. The solution to the above problems is to provide a new method of farming, organic farming, which, although pre-existing conventional, was lost with the advent of chemicals. At the same time, economic and social changes have led to structural changes in the patterns of living and nutrition at national and European level. The consequence of these changes is the growing demand for higher quality and healthier agricultural products, including organic farming products [2], [3]. Throughout the 1950s, the main priority of agriculture was to satisfy, with a significant increase in agricultural production, the immediate needs for food and to significantly increase the degree of self-sufficiency in the European Community. It is therefore understandable that organic farming has had a difficult time achieving a favorable impact in this context [4], [5]. In contrast, the end of the 1960s, and especially the 1970s, correspond to the emergence of a significant awareness of environmental protection to which organic farming could provide an appropriate response. New links are being created, bringing together producers, consumers and other individuals who are interested in ecology and a more closely linked nature, life [6,7]. Organic farming, however, flourished during the 1980s, as this new mode of production and consumer interest in these products continued to grow not only in most European countries but also in many other countries. other countries, such as the United States, Canada, Australia and Japan. In this case, we see a significant increase in the number of producers and the launch of initiatives in the field of processing and marketing of organic products [8].

This favorable framework for the development of organic farming largely owes its origin to the constant care of consumers to be provided with safe products that must be produced through various production methods that respect and protect the environment. At the same time, official administrations are slowly recognizing organic farming by incorporating it into their research issues and acquiring sector legislation (eg in Austria, France, Denmark). In addition, some Member States are starting to receive subsidies, both at national and regional level, in favor of this type of agriculture. Despite these efforts, organic farming remains, however, during this period, deficient due to a lack of recognition [9], [10]. On the one hand, there is some confusion in the eyes of consumers about the importance of the very concept of organic farming itself and the restrictions it imposes [11]. The main cause of this confusion is the existence of different schools and different philosophies, the lack of harmonization of the terminology used, the heterogeneous presentation of products, the amalgamation between organic products, quality products, natural products, etc. Misleading use of the indications cited in this way of production still helps to reinforce this confusion [12], [13]. Having said the above, the following research questions and hypotheses are developed:

- 1. What is the perception of consumers regarding organic products in Cyprus?
- 2. Are consumers in Cyprus satisfied using organic food?
- H1n Consumers in Cyprus have a very positive stance on organic food in Cyprus.
- H1a Consumers in Cyprus have a negative stance on organic food in Cyprus.
- H2n Consumers in Cyprus are very dissatisfied with using organic food in Cyprus.
- H2a Consumers in Cyprus are very satisfied with using organic food in Cyprus.

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## II. LITERATURE REVIEW

#### A. Historical overview

Organic farming is the result of a series of studies and the result of the development of many alternative methods of agricultural production that have begun since the beginning of the century, mainly in northern Europe. and there are three main streams of thought to be mentioned here [14], [15]: Biodynamic agriculture, which made its appearance in Germany at the urging of Rudolf Steiner; Organic farming, which made its first steps in England thanks to Sir Howard's views in his Agricultural Covenant; and Organic agriculture, developed in Switzerland, by Hans Peter Rusch and H. Muller. These various movements considered important, with specific nuances, the link between agriculture and nature and respect for natural balance, so they abstained from an approach to agriculture that sought to maximize yields through many interventions with various categories of synthetic products.

Despite the existence and power of these currents of thought, organic farming remained embryonic for a long time [1], [16]. Throughout the 1950s, the main priority of agriculture was to satisfy, with a significant increase in agricultural production, the immediate needs for food and to significantly increase the degree of self-sufficiency in the European Community. It is therefore understandable that organic farming has had a difficult time achieving a favorable impact in this context [17], [18]. On the contrary, the end of the 1960s and especially the 1970s correspond to the emergence of a significant awareness of environmental protection, to which organic farming could provide an appropriate response. New links are being created, bringing together producers, consumers and other individuals who are interested in ecology and a more closely linked nature, life. Organic farming, however, flourished during the 1980s, as this new mode of production and consumer interest in these products continued to grow not only in most European countries but also in many other countries. other countries, such as the United States, Canada, Australia and Japan [19], [20]. In this case, we see a significant increase in the number of producers and the launch of initiatives in the field of processing and marketing of organic products. This favorable framework for the development of organic farming largely owes its origin to the constant care of consumers to be provided with safe products that must be produced by various production methods that respect and protect the environment. At the same time, the official administrations are slowly recognizing organic farming by incorporating it into their research and acquiring sector legislation (e.g. in Austria, France, Denmark). In addition, some Member States are starting to receive subsidies, both at national and regional level, in favor of this type of agriculture [21]-[23].

