UNIVERSITY OF TARTU

Faculty of Social Sciences

Johan Skytte Institute of Political Studies

Angelina Guzel

Organic farming for food security in the EU: Impact assessment of the Rural Development Program for Malta 2014-2020

MA thesis

Supervisor: Kristina Muhhina, PhD

Tartu 2019

I have written this Master's thesis independently. All viewpoints of other authors, literary sources and data from elsewhere used for writing this paper have been referenced.

.....

/ Angelina Guzel/

The defence will take place on ..... */ date /* at ..... */ time /*

..... */ address /* in auditorium number ..... */ number /*

Opponent ..... */ name /* (..... */ academic degree /*),

..... */ position /*

Organic farming for food security in the Northern Mediterranean: Impact assessment of the Rural Development Program for Malta 2014-2020

Angelina Guzel

Abstract

This thesis discusses the role of organic farming in ensuring food security in the European Union on the case of Malta. The work demonstrates how the Rural Development Program for the Maltese islands 2014-2020 promotes organic farming and impacts four dimensions of food security: availability, access, utilization and stability. The research is a qualitative study, following the single-case study design. The coding frame was developed to approach the data. The analysis consisted of 14 interviews with the representatives of the industry (organic farmers), researchers in the field, representatives of NGOs, agricultural consultants and policymakers, as well as other related policy documents. The impact of the program was assessed according to the four dimensions of food security. The study contributes to the discussion of food security in developed countries by analyzing how different policy measures related to organic farming can contribute to the availability, access, utilization and stability dimensions, taken into consideration the regional difficulties and specificity. The thesis argues that organic farming can bring a substantial contribution to ensuring food security on the Maltese islands, however, the current policy measures are not enough for making a change. Although the policies aim at incentivizing organic farming in the country, the government does not support the sector. The work provides recommendations for the Maltese policymakers in the lights of submitting the next Rural Development Program 2021-2027 and the upcoming Common Agricultural Policy reform.

Table of Contents

Abbreviations

CAP – Common Agricultural Policy

EU – European Union

ERA - Environmental and Resource Authority

FAO – Food and Agriculture Organization of the United Nations

IFOAM - The International Federation of Organic Agriculture Movements

NAP – National Agricultural Policy for the Maltese Islands

NSO – National Statistics Office , Malta

RDP – Rural Development Program

Introduction.

For centuries agriculture was contributing to the biodiversity, forming the landscapes in the way they are today. However, in the aftermath of the Second World War, globalization and intensified agriculture have brought significant changes. Countries with a capacity for agricultural activities switched to export-oriented agricultural sector, which was mainly focused on monocultures. All these changes have increasingly reshaped the whole agricultural system and the food supply, potentially causing severe economic, social and environmental risks (Altieri 2009, 102; Tilman 1999; Torres 2016). These new challenges became a potential threat for ensuring and sustaining food security in both developing and developed countries. Since 2000 the EU started changes in the direction of "quality over quantity" by creating the second pillar of the Common Agricultural Policy, which aimed at supporting rural development and introducing more sustainable agricultural practices, such as organic farming. Organic farming is one of the various possible systems of food production. Like any method, it has a set of characteristics which distinguishes it from the others. Different authors and organizations proposed their own measures; however, the most widely accepted ones were introduced by IFOAM: principles of health, ecology, fairness and care (IFOAM 2006). Each of this element can contribute to the development of a sustainable food system or can address the issues which put it at risk.

The main aim of this research is to understand how the EU's policies promoting organic farming impact four dimensions of food security in developed on the case of Malta. The two main questions are as follows: How effective is the Rural Development Program 2014-2020 in incentivizing organic farming in Malta? How can organic farming potentially contribute to food security in Malta? The work looks at how successful the current policies are in developing organic farming in the country. Then, the thesis explores how organic farming policy measures can address the food security issues in developed countries according to the four dimensions. Since Malta is a member of European Union, the work concentrates on this region specifically.

The given problem is important because the "old" food and agriculture governance based on intensified production led to a set of consequence, which today pose a threat to the agricultural system and food security. The "quantity over quality" strategy negatively affected the environment resulting in loss of biodiversity, lowered soil and water quality,

as well as putting small farms at risk. Therefore, in lights on this threat, there is a need to adopt more sustainable agricultural practices.

Although the role of organic farming in contribution to food security in developed world is acknowledged by different authors and the national governments, there is not much research done on how exactly this type of agriculture can impact the availability, access, utilization and stability dimensions of food security.

