Perception of Quality of Fresh Fruits and Vegetables of Residents of Mytilene, Lesvos Island, Greece

By
Diana Zadorozhna

Submitted to
Central European University
Department of Environmental Sciences

In partial fulfilment of the requirements for the degree of Master of Environmental Sciences, Policy and Management

Supervisor: Professor Thanasis Kizos
University of the Aegean
Department of Geography

Budapest, Hungary
2015

Abstract

Quality conventions have the potential to influence food market and food production regulations. Together with this, the notion of quality is complex and varies for different regions with different environments and economic, social and cultural characteristics. This research is aimed at understanding of how residents of an island town located in the North Aegean region of Greece perceive quality of the fresh agricultural products and to identify main drivers that affect their perception of quality. The evaluation of quality perception is implemented with consideration of the following factors: different buying environments, demographic factors and socio-economic characteristics, buying practices and level of trust to certified products.

Findings suggest that there is a correlation in quality perception of the residents of Mytilene with those of other studies with similar geographical and climatic conditions. With that, the perception of quality of the respondents was found to vary with such factors as age, level of education, and household size.

The results indicate that there is a high level of awareness about certifications of quality as the "*organic*" and "*PDO*" among the respondents. Nevertheless, locality was found to have a greater importance for defining the agricultural products as safe and "*healthy*".

Table of contents

Chapter 1: Introduction

Agriculture is one of the biggest and most important sectors of the world economy upon which human survival is largely dependent. Industrial revolution and further technological development has led to an increased scale of agricultural activity; shifting the sector from local to a global scale production, with benefits of larger availability and affordability of food. After the WWII the food production was aimed at increasing efficiency and rationalization (Spaargen *et al*. 2011). Increase in scale has resulted in various externalities, degradation of environment, including worsening of animal welfare, social-economic conditions, worsened by multinational corporations and decrease of food quality such as food's safety and health benefits (Spaargen *et al*. 2011; Garnett 2013; Murdoch *et al.* 2000).

Nowadays significant amount of the territory of the Earth is covered by agricultural lands (Ellis and Ramankutty 2008). Together with this, present-day agricultural activity is considered to be one of the biggest contributors to climate change and constitutes biggest amount of fresh water resources use (Richardson *et al.* 2009; Garnett 2013). Post WWII agricultural activity, which can be characterised as productivist, has resulted in appearance of various alternative food movements and systems (Van Otterloo 2011; Renting *et al*. 2003; Murdoch *et al.* 2000). Various incidents related with intensive animal farming like BSE disease and swine fever have shattered the confidence in large scale and intensive farming (Renting *et al*. 2003). Further concerns about food production practices were increased by the research on the consequences of industrial agriculture on environment. One of the most notable examples is the work Silent Spring by Rachel Carson.

Ever since, there is a growing consensus among scholars and conscious consumers around the world that food production process should be changed towards more sustainable one, the one

that would reduce harm to environment, respect animal rights and increase nutritional and health qualities of food produce (Murdoch *et al.* 2000).

All the events that happened on the food market has primary affected the understanding on quality of food. Various incidents related to mass food production lead to emergence of a new understanding of quality. If before the quality of food was associated mostly with taste, today the important characteristic of quality is considered to be safety (Murdoch *et al.* 2000). The demand for certain quality attributes transforms the food market (Murdoch *et al.* 2000; Caswell 2000). After the genetic modification was introduced "*the ideals of organic food, natural food and eco food revived*" (Van Otterloo 2011).

At the same time, market affects the consumer. The environment where the food produce is presented and the informational cues provided are part of decision-making during the process of making a purchase. Also, contemporary consumer deals with many complexities when it comes to shopping for food. Food variety, variety of options for the same product, complexity of manufacturing processes, and lack of transparency of production process, personal and moral preferences and concerns all contribute to complexities consumer has to deal with while shopping.

One of the most challenging things for contemporary consumer - is defining what constitutes a quality product. What product can be considered the best and what to choose from the offered variety. Various certification and labelling programs have been introduced as one of the solutions to this question. Nevertheless, in Europe the level of trust still varies from region to region and hence, consumers tend to choose the produce based on their own quality criteria.

The quality criteria or perception of quality of consumers is also being formed under the influence of different social, economic, and cultural backgrounds, which consequently impact buying behaviour.

Understanding of the perception of quality of consumers constitutes an important body of research which could facilitate transformation of the food market towards more sustainable. Quality conventions have the power to influence food production regulations (Renting *et al*. 2003).

The aim of this research is to contribute to understanding of how consumers perceive quality of fresh agricultural produce and to identify main drivers that affect the perception of quality. The choice to focus on fresh fruits and vegetables produce is related to the fact that environmental attributes are more important for this type of produce (Gil *et al.* 2000).

A Greek island, Lesvos in the Aegean region was chosen for the analysis. For the purpose of the thesis a set of face-to-face interviews to be implemented in three different types of outlets: supermarkets, farmer markets and grocery stores. For identification of buying practices and the perception of quality semi-structured questionnaires are to be used. The questionnaires are designed to additionally evaluate the level of awareness about different certifications of quality, as well as impact of personal characteristics on buying practices.

Chapter 2: Literature review

The notion of quality is something that constantly changes, affected by the sequence of events in the history of food market and adjusted to the needs of consumers. For instance, rising awareness about production processes and the externalities they create, which are related both to the nutritional value of the produce and the environment, has led to people demanding more and more for transparency of these processes (Tchoukaleyska 2012; Spaargaren *et al.* 2011). This demand comes from the desire to protect oneself and environment for the future generations (Spaargaren *et al.* 2011).

Various incidents in history of farming and agriculture led to establishment of safety controls of food produce, which became an essential step regulated on the governmental level without which the produce cannot be sold. Hence, safety today can be considered as an essential characteristic of food quality (Murdoch *et al.* 2000).

Another important characteristic of quality of food production is consideration of nature as an integral part of the notion. More and more consumers shift towards sustainable and local produce. This shift is not necessarily driven by concerns over environment, but over health, as what is "natural" is perceived to be healthy (Brunso *et al.* 2002).

Notion of quality is important as it is the main parameter according to which consumers decide which product to choose and this decision is important in shaping food markets (Spaargen *et al.* 2011).

The notion of quality for fresh fruits and vegetables (f&v) is more complex, as this type of produce doesn't go through processing and the manufacturing stage is largely unknown to the consumer.

It will be seen further that the notion is very complex mostly due to its subjectivity, as well as due to the amount of factors that affect the perception of quality. Therefore, understanding what quality of fresh fruits and vegetables represents for consumers is a big challenge. This literature review attempts to define the notion of quality associated with food in general and agricultural products in particular. Further, the main quality cues will be presented and finally the overall findings about how consumers worldwide perceive the quality of fresh agricultural produce will be provided.

2.1 Defining quality

Quality has many definitions due to the complexity of the notion. The definition will differ depending from perspective from which the notion to be attempted. For instance, quality can be approached from a product orientation such as physical characteristics of a product and method of production (objective quality), consumer orientation (subjective quality) or sensory (instrumental) measurements perspective (objective quality) (Abbott 1998; Brunso *et al.* 2002). All the approaches are interrelated and impact consumer-oriented quality (Brunso *et al.* 2002). Multiple sciences are involved in studying the phenomenon (Brunso *et al.* 2002). This research is aimed at understanding and defining quality from a consumer orientation and hence further description is done for the purpose of this aim.

The major difficulty related to defining quality is related to the subjectivity of the notion. Consumers judge quality according to how it satisfies their personal needs and objectives (Migliore *et al*. 2015). Quality is constructed in a mind of the consumer from the informational cues and own experience (Brunso *et al.* 2002). The perception of the notion varies for different products, with different countries, individuals and their cultural backgrounds, and "as a result different dimensions are attributed" to the notion. At the same

time being socially constructed the notion is a subject to constant change (Kizos and Vakoufaris 2010; Guerrero *et al.* 2010).

Oxford dictionary (2015) defines the word quality as "*a standard of something as measured against other things; the degree of excellence of something*". "Quality of produce encompasses sensory attributes, nutritive values, chemical constituents, mechanical properties, functional properties and defects." (Abbott 1998) Consumer understanding of quality lies in attributes of a product. These attributes are primarily classified on intrinsic and extrinsic (Moser *et al.* 2011; Caswell 2000*;* Mascarello *et al.* 2015; Johansson *et al.* 1999). Where intrinsic attributes comprise from food safety, nutrition, sensory or organoleptic, value or function (compositional integrity, size, style etc.), and process (associated with production) attributes. While extrinsic quality attributes comprise from test or measurement indicators (quality management systems, certification, labelling etc.) and cues (price, brand, origin etc.) (Caswell 2000).

Further quality for the consumer is classified into the following categories according to stages at which consumer discovers quality of a product (Moser *et al.* 2011):

- Search (things known or evaluated by to the consumer before the purchase of a product like price, size and color);
- Experience – evaluation of quality after consumption;
- Credence goods – "are those whose relevant attribute information is difficult to ascertain directly by consumers at any stage of purchase, even after consumption of the food".

Quality attributes and classification help in better understanding of quality perception formations. Specific characteristics of a consumer, as education, experience and other personal specifics, can be considered as a base for quality perception. Then sellers take buyers

characteristics into consideration when providing to them signals or cues on quality. "These indicators and cues are extrinsic to the product itself and are designed to be search in nature; the buyer can use this information prior to purchase to form expectations about the quality of a product. The buyer's quality expectation is also influenced by the intrinsic search attributes of the product. Perceived quality is then determined by expected quality, the buyer's use experience with the product, and the buyer's beliefs about the intrinsic credence attributes of the product." (Caswell 2000) This is better demonstrated on the figure 1 below.

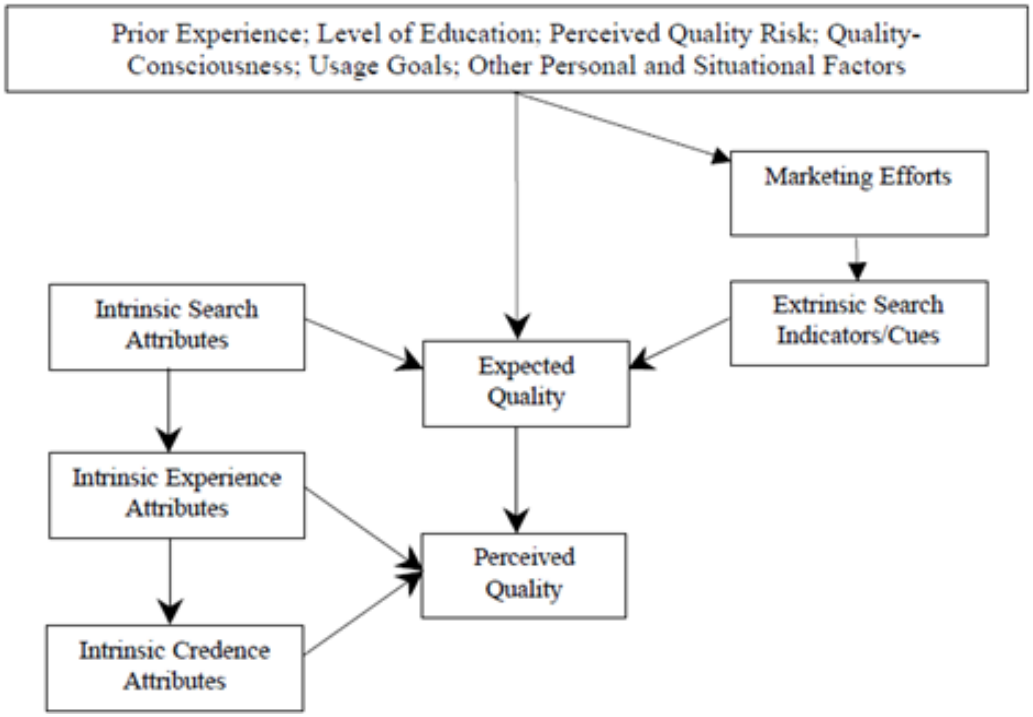

Figure 1: Quality framework (Caswell *et al.* 2002)

The classification provided highlights the complexity of the notion due to amount of different factors being involved. Consumer perceived quality is affected by various external and internal factors like life experience and other personal characteristics (taste, lifestyle, origin, society influence), by producers, governments and other information cues. Hence, quality preference of a consumer cannot be completely predicted.

The following categories of quality can be outlined for the produce like fresh fruits and vegetables: organoleptic and safety (Stanton *et al.* 2012; Guerrero *et al.* 2009; McEachern *et al*. 2010; Brown *et al.* 2009; Tchoukaleyska 2012; Kizos *et al*. 2011). Organoleptic – are the

ones that include both search and experience classifications, the ones that are experienced by senses. For the assessment of quality of fresh fruits and vegetables "people use all of their senses like: sight, smell, taste, touch, and even hearing". After integrating all of the sensory inputs – aroma, flavor, and texture - the final judgment is formed (Abbott 1998).