Despite these efforts, organic farming remains, however, during this period, deficient due to a lack of recognition. On the one hand, there is some confusion in the eyes of consumers about the importance of the concept of organic farming itself and the restrictions it imposes. The main cause of this confusion is the existence of different schools and different philosophies, the lack of harmonization of the terminology used, the heterogeneous presentation of products, the amalgamation between organic products, quality products, natural products, etc. Misleading use of the indications cited in this way of production still helps to reinforce this confusion [9], [24].

Organic products are a system for the management and production of agricultural products based on natural processes, the non-use of chemical synthetic fertilizers and pesticides, and the use of alternative chemical methods to deal with pests, diseases and weeds, as well as the use of technical production, such as field production, and the recycling of plant and animal residues that maintain the soil's natural balance and fertility. Organic farming is mainly based on the use of locally available renewable natural resources, soil self-sufficiency in organic matter and nutrients, and the biodiversity of the ecosystem which is also a key factor in maintaining their ecological balance. It is also based on the use of indigenous resistant plants and animal breeds adapted to local conditions as well as the appropriate selection of cultivation techniques and crop rotation, preferably in mixed farming systems (coexistence of crop and livestock production on farms) [1], [19].

## B. Organic food in Europe

In general, the various statistics that have been published show that the market for organic products is on the rise in the European Union. According to the most recent European Commission study released in 2005, sales of organic products are estimated at 13-14 billion euros, with the largest market share being the German market (3.9 billion euros) and followed by Italy (EUR 2.4 billion) and France (EUR 2.2 billion). 34 In 2004 the market for organic products in the EU25 was EUR 11 billion. Germany again holds the largest market share with 30% (3.5 billion euros) of total sales in the EU25. Major markets for organic products are also the United Kingdom (EUR 1.6 billion), Italy (EUR 1.4 billion) and France (EUR 1.2 billion). Significantly in recent years, the highest growth rate was observed in France and the United Kingdom (> 40%) in 1999-2002. In Italy and the Netherlands average growth ranged from 20-30% per year, in Germany it reached 15%, while in Austria and Denmark it was relatively low [12 [5].

Experts estimate that the growth rate of organic marketplaces in countries with an established market such as Austria, Denmark, Germany, the United Kingdom and France will not exceed 10% for the period 2002-2012. Denmark is ranked first (> 60 euros), followed by Sweden (45 euros), Austria (41 euros) and Germany with 40 euros, per capita spent on the purchase of organic products. In many other European Union countries, the average consumption is 20 euros. More specifically Belgium (29 euros), the Netherlands (26 euros), France (25 euros), the United Kingdom (24 euros) and Italy (24 euros) [26]. The distribution and marketing channels vary from country to country. For Belgium, Germany, Greece, France, Luxembourg, Italy, the Netherlands and Spain the direct sale of organic products or the sale through specialized stores dominates. On the other hand, in Denmark, Finland, Sweden, the United Kingdom, Hungary and the Czech Republic most of the sales of organic products are made by Supermarkets (> 60%) and by non-specialized stores. Some experts even believe that where Supermarkets dominate, organic market share is and will remain higher [27], [28].

In most European countries, consumer demand for

organic is increasing. In Northern Europe, the state and professional bodies provide financial support to producers and information campaigns. However, in several Southern European countries - except Italy - the growth rate is low due to the weak political support (Spain, Portugal, etc.). Imports are often necessary because of low production. As for the problems, according to research, serious obstacles lie in expanding the market for organic products due to [29], [30]: the high price of organic products (91% of research participants); lack of availability (88% of survey participants) and lastly, Lack of information (84% of respondents). Concerning the incentives for the market for organic products in a series of published studies it appears that environmental concern is the determining factor. Environmentally concerned consumers can be defined as follows: These are people who know that the production, distribution, use and disposal of products have external costs and evaluate these costs by trying negatively. to minimize it with their own behavior [31].

### C. Organic food in Cyprus

Organic products are increasingly popular and in demand. They contain more nutrients, antioxidants and vitamins than conventional defenses that enhance the body's defenses and can meet our every nutritional need [31]. Organic fruits and vegetables appeared in Cyprus for the first time in 1987 with 3-4 organic growers, reached 23 in 1998 and today there are 1240 in total, according to official figures, of which 200 are market-producers covering market needs. while others cultivate for their own needs and some of their neighbors. In total, organic growers cover 4.5% of the total area cultivated in Cyprus [32], [33].