The main tasks in answering the research questions were to explore the current situation of the organic sector in the country, to describe the food security threats, to identify the main policies targeting organic farming and to assess the proposed measures, to develop a set of indicators to evaluate the policy impact on four dimensions of food security. The thesis contains three main chapters. The first chapter discusses the concept of food security, conceptualizing it through for dimensions: availability, access, utilization and stability. Then it introduces the concept of organic farming and how it is related to food security. Also, it discusses the issues of food security in the developed world, introducing the threats that the region is facing and giving the overview of the policy instruments targeting organic farming. The second chapter presents the methodology of the study. First, it demonstrates the research questions and introduces the case of Malta. It is followed by the discussion of the timeframe and program selection, data collection and analysis strategy, as well as validity and reliability of the chosen method. The third chapter gives an overview of the Rural Development Program 2014-2020, presents the results of the impact assessment and provides a set of recommendations.

Although the Rural Development Program is supposed to incentivize organic farming between 2014 and 2020, the program monitoring revealed that the measures for organic farming were only launched in April 2018. Therefore, it is hard to identify the direct impact during such a short period of time. Nevertheless, the proposed measures were analyzed through the four food security dimensions. The analysis showed that certain indicators of food security could be positively affected by the means of organic farming, such as utilization and stability dimension. However, the analysis showed that the targets of the program are not ambitious enough to make a positive effect on a large scale.

The thesis is a qualitative study which follows the single-case study design. The main source of data was the interviews with three groups of stakeholders: organic farmers, policymakers and research group, which included representatives of NGOs, academics and agriculture consultants. To ensure validity of the findings, a set of related documents, policies and relevant literature were chosen as a source of data in addition to the interviews. For some food security indicators, there was statistical information available (for example, obesity rate). This strategy was chosen because in general there is a lack of quantitative data related to agriculture in Malta. Many indicators are outdated, which does not allow to analyze the current situation.

Chapter 1. The concept of food security

The twentieth century was a time when many domestic issues came to the international arena and were acknowledged as crises. The First and the Second World Wars affected many areas of society, but what was influenced directly was the food and nutrition dimension of the world's population. Food shortages and famines were appearing in all continents around the world. Thus, in the second half of the century, the importance of raising the question about food was obvious and even urgent. Thus, the main concern at that time was the production and supply in order to feed the growing population (Skogstad 1998, 469).

Food is an essential part of a life of every human being. If it is in scarce, society becomes vulnerable and unstable. Food also can become a source of wealth as the ones who control it gain power over the ones in need. As a result, food lied at the root of many conflicts, caused wars and mass migrations in different parts of the world. On the other hand, one could call it a driver for social innovation and technological progress. Due to its nature, food has always been appearing on the agenda of policy makers. The ability of a government to provide availability and access to food defined it as a successful or failed. Thus, in the aftermath of the Second World War it was evident that not only a lot of attention should be paid to the issue of food security on a domestic level, but also that this problem goes beyond the borders of national governments.

The Food and Agricultural Organization of the United Nations (FAO) was created after the Second World War in 1945 by the United Nation and was its first specialized agency (Shaw 2014, x). After the establishment, the FAO produced constitution, according to which the main function the organization was to "collect, analyze, interpret and disseminate information relating to nutrition, food and agriculture" (FAO Constitution 1945). The current FAO website defines the organization as one that "leads international efforts to defeat hunger", while positioning the goal as "to achieve food security for all and make sure that people have regular access to enough high-quality food" (FAO 2006). According to the FAO amended constitution, the main purposes of the organizations are as follows: "raising levels of nutrition and standards of living of the peoples under their

respective jurisdictions; securing improvements in the efficiency of the production and distribution of all food and agricultural products; bettering the condition of rural populations; and thus contributing towards an expanding world economy and ensuring humanity's freedom from hunger".

The concept of Food Security appeared in the 20th century and many scholars, as well as policy makers interpreted it in different ways. However, in the literature one may find that the milestone in the evolution of the concept and the first widely accepted definition emerged after the World Food Conference in 1974: Food security is an "Availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and price" (FAO 2006; Maxwell 1996). Heidhues et al, 2004 argue that the understanding of the problem was changing over time, thus, bringing many stages of redefining the core concept of Food Security (Heidhues 2004, 3). They point out that since the conference the angle of looking at this problem has changed. For instance, at first, the biggest attention was paid to a level of food self-sufficiency of one country. Patel (2009) argues that the definition of 1974 derived from the economic and political context of that time (Patel 2009, 664). He refers to Sahel famine, the increasing demand for a "new international economic order" and the power of the Third World countries in establishing the international level agenda as the reasons of such importance of the supply and country self-sufficiency component of food security agenda.