Safety characteristics are referred to meeting production standards. Such safety characteristics are the ones that can be proved by scientific measures to verify consistency and safety standards of a food product (Tchoukaleyska 2012). But for fresh fruits and vegetables quality perception differs as, there is no processing stage involved; meaning safety assurance for the consumer is often unavailable and cannot be guaranteed. Hence, there is a level of risk for a consumer based on uncertainty of credence goods category - the information which cannot be validated by the consumer and which consumer have to only trust, like safety and nutritional value.

2.2 Different dimensions of quality

In response to consumer demand for quality, including attributes of rising concerns as safety, nutritional value, environmental and social care, various certification systems have appeared for agricultural produce (Renting *et al*. 2003). Different certifications indicate different quality attributes of a product. With this regard there are two different categories suggested for the quality certifications of fresh f&v: organoleptic and safety (Stanton *et al.* 2012; Guerrero *et al.* 2009; McEachern *et al*. 2010; Brown *et al.* 2009; Tchoukaleyska 2012; Kizos *et al*. 2011). For organoleptic category geographical indicators are largely used and for safety – various certifications related to regulation and monitoring of various stages of production. The latter category is also called low input foods (LIFs) as the systems employed by the certifications rely on sustainability and low use of chemicals (Kizos *et al.* 2011; Marchesini *et al.* 2007).

Safety certifications can be further subdivided as follows:

- Certification of quality at the stage of production. The most common types of certifications are organic and integrated management products. Organic label requires all the inputs to be natural without the use of pesticides, while the integrated management label requires the use of chemicals to be kept as low as possible and the end products to comply with certain residual restrictions (Kizos *et al.* 2011); and
- Certification of safety from production material to final product stage. The notable certifications are EUREP-GAP and GLOBAL GAP[1].

As to certifications of quality from geographical indicators, within the EU there are three main types (Kizos and Vakoufaris 2010):

- Protected designation of origin (PDO), "the production steps of which all take place in the same defined geographical area";
- Protected geographic indication (PGI), "the production and/ or processing and/ or preparation of which take place in the defined geographical area";
- Traditional Speciality Guaranteed (TSG), under this designation products are not necessarily linked to geographic area, but contains a specific recipe or method of production.

Geographical indicators help to signify food quality by inducing "association with particular places or regions and/or local or particular modes of production" (Kizos and Vakoufaris 2010).

Another cue that can be listed here is related to notion of locality as an indicator of quality. This cue is generally in demand in the areas, where people live close to the production place of a product. People, who value local produce, generally value freshness and taste, as well as

[1] http://www.globalgap.org/uk_en/for-producers/ppm/

other organoleptic attributes of quality. The consumers of local produce tend to know producers and hence perceive their produce as safe and possessing other credence attributes (Moser *et al.* 2011; Midmore *et al.* 2005; Rodriguez-Ibeas 2007; Thilmany et al. 2008). It can be said that locality as a quality attribute is set by default by those who romanticize pre-industrial production methods (Guerrero *et al.* 2010; Renting *et al*. 2003; Tregear 2011). According to Moser *et al.* (2011) the proximity to the producer impacts the effectiveness of local geographical indicators, the shorter the distance the higher the effectiveness.

2.3 Empirical findings on quality preferences

There is a considerable amount of research have been implemented to date on consumer purchase behavior and perception of quality (Kiesel and Villas Boas 2007). Apart from product specific attributes related to quality there are various factors that affect purchase decision and understanding of quality. For instance, quality varies with geographical location and different environments, which affect in general how and what people eat (Blake et al. 2010; Rozin 2005). With this regard some common findings are presented here that tend to be repeated in various studies implemented in different regions of the world.

For fresh fruits and vegetables quality is said to be comprised of four main attributes: color and appearance, flavor (taste and aroma), texture and nutritional value. The attributes are listed in the order they affect consumer (Barrett *et al.* 2010). According to Kramer (1965), appearance of the product often determines acceptability of a product, and therefore it is one of the most important attributes of quality.

According to Total Food Quality Model designed by Grunert *et al.* (Grunert 2005), there are four fundamental and closely interrelated dimensions of food: hedonic, health, convenience and the production process. Taste and appearance were always very important attributes of quality, while health attribute became important only recently, just like the production

process. Today people are concerned about the production process, and much of their interest is focused on naturalness of food (Brunso *et al.* 2002).

The significance of organoleptic attributes of quality in buying decision of fresh fruits and vegetables is supported by various studies. According to Kizos *et al.* (2011), organoleptic attributes of quality like taste, smell and visual attributes are among the most significant for buying decision. Together with food enjoyment health-related attribute of quality was found to be important in three regions of the world: Asia, Europe, and the United States (Moser *et al.* 2011).

Attributes related to method of production and origin of the produce are significant as they are directly related to food enjoyment and health concern. For example, consumers of sustainable f&v were found to value the most organoleptic attributes of quality and to "perceive sustainable f&v as being natural, with higher vitamin and nutrient content." Also, sustainable f&v are believed to have less or no pesticide and additives content (Moser *et al.* 2011).

The review conducted by Moser *et al.* (2011) showed higher willingness by customers to pay for sustainable produce in order to avoid health-related risk, which is widely associated with nowadays conventional production. "Pesticide-free" produce was among the health-related attributes consumers were willing to pay the most.

Concern over environment was found to be least important via assessment of consumer willingness to pay for the attribute. Socially-oriented attributes (job creation or support of farmers) and organic cue were found to be less significant in the buying decisions of consumers. This can be described by the difficulty of understanding of the organic certification process by consumers (Moser *et al.* 2011).

Several studies mention about the influence of outlet type on consumer perception of quality. Farmer markets (FM) are playing a big role in the regions with agricultural traditions and are associated with better tasted and traditional food. With this regard, quality is perceived via

links with social and cultural contexts of food production. For instance, people who shop at farmer markets tend to perceive the products presented there to be produced with the application of natural methods and traditional knowledge (Tchoukaleyska 2012).

The produce presented at FMs is mostly local and locality was found to be valued higher than third party certification (Moser *et al.* 2011). The word local implies the distance from production site. But in reality, people who shop at FMs perceive local produce as the one possessing certain values linked with history, heritage and traditional methods. Farmers market is the place where farmers have an opportunity to communicate and inform people on the quality of their produce directly to consumer. At FMs consumers tend to follow advice of producers, as they have more knowledge about the product. It can be concluded that in the case of FMs quality is partially determined by the farmer (producer) and is of credence character, especially under consideration of personal established relations between consumers and producers. Local produce is associated with freshness and "*better taste*" attributes, as well as transparency of the production method (Moser *et al.* 2011; Tchoukaleyska 2012). Production method brings us back to concern over environment as a quality attribute. Some consumers tend to believe that locality involves more environmentally-friendly mode of production (Tregear 2011).

The major demand for sustainably or environmentally-friendly produce derives from the concern over personal health (Michaud and Llerena 2008). On the other hand, some studies point at importance of nature for quality. Natural is contrary to industrial mode of production and is associated with safety and nutrition. Quality is coming to be seen as inherent in local and natural food and consumers increasingly link notion of food quality to notions of nature (Murdoch *et al.* 2000).

The study by Devine *et al.* (1998) also supports the link of nature and locality with concern over health and nutrition. Fresh fruits and vegetables are important foods for health promotion and that is how they are primarily seen by consumers (Devine *et al*. 1998).

A study conducted in the UK highlights significance of place or origin of products. Place attaches meanings to food. People who shop at FM believe the food to taste better than in supermarkets and again organoleptic attributes are of major importance (Spiller 2012).

Apart from objective and credence attributes of the products, as well as type of outlet, there is a strong dependence of other external circumstances. Convenience can be considered as one of the external attributes that affects purchase decisions. One of the studies (Hjelmar 2011) showed that there is a type of consumer as pragmatic. Such consumer would depend on availability of the produce. For instance, the consumer would buy organic produce only if it is available at the place of convenient shopping. In general the results of the study conducted in Denmark showed that the following quality attributes were of the major importance: intrinsic (taste and view) and extrinsic (price and origin) together with efficiency of shopping (Hjelmar 2011).

Knowledge and associations related to food are the major triggers of buying decision (Spiller 2012). International studies have shown that quality cues (like certifications of origin) are important indicators for consumers when judging quality (Keningham *et al.* 2005). Together with this, the level of demand for organic produce correlates with development in society (Andersen 2011).

It should be mentioned that food and quality "preferences are structured according to variables such as gender, level of education, and values", as well as occupation (Cantarero *et al.* 2013). For example, people who cook at home tend to have more shopping experience and understanding of quality (Blake *et al.* 2010). Also, while describing FMs and local produce it was seen that following organoleptic attributes the consumers primarily value cultural aspect

related to the produce. Cultural attributes are not visible for the buyer, but add symbolic value to products by "reference to places, people and cultivation methods (by labels, images and packaging)", so-called "ghosts of taste" (Tchoukaleyska 2012).

Finally, all consumers in general like to have a premium product, but in reality their possibilities are limited (Moser *et al.* 2011). Food choice is related to conflicts and dilemmas between moral principles and real demands, like caring for family members (Andersen 2011). It is fair to say that quality is linked with the needs of consumers (Leader European Observatory, 2000). This is supported by standard economic theory, according to which there are three major factors that impact consumption: price, income and personal taste (Michaud and Llerena 2008). Consumers look for high quality affordable food, given their budgets and perception of food quality (Marchesini *et al.* 2007).

2.4 Quality trends in the studied region

Greece is a country where traditions are highly valued. Food constitutes significant part of traditions and culture of Greece. The food pattern of Greek people is largely dominated by intake of fresh fruits and vegetables. Greek diet has many similarities to those of Southern Italy and Spain (Panagou *et al.* 2013). With this regard the following findings might serve as an assumption/hypothesis for this research. The studies with geographical and social similarities with the present region of study were also considered.

Safety of food is closely related to quality for Italian consumers. They would regard food as safe if they would consider it to be of high quality. The perception of quality of Italian consumers is "closely related to values, culture, identity and ethical choices" with sensorial (taste, appearance, freshness) attributes being the main trigger for purchase of food (Mascarello *et al.* 2015).

Product freshness was found to be as an attribute with the highest score among consumers of local produce (Mascarello *et al.* 2015). Freshness is also considered to be a decisive attribute for consumers of fresh f&v (Peneau *et al.* 2009).

Taste together with so-called ghosts of taste attributes as tradition and culture were found to be of greatest importance. Also, for European consumers' climatic conditions, soil and practice employed have the strongest impact on quality of an agro-product (Marchesini *et al.* 2007).

Geographic location was found to influence perception of quality (Mascarello *et al.* 2015; Peneau *et al.* 2009). A study by Peneau et al. showed that people, who grew up on a farm or a small city tend to pay attention more to non-sensory attributes like seasonality, while people who grew up in big cities mentioned more often flavor rather than seasonality and place of production (Peneau *et al.* 2009). Also, it was found that older consumers are more likely to buy certified produce (Mascarello *et al.* 2015).

A study by Marchesini *et al.* (2007) shows that the highest willingness to pay for the produce with certifications of quality like geographical indicators and LIFs have the consumers that live close to the areas of production.

In Europe traditional food was found to have a positive general image. Study conducted by Lengard Almli *et al.* (2011) educed that consumers are ready to take many trade-offs like expensiveness and time required for food preparation to achieve specific taste, quality, appearance, nutritional value, healthiness and safety.

Concern over environment is found to be important for consumers of fresh fruits and vegetables. Many perceive locality as one of the ways to alleviate externalities of intensive agriculture (Moser *et al.* 2011).

Overall trend in f&v studies is that food enjoyment and health concern were found to be the primary attributes in willingness to buy and pay (Moser *et al.* 2011).

2.5 Overall findings

As the result of implemented literature review it was seen that defining quality is a complex task, due to the amount of interrelated factors involved in this phenomenon. Nevertheless, a general framework of the quality notion was presented with an attempt to provide a system behind consumer quality perception process. For instance, the stages of quality formation in mind of consumer were provided and different factors that affect consumer perception are grouped into categories. This serves to simplification and provides some guidance in the process of consumer quality perception evaluation.

Further numerous information cues were presented, which serve to navigate consumer on different attributes of quality. It was found that mostly due to lack of understanding of certifications of safety as organic and LIFs, consumers turn to alternative food systems to find the desired quality.

As to attributes of quality, it was found that consumers always valued the most qualities related with enjoyment of food. Various events in the history of food market associated with safety of food, nutritional value, environment and animal welfare triggered concerns among consumers about methods of production of food. It was found that the most important drivers for purchase of certified and local produce are related to care for health.

Chapter 3: Methodology

3.1 Aim and objective

The aim of this research is to contribute to understanding of how consumers perceive quality of fresh agricultural produce and to identify main drivers that affect the perception of quality.