So, is Cyprus on offer for organic crops? Is there a consumer response? Is the farmer aware of organic farming? Are there subsidized programs from the European Union and targeted state strategy? Reasonable questions that we have been dealing with since the beginning of the report. According to the legislation in the countries of the European Union, environmentally friendly methods that prohibit any use of chemical preparations, i.e. chemical pesticides and fertilizers, should be used. We let the plants cover a full cycle reaching the ripening process and this differentiation allows us to have fruits and vegetables that have different flavors than the conventional ones. The other thing we get used to is using traditional seeds that are more durable [34], [35].

In fact, many organic farming products are those that grandparents have maintained for many years, using environmentally friendly methods. That is why in the old days the fruit was fragrant and had a real taste. Nowadays these values are gone, and organic farming is coming to compensate for this loss. Cyprus has significant advantages over the rest of Europe. Tropical fruits such as avocado, papaya and bananas can be grown in some areas of Paphos. This cannot be done in any part of Europe. Winter vegetables, such as potatoes and pumpkins, can also be grown. Europe is also calling for fragrances because the microclimate of Cyprus with high sunlight allows them to have higher perfumes and essential oils used in cosmetics [34], [35].

Denmark has announced that by 2020 all its agriculture will be organic. Bulgaria joins EU after Cyprus aims to touch 12% of organic farming by 2020. Cyprus has a policy but is not targeted by a specific plan stipulating that by 2020 there will be specific quantities of vegetables, citrus fruits, tropical fruits and aromas exported to European countries. Targeted policy means that today I have 4.5% by 2020-25 Cyprus should target 12% of its own production and allocate it accordingly. Europe's two major rural development programs that are in place are 7/13 and the current one is 14/20. In both programs one of the central pillars was the environment which automatically means promoting organic farming [36].

What, then, should tomorrow's organic farmer in Cyprus know that he will strive in his field waiting for him to earn fruit and income? The first steps are to investigate the markets of Cyprus and Europe for the product that it chooses to cultivate, to be informed about the legislation governing organic farming following its methods, to contract with a law enforcement agency and to submit various forms in the Ministry of Agriculture. In Cyprus, three different surveys have been conducted by on consumer intentions that show trends and what people are buying. Similarly, available is the annual survey of the Institute of Organic Agriculture based in Switzerland, Germany and Austria, which conducts surveys each year with the International Federation of Organic Agriculture in Europe and showing trends. In the production process he must be systematic and record everything so that he knows the microclimate of his own estate. The Organic Farmers' Association has a database showing the process of growing what it has chosen [37].

According to surveys, most consumers of organic products in Cyprus are graduates of higher education, and the lion's share is the women who usually choose Cypriot vegetables and fruits. The world of Limassol is more receptive to organic products, but this trend is increasing in all cities. One of the vegetables that is gaining popularity among consumers is the Chinese kale, which is considered a vegetable superstar because of its high vitamin C content, while organic lettuce, tomatoes, cucumber, and boiled lettuce are in the forefront. Almost all organic stores in Cyprus have fruit and vegetable products, the Organic Farmers Association maintains a store in Strovolos, and there is also a popular market in Agia Fyla [1], [38].

The European Union, in addition to the additional crop subsidy for five years, runs two subsidized programs: "Investment" and "For Young Farmers" with a higher subsidy for organic farming because it satisfies the pivotal environment. However, the organic farmer will also have to seek financing solutions from banks, which do not seem to favor primary production. The logic is simplified. In the bureaucracy that governs a commercial bank in lending, the primary sector is not chosen as the dominant and most sustainable but other sectors, the secondary to a lesser extent and the tertiary having the lion's share. We don't really have any lending from commercial banks. "So how can the organic farmer meet the ever-increasing demands on his products? If the farmer concerned is not on the field daily, he cannot have valuable products with the prospect of selling them and satisfying consumers. If you do not do systematic work, you cannot perform. The organic perspective should be exports to Europe. This will make a substantial contribution to Cyprus' gross product and there will be a rollover. If we are talking about a Europe of 500 million people, the conditions for a small Cyprus with a small percentage of primary GDP in our total GDP are extremely favorable [39].