Objective – is to answer the following research questions:

- What are the characteristics of quality for the consumers of an island community? How do different shopping environments – different outlet type, and buying practices affect quality perception of consumers.
- How do demographic factors and socio-economic characteristics of the residents of Mytilene impact their quality perceptions of fresh agricultural products?
- What is the level of trust to certified products among the residents of Mytilene?

3.2 Description of the location and outlet types

The location for the research was chosen based on the following factors:

- Quality perception of consumers varies with different geographic regions. It is interesting to see how quality perception of fresh fruits and vegetables of Greek island community corresponds with existing studies implemented for Mediterranean regions with similar geographical and socio-cultural conditions.
- Location and size of the city of Mytilene together with the population size allow capturing the representative sample.

The research is implemented in a small Mediterranean town Mytilene, which is the biggest town and a capital of Lesvos Island, Greece. The population of the town is 40,000 people. Lesvos Island is characterised by its remoteness and dependence from mainland for major part food produce supply to meet the demand of the island. The island relies on its own farmer production for much of fresh fruits and vegetables with some of the produce being delivered

to the island due to insufficient amount of cultivated quantities, as well as of the produce which is not cultivated on the island.

The research was implemented via interviews with the citizens Mytilene. The period of implemented interviews is from February until the middle of May 2015. The size of the sample involved is 70 interviews. The interviews were implemented in three types of outlets presented in Mytilene where fresh fruits and vegetables can be purchased: farmer markets (FM), grocery stores (GS) and supermarkets (SM).

The supermarkets buy most of the agricultural products from local producers, when the products are available, except for the one international retailer shop, which ships all the fresh products. All the SMs have safety controls for the products they sell. The grocery stores sell a combination of local and imported products, which is purchased via local wholesalers or directly from local farmers. The FM is relatively small with about 20 stands, which represent local farmers, including two or three stands that sell imported produce. Based on the research/observations done during the research the prices of the products differ between outlets such as SM products on average cheaper (by 27%) than similar products sold at FM s, and products sold at GSs on average are more expensive (by 30%) than the same products sold at FMs. SM products by a margin of 20% of the price.

At all outlet types certified produce is presented: at FMs and GSs mostly local organic produce and at SMs – produce with geographical indicators. Together with this at all outlet types it is obligatory to have labels of origin of the produce.

3.3 Questionnaire

The questionnaire used for the purpose of the research is semi-structured. The questions were designed so as to record buying practices of fresh f&v of respondents and understand what comprises quality for them. Together with this, the questionnaire contains a section aimed at

evaluating the level of awareness about some of the most popular, in the studied region, indicators of quality for fresh f&v: PDO, PGI, organic and integrated management products, as well as locality. For finding a relation between specific person characteristics and buying practices, demographic data related questions, as age, education, employment and household size, were also included in the questionnaire.

The questionnaire consisted of 24 questions in total and was subdivided in the following sections: quality, practices, opinions and personal data. In order to maximize the true measure and minimize the errors which could occur due to the mood or motivation of respondents at the time of research, the questionnaire was designed so as to contain open, closed, dichotomous and Likert-type questions, which would sometimes repeat in a different question form.

In order to examine how respondents understand and evaluate quality three types of questions were designed:

- open, where respondents could give their definition of quality;
- closed, where respondents were offered a list of 14 attributes to choose from as: taste, appearance, freshness, colour, size, uniformity, texture, aroma, method of production, origin, price and certification, and their own option. This question was followed by another question where respondents had to select the most important attribute of quality for them among the listed ones.
- Likert-type question aimed at understanding whether respondents link quality with locality, standardizations/certifications of quality or the price. Respondents were offered a number of statements for their evaluation with five-point response scale from "strongly agree" to "strongly disagree".

Further to evaluate the level of awareness about labels of quality available in the region the following questions were included in the design of a questionnaire:

- a dichotomous question ("Yes"/"No" response) about knowledge of quality labels for agricultural produce, followed by an open question, where the respondents were asked to list the labels they know;
- a dichotomous questions ("Yes"/"No" response) about knowledge of the following certifications: PDO, PGI, Organic, EUREP-GAP/GLOBAL GAP with suggestion to list the products they know being sold under the each label. Same question about awareness of labels that indicate the product is locally produced was asked.

To record consumer shopping practices closed, open and Likert-type questions were used. For instance, consumers were asked about shopping frequencies per type of outlet in a month and respective percent of purchases of fresh f&v per outlet, followed by an open question, where respondents had to justify their preference of an outlet. Further evaluation of outlet preferences was accessed via Likert-type questions consisted of five-point response scale from "Strongly agree" to "Strongly disagree".

The section of shopping practices was also aimed to record/evaluate consumer attention to origin of the produce, as well as frequency for shopping products that had to travel long distance. The form of the questions is dichotomous with the possibility to evaluate type and origin of the product purchased from abroad.

The opinion section consisted of dichotomous "Yes" or "No" questions followed by an open response. This section was aimed at evaluating the level of satisfaction with quality of the produce presented in Mytilene, as well as level of understanding about the production and supply of the produce.

To analyse the link between quality perception and socio-demographic characteristics of respondents the following variables were included: gender, age, marital status, household size, education level, occupation, and income.

Finally, the questionnaire was concluded with an open question, where consumers could add something they consider important, but which was not covered in the questionnaire.

3.4 Population and Sampling

The target population for the research are the residents of Mytilene, who buy regularly fresh f&v from one of the outlet types present in the city. The sample for the study was selected randomly. Hence, respondents covered by the study are of different demographic characteristics. For the size of the sample the following factors were considered:

- a number and size of outlets selected for the study, which is further described in detail;
- a plan to have equal amount of interviews per outlet type for the possibility to compare the findings;
- a time required per interview.

Farmer markets are held three times a week in three different locations of the city. The biggest farmer market is held every Saturday from 6:30 a.m. to 11 a.m. called Chrysomalusis. There are 5 big supermarkets in the town, among which Veropoulos can be considered the biggest in size in comparison with the SMs located in the city, and Lidl is a big retail shop located outside of the town. As for grocery shops, there are many shops located around the city and the most popular stores throughout the city were selected. With this regard greater number of interviews was planned to be implemented at outlets with bigger size.

Supermarkets and farmer markets are not operational on Sunday, with some grocery stores being operational until 1pm. SM are operational from 8 a.m. until 9 p.m. on weekdays including Saturday, while most of GS have a break from 2 p.m. to 5:30 p.m., which is in accordance with normal operation hours of the market in Mytilene. FMs, as it was said above, are operational only three times a week at different location from 6:30 a.m. to 11 a.m. The time for the interviews was chosen so as to get the highest amount of respondents and

frequent buyers. For instance, those respondents who shop regularly at SM, usually shop on Fridays after 5 p.m. or Saturdays before noon. GS are preferred in the afternoon or Saturdays closer to noon. As for the FM, majority of people come to shop early, especially on Tuesdays and Thursdays, when after making their purchase people have to bring produce home to prepare breakfast before their routine begins.

The planned size of the sample was planned to be 90 respondents – 30 per each outlet type. The actual size of the sample, the selected outlets and time for interviews are presented in the Table 1 below.

Table 1: Amount of interviews implemented per type of outlet

Outlet type	Outlet name	Number of interviews	Time of conducted interviews
SM	Veropoulos	11	Saturday morning; Thursday after 5pm
	Masoutis	6	Saturday afternoon
	Lidl	11	Saturday morning
	Mytilene	5	Saturday noon
GS	Parking	4	Thursday before noon
	Ladadika	4	Saturday noon
	Ermou	6	Work days afternoon
	Olimpiaki	2	Saturday noon
FM	Epano Skala	6	Tuesday 8 a.m.
	Gipedo	4	Thursday morning 8 a.m.
	Chrysomallousis park	11	Saturday morning
Total		**70**	

3.5 Interview process

The interviews were implemented in Greek language with the assistance of students from the University of the Aegean. Before starting the interviews 6 pilot interviews were conducted at the biggest FM, which is held every Saturday. The average time per interview was 25 minutes. On average out of 9 people who were offered to participate in the research 3 refused. The consequent interviews implemented at FM showed how different external conditions affect willingness to participate. For instance, less people were willing to participate in the research at FMs which are held every Tuesday and Thursday. Those who refused said they were in a hurry. As for SM, greater amount of people were willing to participate in the research when the interviews were conducted on Friday evening than on Saturdays, first half of the day. Only in two out of four selected grocery stores the willingness to participate was high, while in other two the refusal rate was higher than actual numbers of interviews implemented.

Chapter 4: Results

For the analysis of the responses of the interviewed people the descriptive statistics analysis was employed. The SPSS software was utilised, version 20. The analysis consists of the following components:

- socio-demographic characteristics of the sample;
- analysis of buying preferences and comparison with socio-demographic characteristics;
- analysis of quality perception;
- level of awareness about labels and indicators of quality.

4.1 The sample

The survey resulted in 70 respondents in total aged from 17 to 76. The socio-demographic characteristics of the sample are presented below.

Table 2. Socio-demographic characteristics of the sample.

Gender	%
Male	39
Female	61
Total	100

Education	%
Elementary school	3
High school	33
University	63
Total	100

Marital status	%
Single	34
Married	66
Total	100

Age	%
17-34	29
35-50	37
51-65	23
Older than 65	11
Total	100

Income	%
<10.000	42
10.000-20.000	38
20.000-30.000	16
>30.000	4
Total	100

Household members	%
1	16
2	17
3	24
4	30
5	9
6	4
Total	100

Occupation	Unemployed	Student	Retired	Household	Farmer	Private employee	Public employee	Total
%	7	10	14	10	4	19	36	100

From the table 2 it can be seen from that 65% of the sample are below 51 years old and 11% of the sample are older than 65 years old%. The greatest age category (37%) of the sample is between 35-50 years old, with the overall average age 44 years old. Over 60% of respondents are women. 63% of the sample have higher education, 33% have finished high school and 3% have completed only elementary school. As to the income distribution of the sample, 42% have annual income less than 10.000 Euro, 37% have income between 10.000-20.000 Euro annually, almost 16% earn between 20.000-30.000 Euro and only 4% earn over 30.000 Euro per year. Over 50% of the sample have a household size of 3 to 4 people. The predominant occupation category "*Public employee*" is over 35%.

4.2 Typology of buying habits

In order to understand buying preferences of the respondents the responses to the following questions shall be analysed: "*Where do you usually shop for fresh fruits and vegetables?: How many times a month; What is the % of products you shop from*" and Likert-type questions on outlet type preference for fresh fruits and vegetables.

One of the factors that should be considered in the analysis of typology of buying habits - is the difference in number of interviews per outlet type. The number of interviews obtained in each type of outlet is indicated in table 3 below.

Table 3. Number of interviews taken per outlet type

Type of outlet	Frequency
SM	33
FM	21
GS	16
Total	70

More than half (56%) of the respondents shop at least once a month at farmer market, of which almost 13% shop only once and over 66% buy from FM at least once a weak and can

be considered regular customers. The number of respondents, who said they buy at least once a month from SM, amounts to 47 or 67% from the total. Out of this amount, 15% buy fresh f&v from SM only once, 19% shop twice a month, 24% buy 3 times, and the remaining 24% buy 4 times a month. The highest amount of respondents – almost 79% shop at least once a month in GS, out of this number only 11% buy their produce once a month, 17% - twice, and 41% of respondents shop from 4 to 6 times a month.

Table 4. Contingency table of percent of products purchased by respondents from different outlet types

			GS			
SM			>70%	30-70%	<30%	Total
>70%	FM	30-70%	0	0	1	1
		<30%	0	2	13	15
	Total		0	2	14	16
30-70%	FM	>70%	0	0	1	1
		30-70%	0	2	2	4
		<30%	1	8	0	9
	Total		1	10	3	14
<30%	FM	>70%	0	1	8	9
		30-70%	2	11	2	15
		<30%	13	2	1	16
	Total		15	14	11	40
Total	FM	>70%	0	1	9	10
		30-70%	2	13	5	20
		<30%	14	12	14	40
	Total		16	26	28	70

As it can be seen from table 4, the number of respondents who shop for 70% and over for fresh f&v at FM (highlighted in blue) amounts to 10 people (14%), while those who shop for the same amount of produce at SM (highlighted in orange) and GS (highlighted in yellow) amounts to 16 people (23%) each. Those who shop from 30 to 70% for fresh agricultural products at GS amounts to 26 (37%) people, while those who shop for the same percentage of produce at FM and SM is 20 (28%) and 14 (20%) people respectively.

Out of 16 respondents who shop 70% and over for their produce at SM, two people buy from 30 to 70% at GS and one at FM. Out of 10 respondents who shop for 70% and over for f&v at FM, one person buys from 30 to 70% at SM and one at GS. As for the GS, 2 out of 16 shop from 30 to 70% at FM and 1 from SM.

Out of 26 respondents who shop from 30-70% at GS, 13 also shop for 30-70% at FM and 10 at SM. Out of 20 people, who buy from 30 to 70% at FM, 13 are already counted, as they shop same amount at GS and 4 shop at SM. This means that the number of people who shop from 30 to 100% only from one outlet type is as follows: 18 people at GS, 16 people at SM and 12 at FM. Among the respondents there was 1 person who grows 100% of fruits and vegetables and, hence, doesn't shop from anywhere else for agricultural products.

From the results of responses about percent of products purchased at different outlet types, it was found that around 18% (13 out of 70) use mix of outlet types for buying fresh fruits and vegetables. For instance, out of 70 respondents: 6 buy equal amount of produce from FMs and GSs and less than 30% from SMs; 3 shop only from GSs and SMs and buy from there in equal amount; 2 shop from FMs and SMs only and buy from there in equal amount; and 2 buy almost equal amount from all outlet types.

15 out of 70 respondents grow their own f&v, out of this number 3 out of 15 are farmers, 2 of whom use 100% of the produce they grow for their needs. 3 people shop for over 50% for agricultural produce at FM. 5 out of 15 shop from 50% and over at GS and another 5 who shop respective percent at SM. 1 out of 15 shops for 80% of agricultural produce at GS and FM (40% at each outlet).

Further to understand whether the type of outlet, where the interviews were conducted, reflects consumer buying habits the responses to the question "*What is the % of products you shop from*" were compared with type of outlet the responses were obtained. The results obtained are as follows.

Table 4.1. Percent of products purchased by respondents from FM comparing with outlets where interviews were conducted

Type of outlet	% from Farmers' market classes			Total
	>70%	30-70%	<30%	
SM	1	8	24	33
FM	7	11	3	21
GS	2	1	13	16
Total	10	20	40	70

Majority of the respondents (7 out of 10) who shop 70% and over for fresh f&v at FM were actually interviewed at FM. 55% of the respondents interviewed at FM shop from 30 to 70% of their produce at FM. Second biggest amount (40%), who shop from 30 to 70% of their produce from FM were respondents from SM.

Table 4.2. Percent of products purchased by respondents from GS comparing with outlets where interviews were conducted

Type of outlet	% from Grocery stores classes			Total
	>70%	30-70%	<30%	
SM	3	17	13	33
FM	1	7	13	21
GS	12	2	2	16
Total	16	26	28	70

12 out of 16 (75%) respondents who shop over 70% of their produce from GS were interviewed at GS. 65% percent of respondents who shop from 30 to 70% of their produce from GS were interviewed at SM.

Table 4.3. Percent of products purchased by respondents from SM comparing with outlets where interviews were conducted

Type of outlet	% from Supermarkets classes			Total
	>70%	30-70%	<30%	
SM	13	8	12	33
FM	3	4	14	21
GS	0	2	14	16
Total	16	14	40	70

Similar situation is with SM: 81% (13 out of 16) of respondents, who buy from 70% of fresh f&v and 57% of respondents, who buy from 30 to 70% at SM were interviewed at SM.

In the responses to a question "*How many times per month*" the type of outlet, where the interview was conducted, also reflects outlet type preference for shopping. Farmer market and supermarket outlets got the maximum score of respective outlet type preference for shopping at least ones a month. Out of 40 respondents, who shop at least once a month at FM, 20 were interviewed at FM. Out of 26 respondents, who shop at FM over 3 times a month 15 were interviewed at FM. As for SM, the number of interviewed at SM and who shop at least once a month at this outlet amounts to 28 out of 47, and the respective number of those who shop over 3 times a month is 11 out of 19.

The grocery store is the only exception which can be justified by the least amount of interviews conducted at this outlet type (50% less interviews than in supermarket outlet type), but after comparing the results for shopping over thrice a month the total score of buying frequency at GS by GS interviewers equates and further overcomes the SM interviewers.

Further for understanding the buying practices of the respondents the responses to Likert-type question shall be analysed. The respondents were suggested to express their agreement or disagreement with the following statements:

Figure 2. Likert-type question with statements and median scores of the responses from strongly disagree (1) to strongly agree (5) and DK/DN (0), n=69

Table 5. Frequency (f) and percent (%) of the responses, n=69

	I shop at FM and often buy from the specific producers because their produce is better		I prefer SM products because they are cheaper		I prefer SM products because they are safer		FM has many products that are not local		I would prefer having a possibility to buy local organic products	
	f	**%**	**F**	**%**	**f**	**%**	**f**	**%**	**f**	**%**
DK/NA	3	4	0	0	0	0	6	9	2	3
Strongly disagree	8	12	14	20	8	12	3	4	2	3
Disagree	9	13	23	33	29	42	21	30	5	7
Neither agree nor disagree	8	12	15	22	19	28	15	22	6	9
Agree	31	45	13	19	9	13	17	25	26	38
Strongly agree	10	14	4	6	4	6	7	10	28	41
Total	69	100	69	100	69	100	69	100	69	100

The results are indicated on the figure 2 above show the median of the responses to the Likert-type questions. The frequency and percent of the responses are presented in the table 5 above as follows: 78% of respondents (54 out of 69) have said that they would prefer having a possibility to buy local organic products, of them 21 shop at GS, 19 at SM and 13 at FM from 50% and over of fresh f&v. For the statement "*Farmer market has many products that are not local*" there is an equal amount of respondents who agree and disagree with it – 34% each, and 22% have chosen "*neither agree nor disagree*" option. Only 13 respondents out of 69 have agreed that SM products are safer, one of the respondents explained that because of the big quantity it is not possible for the produce to be of good quality. Of those who agree with the statement 6 shop for 50% and above at GSs and 7 at SMs. Of those who disagree that SM products are safer 1 is an agriculturalist with a respective degree and 1 is a farmer, who sells at FM. 24% of respondents agree that SM produce is cheaper. 59% (41 respondent) agree with a statement "*I shop at farmer market and often buy from the specific producers because they have better products*", out of those who agree 14 respondents shop from 50% and over for fresh f&v at SM and 17 at GS.

4.3 Typology of buying habits and socio-demographic characteristics of the sample

Out of those respondents who shop for 70 and over percent of the produce at SM the biggest amount of people (7 out of 16) are among the youngest group (from 17 to 35). Under the range of buying preference from 30 to 100% SM is similarly popular among the two age categories: from 17 to 35 and from 35 to 50 years old. FM is popular among respondents within the age group of 35 to 50 years old. As for GS type of outlet, the assessment didn't result in significant difference among those aged from 17 to 65 years old.

Consequently, assessment of a relation of age variable with buying practices variable didn't result in significant findings, which could be explained by uneven distribution of age categories of the sample. With this regard it is difficult to tell anything about those who are 65 and older as they present only 11% of the sample and the results for buying practices doesn't show much difference.

For SM and FM, among those respondents who shop from 30% and over, the amount of respondents with marital status "*married*" exceeds those who are single (around 70% those who are married). The income distribution is as follows: 48% of respondents who shop 30 to 100% at FM have annual income from 10.000 to 20.000 Euro. Majority of those (46%) who shop at grocery stores have income less than 10.000 Euro annually. For supermarkets there is no difference between two income groups: less than 10.000 Euro and from 10.000 to 20.000 Euro. Overall the mentioned income groups dominate for all outlet types. As for the respondents who earn from 20.000 Euro per year and above SM has– 23%, FM - 20% and GS – 14%.

Among the respondents who shop from 30 to 100% at FM the most common household size (17 respondents out of 30) is from 3 to 4 people, of this number 5 shop from FM from 70% of their demand for fresh f&v. 9 out of 17 have annual income size from 10.000 to 20.000 Euro. 52% (22 people out of 42) of those who shop 30 to 100% at GS have a similar dominant

household size from 3 to 4 people and 33% have a household size 1-2 people. 11 out of 22 people with household size from 3 to 4 people have an income from 10.000 to 20.000 Euro per annum and dominant number of respondents with household size 1 person the income is below 10.000 Euro per year. As for the SMs, respondents with different household size buy at this type of outlet.

There is an equal amount of respondents who have university degree and who doesn't and buy from 70% at FMs and GSs. 15 out of 16 people, who buy from SMs have higher education.

Public employees shop predominantly at GS and SM. Respondents on pension shop more at FM and GS. Students prefer GS and SM. There was no significant difference with regard to other occupation categories.

Out of 15 respondents, who grow their own f&v, 3 are younger than 35 years old, 10 are in the range from 35 to 65 years old and 2 are older than 65 years. The female to male ratio is 6 to 9. 10 respondents are married. 46% of respondents have a household size of 4 people. 9 have a university degree. The income distribution is as follows: 46% earn less than 10.000 Euro, 33% - in the range 10.000 – 20.000 Euro, and 20% from 20.000 – 30.000 Euro annually.

4.4 Quality attributes

The quality section of the questionnaires was designed to begin with an open question, where respondents were asked to give their definition of quality. The responses to the question were interpreted and the frequency of the responses is presented below.

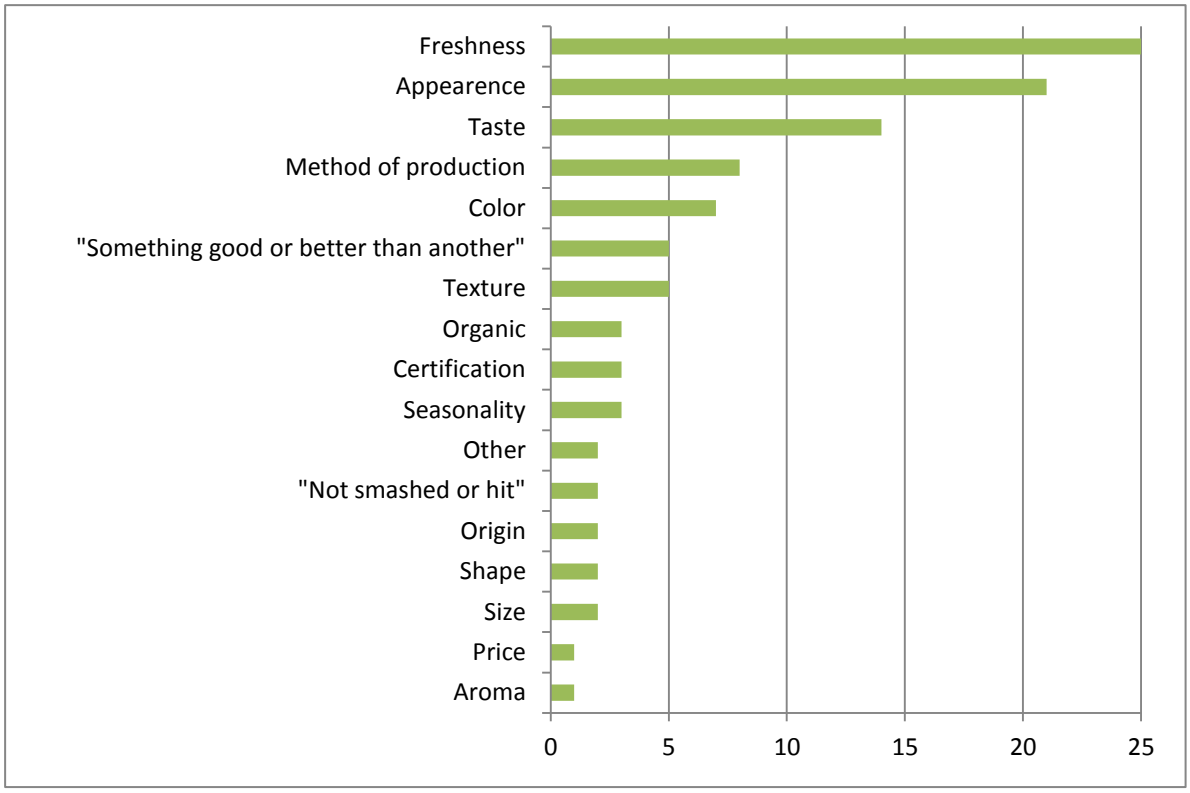

Figure 3. Frequency of responses to a question "*How would you define the "quality" of an agricultural product?*", n=65

As it can be seen from the figure 3 above, the most frequently chosen attribute to describe quality of an agricultural produce is "*freshness*", followed by "*appearance*" and "*taste*".

The frequency of attributes chosen for the question "*Which of these characteristics of quality are important for you when you choose fruit or vegetables?*" is displayed below on figure 4. For this question respondents could select any number of attributes from the provided list. Freshness attribute got the highest score and was mentioned by 84% of respondents. Seasonality was mentioned by 74% of respondents, taste - by 70% followed by origin (locality) attribute – 68%. Price was mentioned by 60% of respondents, followed by method of production (57%). Certification or label of quality was mentioned by only 33% of respondents.