As part of the ORGANIKO LIFE + project, a nationwide market research was conducted to understand the behavioral pattern of the Cypriot consumer of organic food. The aim was to explore in depth the current behaviors and behavioral intentions of Cypriot consumers in the organic food market. Random, stratified proportional sampling was used to select the sample. Telephone and in-person interviews were used. The sample consisted of households from all cities of free Cyprus and interviews were conducted between adults 18-65. The survey was conducted between April and August 2016: (11/04 / 2016-30 / 08/2016) with a total sample of 420 households. 35% of the interviews were for men and 65% for women. The mean age was 36.7 years. Educational level, province of residence, number of household members, number of non-adult members, marital status, occupation and household income were measured. According to the results of the survey: Consumer attitudes towards organic food consumption are particularly positive; Social norms seem to be perceived in moderate to high intensity; Respondents do not seem to face any obstacle in their possible decision to consume organic food but consider that organic food is not widely available and that the household does not have the money needed to consume organic food; Their intentions to consume organic food in the future are relatively lukewarm; 40% of households have purchased organic food, while the frequency of purchasing, information, discussion and other related behaviours is moderate.

#### III. METHODOLOGY

The purpose of Quantitative Analysis is to discover the causes of social change through objective measurement and numerical analysis. This type of research usually uses Deductive reasoning, that is, the researchers begins with an existing theory - they expect an answer. Quantitative analysis aims to verify a hypothesis by means of figures. Social life has a regularity is not a mess. The goal is therefore generalization (general principles). That is, it concludes with generalizations and empirically based theories, through research hypotheses [40]. Theory in empirical research means applying the criterion of scientific logic, that is, what we see and not what we should see. It is based on figures or characteristics of cases or entities that show the connection between social reality and theory. Social phenomena are examined through variables that perceive them as external characteristics. Data must be objective - without prejudice. The achievement of scientific objectivity, of course, is an ideal rather than a reality [40], [41]. The researchers cannot guarantee their own, personal objectivity. the choice of the subject to be investigated and the related research questions. The data also must be verifiable - it can be proven by others and finally controlled: not irrelevant. Quantitative analysis is used in the scientific and private space, for example, businesses (opinion poll companies) to describe analysis, explain phenomena [42].

A sample is the part of the population selected by the population. They are part of the population. The sample is selected from the sampling frame, i.e. population list, which in theory should include all cases included in the population. The smaller the population, the more the sample population identifies. The opposite is true when the population is large. Because the purpose of the survey is to refer to the population, we use Inductive Based Statistics to analyze the sample data. For the sample to refer to the population, the sample must be representative. Also, the sample must meet the parameters of the whole population. The sample selection method is based on probability theory. That is, all members of the population have an equal chance of being elected. Random sampling theory (based on possible fluctuations in population). Sampling - should exclude bias [43]. The present study used a sample of 100 consumers from the Nicosia area of Cyprus.

The Questionnaire is a form containing a series of structured questions that are presented in a specific order and which the respondent is asked to answer in writing. The main advantages of the questionnaires are [40], [43], [44]: they are much cheaper than interviews; they can be sent to many people; it is easy to build and use; respondents can express themselves freely (lack of direct communication); standard ways of analyzing the material; the researchers cannot influence the answers; it is the least time-consuming method [43], [44]. For the purposes of this research, a structured questionnaire was used. The analysis of the results in this research was conducted with the use of the SPSS statistical package.

## IV. ANALYSIS OF DATA

# A. Demographic Information

54% of the participants that participated in our research were female and the rest 46% were male. 30% of the participants were from 18-24 years old, 24% were from 25-35 years old, 18% from 36-45 years old, 16% from 46-55 years old and 12% were above 56 years old. 64% of the participants were married, 30% were single and 6% were divorced. 30% of the participants had a Diploma, 20% were Professionals/ had a Doctorate, 19% had a bachelor's degree, 17% were high school graduates and 14% had a master's degree. 33% of the participants were students, 31% were self-employed, 16% worked in the Private Sector, 10% worked in the Public Sector and 10% were unemployed. 33% of the occupation of the participants concerned the Education sector, 20% the manufacturing sector, 17% the financial sector, 16% the healthcare Sector and 14% the hospitality sector. 34% of the participants had a yearly income of €25001 - €35000, 33% less than €15000, 25% from €15001 - €25000 and 8% from €35001 - €50000.