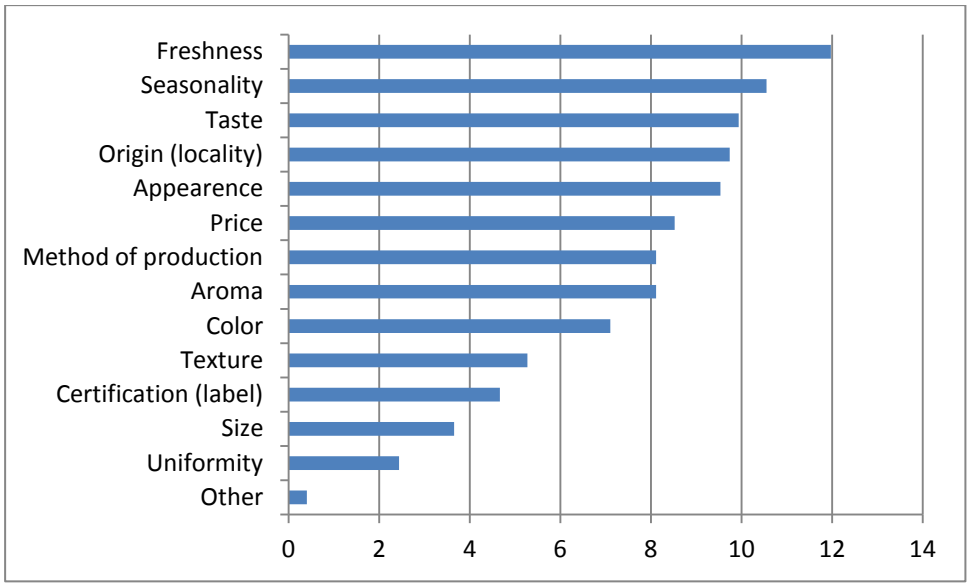

Figure 4. Frequency of responses to a question "*Which of these characteristics of quality are important for you when you choose fruit or vegetables?*", general, n=67

For the question, where respondents had to select the most important attribute from the suggested list, freshness again got the highest score and was selected by 22% of the respondents. Second highest score got seasonality and method of production both at 16% (figure 5).

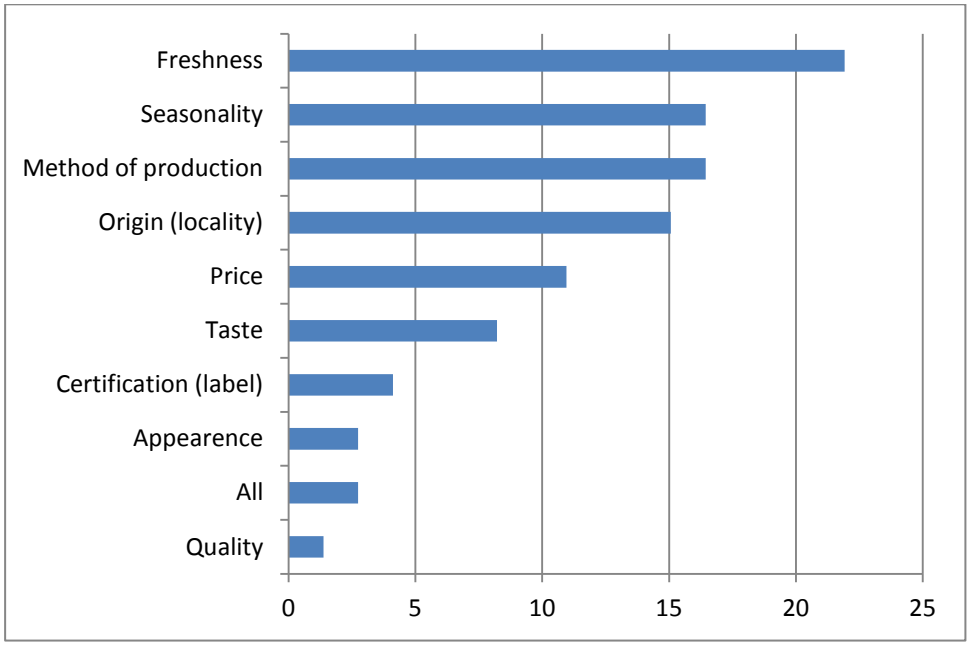

Figure 5. Frequency of responses "*Which one is the most important?*", general, n=70

The comparison of the most important outlet with buying preferences (figure 6) gives the following results.

When the results of an open question about quality definition with the results for the question *"Which one is the most important?"* are compared, it can be seen that while the first most frequently chosen attributes like "*appearance*" and "*taste*" shifted much further down in frequency, the "*freshness*" attribute remains the most important.

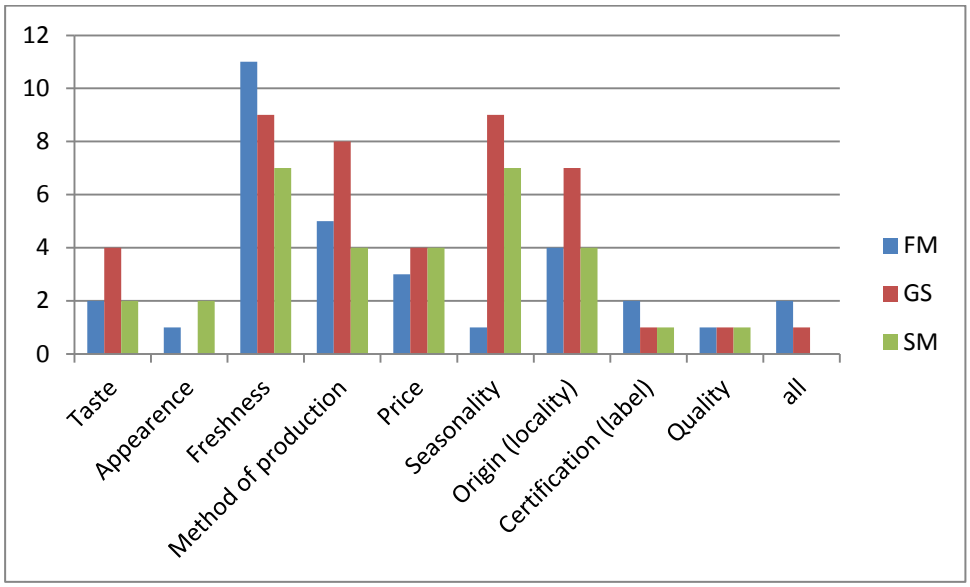

Figure 6. Frequency of selection of the attribute for the question "Most important attribute" and typology of buying habits

For all of the respondents, who buy from 30 to 100% of fresh f&v at one of the outlet types, the most important attributes are presented on the figure 6 above. For those respondents who prefer FM, "*freshness*" is the most important attribute followed by "*method of production*" and "*origin/locality*". For the GS and SM "*seasonality*" and "*freshness*" are equally important. Second most important attribute for those who shop at GS is the "*method of production*". While for those who shop at SM second most important attributes are the following: "*method of production*", "*price*" and "*origin/locality*". If the respondents that buy from 70 to 100% (further "frequent buyers") at GSs are considered the results change as follows: "*seasonality*" still has the highest score (5 out of 16), "*taste*" becomes second most selected attribute (4 out of 16), than equally important are "*method of production*" and "*origin/locality*" (3 out of 16 each). For frequent SM buyers the results are as follows:

freshness, *price* and *seasonality* have equal frequency of selection (3 out of 16 each), followed by *appearance* and *method of production* (2 out of 16 each).

The biggest number of respondents, who prefer to shop at FM and have selected "*freshness*" as the most important attribute are older than 65. As for the "*method of production*" and "*origin/locality*" attributes, the biggest age group is from 35 to 50, which could be explained by dominance of the age group in the sample. As for the GS, among the dominant age group for the attribute "*freshness*" is "*older than 65*". "*Seasonality"* and "*method of production"* were most frequently chosen by those respondents aged from 17 to 34 years. Respondents who prefer SM and have selected "*freshness"* attribute are older than 35. The "*Method of production*" and "*price*" attributes are the most of concern among those aged from 17 to 34. Origin attribute was mostly selected by the age group from 35 to 65 years old.

Among those respondents who shop at FM and GS and have selected "*freshness*" and "*method of production*" the highest number constitute people with a university degree. "*Origin*" was mostly selected by those, who finished high school both for FM and GS buyers. Seasonality attribute was selected by respondents who shop at GS and have finished high school only. For SM "*freshness*" attribute was selected by respondents with high school level of education, while "*seasonality*" by respondents with higher education. "*Price*", "*method of production*" and "*origin*" attributes were selected by respondents with higher education.

Among the 15 respondents who grow their own f&v 33% have selected "*origin/locality*" and 27% have selected "*freshness*" as the most important attribute of quality.

The analysis of the Likert-scale question related to quality perception gave the following results:

Table 6. Frequency (f) and percent (%) of the responses, n=70

	A local product is of higher quality		*I prefer standardized products because they are more safe, with many controls during production*		*Local products are not necessarily of higher quality*		*Organic products are of higher quality*		*I am interested more in the price of a product than its quality*		*Quality is linked with price*	
	f	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**F**	**%**
DK/NA	0	0	0	0	1	1	4	6	0	0	0	0
Strongly disagree	3	4	7	10	3	4	2	3	21	30	1	1
Disagree	11	16	24	34	8	12	6	9	37	53	13	19
Neither agree not disagree	20	29	20	29	13	19	27	39	6	9	13	19
Agree	24	34	14	20	41	59	24	34	5	7	34	49
Strongly agree	12	17	5	7	4	6	7	10	1	1	9	13
Total	70	100	70	100	70	100	70	100	70	100	70	100

Figure 7. Likert-type question with statements and median scores of the responses from strongly disagree (1) to strongly agree (5) and DK/DN (0), n=70

From the table 6 it can be seen that 36 (51%) out of 70 respondents agree with the statement "*A local product is of higher quality*" and 20 are neutral. Out of 36 respondents, who agree with the statement 26 buy from 30 to 100% of fresh f&v at GS. Only 27% of respondents would prefer standardized products, of them 20% of respondents prefer to shop from GS. It is also should be noted that for this statement negative response dominates for all types of outlet. 64% of respondents agree that locality does not necessarily mean higher quality. 44% were

neutral with a statement "*Organic products are of higher quality*", while 44% agree with the statement. Of the 44% who agree with the statement there is an equal amount of respondents who buy from 30 to 100% at FM (21%) and SM (21%), while GS has the highest number (24%).

Assessment of a relation of Liker-type questions on buying practices with Liker-type questions on quality resulted in the findings presented in the table 7 below.

Table 7. Results of the contingency table for Likert-type questions on quality and buying practices, n=69

Statement A	Statement B	Highest frequency in the contingency table
I shop at farmer market and often buy from the specific producers because they have better products	A local product is of higher quality	22 out of 69 or 32% agree with both statements
	Local products are not necessarily of higher quality	36% agree with both statements
	Organic products are of higher quality	35% agree with both statements
	Quality is linked with price	37% agree with both statements
I prefer supermarket products because they are safer	A local product is of higher quality	26% disagree with a Statement A, but agree with Statement B
	I prefer standardized products because they are more safe, with many controls during production	27% disagree with both statements
I would prefer having a possibility to buy local organic products	I prefer standardized products because they are more safe, with many controls during production	35% agree with Statement A, but disagree with a Statement B
	Organic products are of higher quality	39% agree with both statements
	I am interested more in the price of a product than its quality	64% agree with Statement A, but disagree with Statement B
	Quality is linked with price	46% agree with both statements
I prefer standardized products because they are more safe, with many controls during production	Organic products are of higher quality	20% disagree with Statement A, but agree with Statement B

Further comparing buying practices of those respondents, who shop from 30 to 100% at a particular outlet type with the responses to a question "*Why do you prefer to shop from there?*" the following results were obtained. It should be noted that the question is of open type and hence, for the purpose of analysis, some of the results were interpreted, as will be presented further. For instance, some of the respondents gave answers like "*trust*" or "*because it is local*", while others frequently mentioned responses like "*because I know the producer*" and "*because I know origin of the produce*", which were interpreted as "trust" and "local" respectively. Other responses that require explanation are presented below:

- *"convenience*" – means "*easy shopping*" and possibility to combine shopping for f&v with products of different category;

- "*proximity*" – is proximity of the outlet to the place, where respondent lives;

- "*variety*" – better choice of f&v.

Figure 8 displays the responses for FM type of outlet. As it can be seen from the figure the response with highest frequency of mentioning is "*trust*", followed by "*better quality*" and "*freshness*".

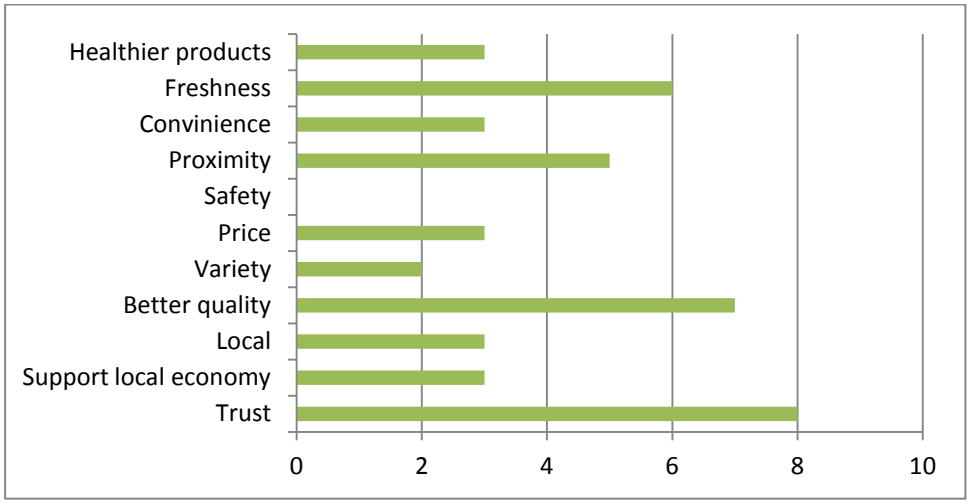

Figure 8. Frequency of responses to a question "why do you prefer buying from there" for those who buy from 30 to 100% at farmer market, n=68

For those respondents who prefer to shop at GS the most mentioned justification for the outlet preference is "better quality", followed by "trust" and "freshness" (figure 9). Then for the respondents equally important are: "convenience", "proximity" and "locality".

Figure 9. Frequency of responses to a question "why do you prefer buying from there" for those who buy from 30 to 100% at grocery store, n=68

Respondents who prefer to shop in SM justify their choice with "*convenience*" and "*price*", followed by "*freshness*" and "*better quality*" (figure 10).

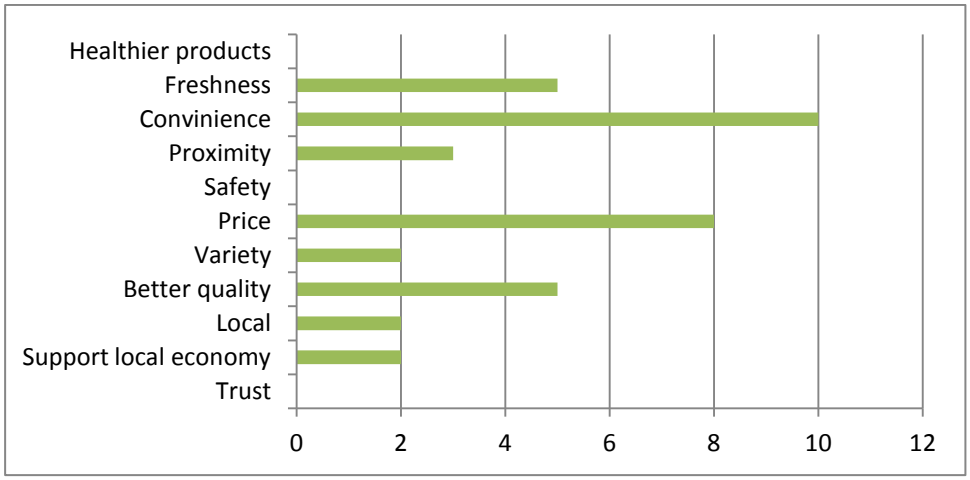

Figure 10. Number of responses to a question "why do you prefer buying from there" for those who buy from 30 to 100% at supermarket, n=68

4.5 Opinions related to quality and quantity of agricultural produce available in Mytilene

74% have responded "*yes*" to a question "*Are you satisfied with the quality of the products you find on Lesvos today?*", of them all 10 people who are on pension responded "*yes*". Out

of three farmers only the one with a university degree responded "*no*". Among 15 people, who responded "*no*" 10 have higher education. 43% of respondents said that they are not satisfied with a safety of the products, while another 50% are satisfied. Of those who said "no" 22 out of 30 (73%) have higher education and 18 out of the 22 respondents have expressed concerns over method of production in general (use of pesticides in particular) together with absence of safety control and certification of produce. 78% of respondents are satisfied with the variety of a produce available in Mytilene today. 88% of respondents answered "*no*" to a question "Do you think that local products can cover quantity and quality for the local market?"

4.6 Level of awareness about indicators of quality

53% have responded "*yes*" to a question "*Are you aware of some of the quality labels currently available for agricultural products?*" and 40% of respondents named some labels, of them 64% (18 out of 28) have higher education. The labels with highest frequency of mentioning: "organic" and PDO, other labels mentioned were HASP, PGI, FAO, ISO, and local brands like "*Georgokhakis*" and "*Kazeris*". Results on the level of awareness about the most popular certifications of quality presented in the studied region are presented below on figure 11.

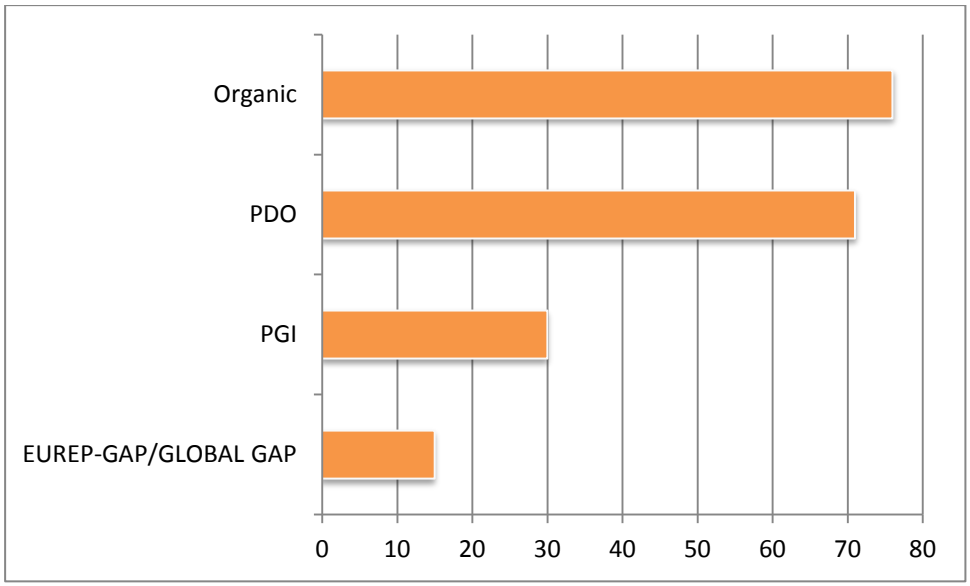

Figure 11. Percent of respondents who know the listed certifications of quality, n=70

64% of respondents said they don't know the PGI certification and only 9 out of 70 said they are familiar with EUREP-GAP and GLOBAL GAP certifications. Out of 19 respondents who are aware about the PGI, 15 shop for 30 to 100% at GS and out of 9 respondents who are aware about the EUREP-GAP and GLOBAL GAP, 7 shop at GS.

Almost 66% of respondents said that they know labels that indicate the product is locally produced. 84% of respondents pay attention to the origin of the product they buy and 30% buy fruits and vegetables that have to travel long distance. 74% of respondents look at labels to learn about the locality of the product they buy and 8% learn from the seller. Only 13% of respondents claimed they are unaware about seasonality.

Among 15 respondents that grow their own fruits and vegetables all are aware about seasonality, 9 know some quality labels, 13 know products sold under the PDO and organic certifications, and 9 know about the PGI certification. Only 5 respondents are familiar with EUREP-GAP GLOBAL GAP certifications and the same number of people said they know about indicators of product being locally produced.

Chapter 5: Discussion

5.1 Buying practices

From the analysis it was found that for shopping for fresh fruits and vegetables the most popular outlet types among the respondents are grocery stores (50% of the sample shop there four times a month) and farmer markets (37% of the sample who shop four times a month). These findings were further adjusted to the results of responses to a question "*What is the percent of products you shop from*" GSs, FMs, and SMs. The results for the 30 to 100% of produce bought at each outlet type are as follows: GS – 60% of respondents and FM and SM – 43% each. 66% of the sample shop for over 40% of their demand for fresh f&v at only at one outlet type, while the rest of the sample uses a mix of outlets for buying fruits and vegetables (sometimes in equal proportions). Among the 66%, 26% of the respondents buy products at GSs, 23% - at SMs, and 17% - at FMs.

The respondents who prefer to shop at GSs have justified their choice with responses such as "better *quality*" (18%), followed by "*trust*" (16%) and "*freshness*" (13%). Then for the respondents equally important are: "*convenience*", "*proximity*" and "*locality*" (10% each). In an attempt to interpret the response "better quality" a reference was made to the question on quality, where respondents had to choose the most important attribute of quality. The majority of respondents who have selected the "*better quality*" response said that the most important attribute of quality for them is "*seasonality*" (5 out of 12 respondents). This finding doesn't clarify any distinctive features of GSs except for those respondents who have selected

"*seasonality*", which is associated with local products. With this regard, the "*better quality*" response should be read as it is – for the respondents the produce at the GS is better than the one sold at other outlet types.

Another response with high frequency of selection – "*trust*", is explained by personal relations of the consumers with the sellers or producers. Trust is one of the main drivers of consumers towards GSs together with FMs and can be related to locality, which is generally attributed to places where people live close to the product production place (Moser *et al.* 2011; Midmore et al. 2005; Rodriguez-Ibeas 2007; Thilmany et al. 2008).

Third response with the highest score – "*freshness*", is also attributed to locality. As it was found from the literature review (Moser *et al.* 2011; Tchoukaleyska 2012; Murdoch *et al.* 2000), people who value local, also tend to value such attributes of quality as freshness and taste. The following equally selected responses – "*convenience*" and "*proximity*" reflect the specifics of GS outlet type and shopping practices of respondents. Finally the response "locality" simply supports the findings for "*trust*" and "*freshness*". Hence, it can be concluded that respondents, who prefer to shop from GS perceive quality based on locality and convenience.

The respondents, who shop from 30% to 100% at FM gave the following justification for buying there: *"trust*", "*better quality*" and "*freshness*". These responses are similar to the ones of GS and show that for most of the respondents locality is the determinant factor for purchasing products. As for those respondents, who buy that amount at SMs, the primary

factors for quality perceptions are "convenience" (27%) and "price" (21%). Both justifications are in line with features of SMs in Mytilene as discussed in the methodology section.

Type of outlet where the respondents were interviewed reflects consumer shopping practices.

The results of the Likert-type question related to buying practices gave the following information about consumers. 78% (54 respondents) have expressed their agreement with a statement "*I would prefer having a possibility to buy local organic products*". Of them 44 have said they are aware about organic type of certification and 30 respondents named the products that are being sold under the certification in Mytilene, of which 27 listed organic f&v they know. 6 out of the 54 respondents listed local brands that produce organic products.

For the 45 respondents which are aware about organic certification:

- the most important attribute of quality "method of production" (10 respondents), followed by "*seasonality*" (9 respondents) and origin (8 respondents), 5 respondents value the most "price".

- 13 said they prefer certified products with many controls during production process, 10 of the respondents are among those who listed the organic products they know.

- 10 grow their own f&v.

From the findings it can be concluded that GSs has the highest number of respondents that acknowledge and trust the organic certification.

Although locality attribute is the main reason for respondents to shop at GSs and FMs, equal amount of respondents agree and disagree with the statement that FMs have many products that are not local. The largest number of those who agree with the statement frequently shop at GSs.

The results of the responses to the statement "*I prefer SM products because they are safer*" showed that 64% of the respondents are unaware that SM products are safe. Of those respondents, who agree with the statement half are frequent buyers at GSs.

7 out of 10 respondents that buy from 70% and over of agricultural products at FMs agree with the statement "*I shop at farmer market and often buy from the specific producers because they have better products*". 8 respondents out of 16 who said to buy 70% at GSs and 9 out of 16 who said to buy the respective amount at SMs agree with the statement as well. This means that the respondents were not providing credible answers to one of the questions on buying practices.

Assessment of socio-demographic data with the buying preferences showed that the youngest group of respondents prefer to shop at SMs, while those who are in the range from 35 to 65 prefer FMs. Respondents that prefer to shop at GSs are of all ages, which confirms the finding that GSs have the highest buying frequency among respondents.

While the variables as "*age*" and "*income*" didn't result in significant findings, the household size correlates with different outlet types. Frequent buyers at FMs have household size from

4 to 5 people and frequent buyers at GSs - 3 people. As for the SMs, respondents with all household sizes shop from there.

Frequent buyers at SM type of outlet have the highest number of respondents with a university degree, but, as it will be further discussed, SM respondents showed the lowest frequency in knowing different certifications of quality.