# B. Consumer perceptions on organic foods

59% of the participants said that they agreed with the opinion that Organic products are valuable for society, 18% disagreed whereas 13% strongly agreed. 53% of the participants said that they agreed with the opinion that they are willing to pay a higher price for environmentally friendly products, 19% strongly agreed whereas 16% disagreed. 49% of the participants said that they agreed with the opinion that they would prefer environmental / promotional campaigns, 25% disagreed and 16% neither agreed nor disagreed. 52% of the participants said that they agreed with the opinion that they would prefer those points of sale (products) that do not cause environmental pollution, 18% disagreed whereas 17% strongly agreed. 47% of the participants said that they agreed with the opinion that they would buy environmentally friendly products, even lower quality ones than alternatives, 24% disagreed whereas 23% strongly agreed. 52% of the participants said that they agreed with the opinion that Biodegradable products are useful for society, 21% strongly agreed as well and 15% disagreed. 45% of the participants said that they agreed with the opinion that they will buy recycled products, even if they are more expensive, 21% strongly agreed as well and 15% disagreed. 59% of the participants said that they agreed with the opinion that they never back down, underestimating the value of the environment when they go shopping for home products, 19% disagreed and 10% strongly agreed. 69% of the participants said that they agreed with the opinion that they would prefer to buy products that are more expensive but cause less environmental pollution and 26% strongly agreed as well. 57% of the participants said that they agreed with the opinion that they would not prefer to buy products that are cheaper but that cause environmental pollution and 43% strongly agreed as well. 45% of the participants said that they agreed with the opinion that they would prefer to buy lower quality products, but which cause less environmental pollution, 32% strongly agreed and 13% neither agreed nor disagreed. 85% of the participants said that they agreed with the opinion that they would not prefer to buy products that are more quality but that cause environmental pollution, 11% strongly agreed and 4% neither agreed nor disagreed. 69% of the participants said that they strongly agreed with the opinion that Organic products are their first choice and 21% agreed as well. 58% of the participants said that they strongly agreed with the opinion that Organic products they buy satisfy their needs and 33% agreed as well. 52% of the participants said that they strongly agreed with the opinion that they will continue buying organic food in the future and 38% agreed as well. 63% of the participants said that they agreed with the opinion that they would recommend the consumption of organic food to their family and friends and 22% strongly agreed.

#### C. Crosstabulations

Age: \* 2.1 Organic products are valuable for society

We can see from the chi-square chart that we have a statistical significance between the two variables as sig.=,00 that is < than Pearson 0,05. We see from the crosstab chart that most participants that are from 18-55 years old, believe that Organic products are valuable for society, whereas most participants that were over 56 years old, disagreed with the above opinion.

Education: \* 2.6 Biodegradable products are useful for society

We can see from the chi-square chart that we have a statistical significance between the two variables as sig.=,00 that is < than Pearson 0,05. We see from the crosstab chart that most participants that were high school graduates, had Diploma, Bachelor and Master degree, agreed with the opinion that Biodegradable products are useful for society whereas most participants that were professionals/had a Doctorate, disagreed strongly or just disagreed with the above opinion.

Yearly Income: \* 2.3 I would prefer environmental / promotional campaigns

We can see from the chi-square chart that we have a statistical significance between the two variables as sig.=,032 that is < than Pearson 0,05. We see from the crosstab chart that most participants that had an income up to €35000, agreed with the opinion that they would prefer environmental / promotional campaigns whereas most participants that had higher income, disagreed with the above opinion.

#### V. CONCLUSIONS

The increase in sales of organic products will be ensured by their effective penetration into the already functioning market from which consumers make their purchases. Most of the population wants to meet their needs by using organic products if they are easy to find on the market and confident of their authenticity. It is therefore necessary that every effort to promote their sales more effectively builds consumer confidence in organic products. From the findings that emerged from the analysis of the elements that shape the market for organic products is that the large mass of consumers in Cyprus prefers organic products. The basic need arises, however, for organic products to become more widely known and to build consumer confidence. Such an endeavor should be methodical, consistent, long-lasting and encompass all sections of the population. It is a national effort. Organic farming is also an alternative to Cypriot agriculture. Such an effort should mobilize all the potential of the country to make organic products known to the whole population. Make them aware of healthy nutrition and environmental issues by emphasizing their usefulness and effectiveness in ensuring their healthy living. The whole effort should be directed not only to consumers to look for organic products but also to trade to look for organic products, to integrate them into their business activities and to promote them even in foreign markets. Such an effort should include the following points: a focus on the basic quality characteristics; a focus on the production process of organic products; Monitoring and certification of organic products; Introduce a single label for organic products; Ensure consistent quality; Standardization, packaging and branding; Uninterrupted market presence; Organic products should be of interest to all consumers; and creation of more Healthy Food Stores.

The role of the European Union and the Ministry of Rural Development is important for the development of organic products. The European Union could adopt incentives to stabilize production and distribution of organic products. This can be achieved through organized research and dissemination of findings in the form of integrated training packages for growers so that producers can meet their professional needs. The Ministry of Rural Development in cooperation with producers and their organizations must redefine the whole system of organic farming in Cyprus.

Some measurable objectives should be introduced such as cultivation zones, rationalization of income support, review of certification conditions, implementation of agricultural research and professional training of producers, planning of market structure and processing.

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