5.2 Quality attributes

The three types of questions aimed at determining the most important quality attribute for the respondents resulted in "*freshness*", "*seasonality*", and "*method of production*", which is in line the findings presented the literature review (Peneau *et al.* 2009; Moser *et al.* 2011; Tchoukaleyska 2012; Mascarello *et al.* 2015). The *"method of production"* attribute is related to concern over personal health and environment (Moser *et al.* 2011). In the presented sample it is most probable that the driver towards consideration of production method is related to health, since the respondents didn't show significant level of awareness and understanding of certifications like "*organic*".

Assessment of a relation between attributes of quality and buying preferences gives the following findings. FMs buyers mainly value "*freshness*", "*method of production*" and "*origin*". According to Tchoukaleyska (2012), people who shop at FM assume that the products presented there are produced with application of natural and traditional methods. GS frequent buyers value "*seasonality*", "*taste*", "*method of production*" and "*origin/locality*". The "*method of production*" attribute is important for both GS and FM outlets. At the same

time the respondents from both outlet types justified buying from there with *"trust"*. The *"Method of production*" attribute points at concern of the respondents over the safety and nutritional value (i.e., healthiness) of the products they buy, which means they are aware about the risks related with this type of products. Nevertheless, they choose to trust the producer or the seller they know, hence, allow for the latter to determine quality for them. This finding also points at lack of trust to certified products, as significant number of respondents know about such certifications of quality like organic and the PDO. This could be explained with the lack of understanding of the schemes of quality, which are present in the region today, which is supported with the result to a Likert-type question "*Organic products are of higher quality*", where 44% of respondents chose an answer "*neither agree nor disagree*".

SM frequent buyers value "*freshness"*, "*price"* "*seasonality", "appearance",* and *method of production*. From the list of attributes it can be concluded that the perception of quality of SM clients is more complex and less uniform. The main determinants to buy at SMs for respondents are price and convenience, and with this regard the population that buys at SMs is more diverse. The income of the frequent SM buyers is less than 10.000 per year and the main occupation category – students and public employees, which is in line with the stated reasons to buy from this type of outlet.

Also, from the list of attributes selected by SM buyers it can be assumed that they are more aware about the important quality components of fresh fruits and vegetables, but in reality

less number (10-15% less compared with FMs and GSs) of SM frequent buyers are aware certification of quality.

The "*seasonality*" attribute was selected at all outlet types. According to Peneau et al. (2009) this attribute is more valued by people, who grew up in small cities. As for the freshness – it is an attribute related to appearance and is associated with local produce, as it was mentioned above (Murdoch *et al.* 2000). Together with this, those who value locality tend to value taste (Murdoch *et al.* 2000), which is in line with the findings.

Likert questions on quality gave the following important findings. Out of frequent buyers majority of those, who shop at FM disagree that local products are of higher quality. SM frequent buyers "neither agree nor disagree" with the statement.

44% of respondents were neutral about the statement "*Organic products are of higher quality"* and 29% about the "*I prefer standardized products because they are more safe, with many controls during production*". The highest number of respondents that agree with the latter statement frequently shop at GS (5 out of 16). The results of the statements related to certified products show that the respondents are not sure or aware whether the statements actually correspond with reality.

Further comparison of the following statements, which include the word "*safer*": "*I prefer SM products because they are safer"* and "*I prefer standardized products because they are more safe, with many controls during production*" resulted in 27% of the sample (19 respondents) not agreeing with the both statements. Of this amount 7 are among 16 frequent SM buyers.

20% of respondents said they agree with the statement "*Organic products are of higher quality"*, but disagree with "*I prefer standardized products because they are more safe, with many controls during production*", which means that at least 20% are not aware what organic certification means.

5.3 Opinions related to quality and quantity of agricultural produce available in Mytilene

74% of the respondents stated that they are satisfied with the quality of products presented in Mytilene, while 15 respondents (14%) said "*no*", 10 out of the 15 respondents have a university degree. 43% of respondents said that they are not satisfied with a safety of the products. 73% (22 people) of the respondents that are not satisfied with the safety of the products have a university degree and 18 out of the 22 respondents have expressed concerns over method of production in general (use of pesticides in particular) together with absence of safety controls and certification of produce.

The biggest number of respondents, among the frequent buyers, who are not satisfied with a safety of the products are frequent buyers at GS (9 out of 16). The same number – 9 out of 16 said they are not satisfied with the quality of the products – this is the only group of respondents for which the results for the both questions correlate. The result correlates also with the statement *"I would prefer having a possibility to buy local organic products"*.

There are 8 out 10 people among the frequent buyers at FM who are satisfied with the safety.

50% of frequent buyers at SM are satisfied with the safety of the products.

These results can be interpreted in two ways – respondents either express their level of satisfaction with the products they find and buy at the type of outlet where they frequently shop or they are expressing their opinion about the products present on the island in general, which is directly linked with the level of awareness about the products production method. From the amount of GS buyers and from the justifications they provided about buying from there, as well as with consideration of other variables, it can be concluded that the number of people who are not satisfied with the safety of the products and are frequent buyers at GS are judging about the products presented on the island in general and not at GS. While the first version for interpretation can be applied for the frequent buyers at FM and SM type of outlets.

5.4 Level of awareness with the indicators of quality

The analysis of level of awareness about the certifications of quality, which are presented in Mytilene resulted in fewer respondents being aware of the certification of safety as the EUREP-GAP and GLOBAL GAP, but largely familiar with organic certification. The same results were obtained for the certifications of quality from geographical indicators – the majority of respondents are not aware about the PGI, but are familiar with the PDO. For the certifications with the respondents were found to be familiar or which they could recognize, the analysis of the responses showed that the respondents have low level of awareness about the designation or process behind the certifications.

5.5 Answering research questions

The findings relate to small and isolated town. Locality was found to be important both on the ethical basis, related with support for local economy, which was mentioned by some respondents, and on the basis of concern over personal health. The results of the research show that the respondents are aware about possible risks associated with agricultural products, but instead of trusting certifications, which are not clear and tangible, respondents choose personal connections as a guaranty of safety of the products.

A frequently mentioned response that the local products are of good quality shows that the respondents are satisfied with the products judging from their experience. Since respondents cannot evaluate such attributes as safety and nutritional value, they can judge based on the experience attributes of the products, which are related most important with the organoleptic attributes of the products.

The research showed that the outlet type plays minor role in affecting perception of quality of the respondents. Grocery store, an outlet type which is not common in the northern part of Europe and can be considered as a peculiarity of Mediterranean region, is an exception. The frequent buyers at this outlet type turned out to value more the production method and safety of the products, compared with other outlet types. The respondents also demonstrated the highest level of awareness with certifications of quality. At the same time, the respondents rely on locality and trust relations with the seller or producer to guide them about the quality. It can be assumed that the main reason for buying at GSs for the respondents is convenience –

GSs are many and located throughout the town, which makes them more convenient than SMs, and are operational the weekdays as well as have other types of products being sold, unlike the FMs.

Buying practices affect only the place where products will be purchased, but the understanding of quality remains similar for different outlet types.

Among the socio-demographic characteristics, the major factors that showed to affect quality perception and, to some extent, the outlet preference, were the education, age, and household size.

The population within the sample was found not to use certifications of quality for guidance about the quality of the products.

The findings of the research are in line with literature review. For instance, the open question where respondents were asked to define the quality resulted in the following results presented here in the order of frequency: *freshness*, *appearance*, *taste*, and *method of production.* This corresponds with the findings of Mascarello *et al.* 2015; Peneau *et al.* (2009); Barrett *et al.* (2010). The findings of the research also support the Total Food Quality Model (Grunert 2005) according to which the decision to buy is based on the following dimensions of food: hedonic, health, convenience and the production, as it can be seen from the responses to the question "*Why do you prefer to shop from there?*".

In contrast with some of the existing studies (Cantarero *et al.* 2013) outlet type didn't show to influence the quality perception of the respondents. The difference of buying practices was

primary explained by convenience of buying at a chosen outlet (corresponds with the findings of Hjelmar 2011; Spiller 2012) and established relations with the seller or producer. Regarding the concern over safety of the products as well as level of awareness, the findings for the GSs deviate from the general findings of this research. No studies were found that would focus on GS outlet type and its influence on quality perception of the consumers.

One of the reasons why the respondents' value locality is related to general negative image of industrial mode of production, as some of them justified "*because it is natural*". This corresponds with the findings of Murdoch *et al.* (2000). The preference of locality could also be related with a sense of belonging of people (Cantarero *et al.* 2013).

The education variable was found to correlate with the perception of quality of the respondents as it was pointed out in the study of Cantarero *et al.* (2013), at the same time occupation didn't show significance for the quality perception (in contrast with Blake *et al.* 2010), except for the respondents, who are farmers.

It can also be concluded that the respondents perceive the agricultural products as safe if they are of high quality, which correlates with the findings for Italian consumers (Mascarello *et al.* 2015).

The geographical location was found to influence the perception of quality, which is in line with the findings by Mascarello *et al.* 2015; Peneau *et al.* 2009 for the locations with similar characteristics as size and proximity to the country side.

Chapter 6: Conclusion

As a result of the research it was found that the perception of quality of fresh fruits and vegetables of the residents of Mytilene that participated in the research corresponds with the findings from other studies for the small cities that are located close to the production site or country side.

The residents of Mytilene are generally aware about the importance of the production method and hence, are aware about the risks associated with the production process. Locality is their way to alleviate the risks.

More than half of the sample showed to be aware with the certifications of quality like organic. Considering the fact that many of the respondents could name some of the products being sold under the certification, it can be concluded that respondents consider this type of products and, maybe even, purchase it, as it is generally available at all outlet types. At the same time, from the results of the study it can be concluded that the residents of Mytilene lack an understanding of certifications of quality and for them certifications of quality are generally less important than the literature suggests. Less interest for certifications of quality could also be related with the findings that 74% of the sample are satisfied with the quality and almost 60% or respondents satisfied with the safety of the agricultural products presented in Mytilene.

The 29% of respondents who showed concern over safety of the products largely referenced lack of safety controls, out of the 29% significant amount of respondents shop at GS. GS respondents have higher level of awareness and better understanding of quality components of the agricultural products, but they are unaware that SM produce is safe and has more indications of quality to suggest. The GS frequent buyers justify their choice with referencing

better quality and locality, which, *inter alia*, is greatly based on trust. With this regard, the frequent buyers at GS represent the most interesting group from the sample and require a more detailed research.

Another interesting finding is related to the fact that quality perception of the respondents doesn't change significantly with different buying environments, even for the 66% of the respondents who frequently shop only at one outlet type.

The present research was aimed to contribute to the existing body of research on understanding on how the perception of quality for agricultural produce is formed, which could facilitate transformation of the food market towards more sustainable, as quality conventions have the power to influence food production regulations, as it was described in the introduction of this work.

6.1 Relevance of the research and Recommendations

The approach chosen for the research suited the purposes of the research, as it allowed to record different buying practices of the respondents, as well as have a glimpse at real life complexity of practices and beliefs.

The research was aimed at understanding the quality perception and to identify the main drivers that affect the perception of quality of the agricultural produce in the environment of an island community. During the literature review process no literature was found that would investigate quality perception of an island community. With this regard, further research is required.

References

Abbott, J.A. 1998. Quality measurement of fruits and vegetables. *Postharvest Biology and Technology* 15: 207–225.

Andersen, A.H. 2011. Organic food and the plural moralities of food provisioning, *Journal of Rural Studies*, 27 (4): 440-450.

Barrett, D.M., Beaulieu, J.C. and Shewfelt, R. 2010. Color, Flavor, Texture, and Nutritional Quality of Fresh-Cut Fruits and Vegetables: Desirable Levels, Instrumental and Sensory Measurement, and the Effects of Processing, *Critical Reviews in Food Science and Nutrition* 50 (5): 369-389, DOI: 10.1080/10408391003626322

Blake, M.K., Mellor, J., Crane, L. 2010. Buying Local Food: Shopping Practices, Place, and Consumption Networks in Defining Food as "Local". *Annals of the Association of American Geographers* 100(2): 409-426.

Brown, E., Dury, S., Holdsworth, M. 2009. Motivations of consumers that use local, organic fruit and vegetable box schemes in Central England and Southern France. *Appetite* 53(2): 183-188, http://dx.doi.org/10.1016/j.appet.2009.06.006.

Brunsø, K., Ahle Fjord, T., and Grunert, K.G. 2002. Consumers' Food Choice and Quality Perception.

Cantarero, L., Espeitx, E., Lacruz, M.G., and Martin, P. 2013. Human food preferences and cultural identity: The case of Aragon (Spain). *International Journal of Psychology*. 48 (5): 881-890. http://dx.doi.org/10.1080/00207594.2012.692792.

Caswell, J. A. 2000. Analyzing Quality and Quality and Quality Assurance (Including Labelling) for GMOs. *AgBioForum* 3 (4): 225-230.

Caswell, J. A., Noelke, C. M. and Mojduszka, E. M. 2002. Unifying Two Frameworks for Analyzing Quality and Quality Assurance for Food Products. In *Global Food Trade and Consumer Demand for Quality,* ed., B. Krissoff, M. Bohman, and J. A. Caswell, 43-61. New York, NY: Kluwer Academic/Plenum Publishers.

Devine, C.M., Connors, M., Bisogni, C.A., and Sobal, J. 1998. Life-Course Influences on Fruit and Vegetable Trajectories: Qualitative Analysis of Food Choices. *Journal of Nutrition Education* 30 (6).

Ellis, E. C., and Ramankutty, N. 2008. Putting people in the map: anthropogenic biomes of the world. *Frontiers in Ecology and the Environment* 6: 439–447

Garnett, T. 2013. Conference on 'Future food and health' Symposium I: Sustainability and food security: Food sustainability: problems, perspectives and solutions. *Proceedings of the Nutrition Society* 72, 29–39.

Gil, J.M., Gracia, A. and Sanchez, M. 2000. Market segmentation and willingness to pay for organic products in Spain. *International Food and Agribusiness Management Review* 3: 207-226.

Guerrero, L., Guàrdia, M.D., Xicola, J., Verbeke, W., Vanhonacker, F., Zakowska-Biemans, S., Sajdakowska, M., Sulmont-Rossé, C., Issanchou, S., Contel, M., Scalvedi, M. L., Granli, B.S., Hersleth, M. 2009. Consumer-driven definition of traditional food products and innovation in traditional foods. A qualitative cross-cultural study. *Appetite* 52 (2): 345-354, ISSN 0195-6663, 39 10.1016/j.appet.2008.11.008.

Guerrero, L., Claret, A., Verbeke, W., Enderli, W., Zakowska-Biemans, S., Vanhonacker, F., Issanchou, S., Sajdakowska, M., Granli, B.S., Scalvedi, L., Contel, M., Hersleth, M. 2010. Perception of traditional food products in six European regions using free word association. *Food Quality and Preference* 21: 225–233.

Grunert, K.G. 2005. Food quality and safety: consumer perception and demand. *European Review of Agricultural Economics* 32 (3): 369–391 doi:10.1093/eurrag/jbi011.

Hjelmar, U. 2011. Consumers' purchase of organic food products. A matter of convenience and reflexive practices. *Apetite* 56: 336-344.

Johansson, L., Haglund, A., Berglund, L., Lea, P., and Risvik, E. 1999. Preference for tomatoes, affected by sensory attributes and information about growth conditions. *Food Quality and Preference* 10:289–98.

Keningham, T., Aksoy, L., Perkins-Munn, T., and Vavra, T. 2005. The brand customer connection. *Marketing Management* 14(4): 33–37.

Kiesel, K. and Villas-Boas, S.B. 2007. Got Organic Milk? Consumer Valuations of Milk Labels after the Implementation of the USDA Organic Seal. *Journal of Agricultural & Food Industrial Organization* 5(1): Article 4.

Kizos T. and Vakoufaris H. 2011. What Is The Extent Of Short Food Supply Chains In Greece? Evidence From The Cheese Supply Chains In The North Aegean Region. *International Journal of Agricultural Resources, Governance and* 3 *Ecology,* Vol. 9 (1/2), pp. 48-67.

Kizos, T. and Vakoufaris, H. 2010. Alternative Agri-Food Geographies? Geographic Indications in Greece. *Tijdschrift voor Economische en Sociale Geografie* 102 (2): 220-235.

Kizos, T., Veikontis, G. and Marín-Guirao J.I. 2011. Comparison of organic and integrated farming systems: the case of sultana table grapes in Korinthos, Greece, The Journal of Sustainable Agriculture, 35(1), pp. 27-47.

Kramer, A. (1965). Evaluation of quality of fruits and vegetables, In: Food Quality, G.W. Irving, Jr.and S. R. Hoover, Eds. American Association for the Advancement of Science, Washington, DC, pp. 9–18.

Leader European Observatory. 2000. Marketing Local Products: Short and Long Distribution Channels. *Rural Innovation Dossier No 7*, Leader European Observatory.

Lengard Almli, V., Verbeke, W., Vanhonacker, F., Naes, T, Hersleth, M. 2011.General image and attribute perceptions of traditional foodin six European countries. *Food Quality and Preference* 22: 129-138.

McEachern M. G., Warnaby, G., Carrigan, M. Szmigin I. 2010. Thinking locally, acting locally? Conscious consumers and farmers' markets. *Journal of Marketing Management* 26 (5-6): 395-412, DOI: 10.1080/02672570903512494.

Marchesini, S., Huliyeti, H. and Regazzi, D. 2007. Literature review on the perception of agro-foods qualità. *Paper Presented at the 105th EAAE Seminar 'International Marketing and International Trade of Quality Food Products', Bologna, Italy, March*.

Mascarello, G., Pinto, A., Parise, N., Crovato, S., and Ravarotto, L. 2015. The perception of food quality. Profiling Italian consumers. *Appetite* 89: 175-182.

Midmore, P., Naspetti, S., Sherwood A.M., Vairo, D., Wier, M., Zanoli, R. 2005. Consumer Attitudes to Quality and Safety of Organic and Low Input Foods: A Review. Quality Low Input Food.

Michaud, C. and Llerena, D. 2008. Sustainable consumption and preferences: an experimental analysis. *DIME International Conference Innovation, Sustainability and Policy, September 2008, Bordeaux.*

Migliore, G., Schifani, G., and Cembalo, L. 2015. Opening the black box of food quality in the short supply chain: Effects of conventions of quality on consumer choice. *Food Quality and Preference* 39: 141–146

Moser, R., Raffaelli, R., and Thilmany-McFadden, D. 2011. Consumer Preferences for Fruit and Vegetables with Credence-Based Attributes: A Review. International Food and Agribusiness Management Review 14 (2).

Murdoch, J., Marsden, T., and Banks, J. 2000. Quality, Nature, and Embeddedness: Some Theoretical Considerations in the Context of the Food Sector. *EconomicGeography* 76 (2).

Naspetti, P.S., Sherwood, A.M., Vairo, D., Wier, M., and Zanoli, R. 2005. Consumers Attitudes to Quality and Safety of Organic and Low input Foods: A review. Report QLIF-Project No. FP6-FOOD-CT-2003-506358.

Oxford Dictionaries. 2015. Accessed May 25. URL: http://www.oxforddictionaries.com/definition/english/quality.

Panagou, E.Z., Nychas, G.J.E., Sofos, J.N. 2013. Types of traditional Greek foods and their safety. *Food Control* 29: 32-41.

Péneau, S., Linke, A., Escher, F., and Nuessli, J. 2009. Freshness of fruits and vegetables: consumer language and perception. *British Food Journal*. 111 (3): 243 - 256

Renting, H., Marsen, K., and Banks, J. 2003. Understanding alternative food networks: Exploring the role of short food supply chains in rural development. *Environment and Planning* 35: 393-411.

Rodriguez-Ibeas, R. 2007. Environmental Product Differentiation and Environmental Awareness. *Environmental & Resource Economics* 36:237–254.

Rozin, P. 2005. The Meaning of Food in Our Lives: A Cross-Cultural Perspective on Eating and Well-Being. *Journal of Nutrition Education and Behavior* 37 (2).

Spaargaren, G., Oosterveer, P., Loeber, A. 2011. Sustainability Transitions in Food Consumption, Retail and Production. In *Food Practices in Transition: Changing Food Consumption, Retail and Production in the Age of Reflexive Modernity*, ed. G. Spaargaren, P. Oosterveer, and A. Loeber, 1-29. New York: Routledge.

Spiller, K. 2012. It tastes better because . . . consumer understandings of UK farmers' market food. *Appetite* 59: 100-107.

Stanton, J.L., Wiley, J.B., Wirth, F.F. 2012. Who are the locavores? *Journal of Consumer Marketing* 29 (4): 248 – 261.

Tchoukaleyska, R. 2012. Regulating the farmers' market: Paysan expertise, quality production and local food. *Geoforum* 45: 211-218.

Thilmany, Dawn D., C. A. Bond, and J. Keeling Bond. 2008. Going Local: Exploring Consumer Behavior and Motivations for Direct Food Purchases. *American Journal of Agricultural Economics* 90(5): 1303-1309.

Tregear, A. 2011. Progressing knowledge in alternative and local food networks: Critical reflections and a research agenda. *Journal of Rural Studies* 27: 419-430.

Van Otterloo, A.H. 2011. Healthy, Safe and Sustainable: Consumers and the Public Debated on Food in Europe and the Netherlands Since 1945. In *Food Practices in Transition: Changing Food Consumption, Retail and Production in the Age of Reflexive Modernity*, ed. G. Spaargaren, P. Oosterveer, and A. Loeber, 1-29. New York: Routledge.

Annex 1

Questionnaire

This is a questionnaire used for a research conducted by the University of the Aegean, Department of Geography on quality and how consumers perceive it and their buying choices. The questionnaire is anonymous and we assure you that the information that we collect will be used only for purposes of research only. For more information contact Ass. Prof. *T. Kizos* (akizos@aegean.gr, 2251036447).

Quality

1. How would you define the "quality" of an agricultural product?

_____

_____

2. Which of these characteristics of quality are important for you when you choose fruit or vegetables?

Taste		Aroma	
Appearance		Method of production (fertilisers- chemicals / organic)	
Fresh		Price	
Color		Seasonality	
Size (big or small?)		Origin (locality)	
Uniformity of size		Certification/Label	
Texture			
Other			

2.1 Which one is the most important for you?

3. I will now read to you some phrases associated with quality and would like you to express your agreement or disagreement:

	Strongly disagree	**Disagree**	**Neither agree nor disagree**	**Agree**	**Strongly agree**	**DK / NA**
(a) A local product is of higher quality						
(b) I prefer standardized products because they are more safe, with many controls during production						
(c) Local products are not necessarily of higher quality						
(d) Organic products are of higher quality						
(e) I am interested more in the price of a product than its quality						
(f) Quality is linked with price						

4. Are you aware of some of the quality labels currently available for agricultural products?

YES _____ NO _____
If yes, which ones do you know? _____

5. I will read to you now some of these certifications and would like you to tell me if you know them and if you have bought a product with this certification in the last few months:

(a) Designation of Origin (PDO) ____ Product _____

(b) Protected Geographical Indication (PGI) ____ Product _____

(c) Organic Products ____ Product _____

(d) Products Integrated Management (EUREP-GAP GLOBAL GAP) ____

Product_____

6. Are you aware of any labels that indicate that the product is locally produced?

YES _____ NO _____
If yes, which ones do you know?

_____

Are you aware of the seasonality of the products that you buy? If they are produced in season or not?

_____
_____

Practices

7. Where do you usually shop for fresh fruits and vegetables?

	How many times a month	**What is the % of products you shop from:**	**Where did you shop over the last 2 weeks**
Farmers			
Grocery/vegetable store			
Supermarket			
Grow my own	**For how long**		

8. Why do you prefer to shop from there?

_____

9. What time and day do you prefer for shopping?

_____

10. I will now read some phrases related to the shopping for fresh products. Please indicate whether you agree or disagree with the phrases.

	Strongly disagree	**Disagree**	**Neither agree nor disagree**	**Agree**	**Strongly agree**	**DK/NA**
(a) I shop at farmer market and often buy from the specific producers because they have better products						
(b) I prefer supermarket products because they are cheaper						
(c) I prefer supermarket products because they are safer						
(d) Farmer market has many products that are not local						
(e) I would prefer having a possibility to buy local organic products						

11. Do you pay attention to where the products you buy come from?

_____

_____

12. Do you often buy products that have to travel very long distances to get to Lesvos?

YES _____ NO _____
If yes, have you ever noticed the countries they come from?

_____

13. How do you define that the product is local?

_____

Opinions

14. Are you satisfied with the quality of the products you find on Lesvos today?

Yes, why? _____

No, what could change? _____

15. Are you satisfied with the safety of the products (in terms of health issues, nutritional value)?
    Yes, why? _____

    No, what could change? _____

16. Are you satisfied with the variety of the products you find on the market?
    Yes ____
    No, what is the reason? _____

17. Do you think that local products can cover quantity and quality for the local market?

_____

Personal information

Could you please tell us about yourself:

18. Age _____ 19. Marital status _____
20. Household Size (people) _____21. Educational level _____
22. Occupation
_____
23. Income (in classes): (a) <10.000 € _____
    (b) 10.000 - 20.000 € _____
    (c) 20.000 - 30.0000 € _____
    (d)> 30.000 € _____

24. Would you like to add something that you think needs to be said, something that we did not mention and you think is important?

Thank you very much for your time.