This accent on self-sufficiency of a country and the danger of having massive hunger triggered adoption of many severe reforms in the sphere of food policy. For instance, this way the European Union accepted the Common Agricultural Policy, which was based on heavy subsidies for the agricultural sector (Fischler 2008). The reason behind it was to ensure that the amount of food produced in a country was not only enough to feed the citizens of this country, but also to have food surpluses as food aid for developing countries (Clendenning 2015, 167). After a few decades of implementing this type of policies, policy makers faced the problem of overproduction and its consequences (Elinder 2015, 1334). For instance, the food surpluses in many cases remained and were wasted in the country of production, without reaching the countries in need. All in all,

Clendenning (2015) argues that this led to deregulation of food production, which therefore changed the main accents in the field of food security (Clendenning 2016, 167).

The studies of Simon Maxwell develop a foundation to studies of food security. In his works, the author looks at the evolution of the concept and identifies new ways of perceiving and working with this definition. Maxwell distinguished three main shifts in the meaning and understanding of food security: "from global and the national to individual, from a food first perspective to a livelihood perspective, and from objective indicators to subjective perception" (Maxwell 1996, 156). All these aspects show what the focus of the policy makers was in the aftermath of the World War II. First, he looks at how the idea about one country's self-sufficiency and cutting import dependence was abandoned. The main difference was that food security no longer was an issue only on a national level. In contrast, the attention was paid on individual and household food security, as it was clear that supply solely does not guarantee achieving food security. Thus, in the latest definition the accent is made on the access and availability dimensions, rather than ability of a government to supply the country with domestic food (Maxwell 1996, 156-157).

Second, it was revealed that in some cases people prefer to live in hunger rather than disrupt livelihoods. In other words, one would agree to live in hunger in the present in order not be hungry in the future, or for the future generation not to live in hunger. Thus, Oshaug (1985) argues that even if food norms are achieved, the country/household cannot be called food secure until the long-term viability is ensured (Oshaug 1985, 5-13). The author does not use the term "sustainable», however, from the description it is evident that it is directly connected to the main principles of sustainable development, meaning preserving the food system for future generations. The roots of the sustainable approach to agriculture and food policy in general lie in the understanding of saving the system in a way that makes productive now and will remain so without damaging itself and surrounding environment (Maxwell 1996, 158).

In his earlier work, Maxwell (1988) defines food security as follows: "A country and people are food secure when their food system operates in such a way as to remove the fear that there will be not enough to eat. Food security will be achieved when poor and

vulnerable, particularly women and children and those living in marginal areas, have secure access to the food they want" (Maxwell 1988, 10; Maxwell 1996, 159)).

By the 1990th scholars and policy practitioners agreed that the new challenge for making a country or a household food secure was an access to food. Today there are plenty of definitions used by different scholars and organizations, however all of them are derived from "the working definition", which was formulated by FAO in 1996: "*Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life. Household food security is the application of this concept to the family level, with individuals within households as the focus of concern".* Respectively, "Food insecurity exists when people do not have adequate physical, social or economic access to food as defined above" (FAO 2006).

Given the definition of food security, four main pillars of this concept are explicitly identified: food availability, food access, utilization, and stability. All these domains must be in place in order to call a country Food Secure (FAO 2006).

Food availability is one of the most important and controversial parts of the food security discussion. It addresses the significance of the supply side of the concept and is measured by the level of food production, food stock and net trade (FAO 2006). As long as there are enough products available to feed the population of a country, the role of the origin of food becomes secondary (it can be supplied by local farmers and industries or imported from other countries).

Access to food is a continuation of the food availability dimension, as the latter by itself does not guarantee the household level of food security. What is considered here is the ability of the population to access the food that has been produced. It focuses on economic and social aspects, such as income of population and the expenditure on food, prices and markets (FAO 2006). For example, if food items are present in markets or grocery stores, but the price is very high, that would cause food insecurity for the part of population with low income. On a household level, the amount of money spent on food should not exceed 50%, otherwise it put particular households in danger regarding their food security status (Smith and Subandoro 2007). Also, it important to look at one country's capacity to deal

with issues related to food security and nutrition. Therefore, the presence of lack of institutions must be explored.

Food utilization is used to show how human's body benefits from the food it takes in terms of nutrient components. The amount of energy and nutrients depends on many factors which go beyond simple food consumption. It includes culture and feeding practices, food preparation tradition, diversity of diet, food distribution on a household level etc. Food as tradition and social culture, together with biological utilization, constitute the nutritional status of a person. A considerable amount of literature is devoted to food insecurity as a public health issue, which is associated with poor health among children and adults caused by poor and unhealthy diets. Some researches show the connection between food insecurity and obesity (or other chronic diseases which cause obesity) (Maxwell 2003; Kaiser 2001, Adams, Gummer-Strawn, & Chavez, 2003, Casey et al 2004, Dietz 1995). It is shown that in the EU only government expenditure for the problems caused by obesity reaches $70 billion annually through medical costs and lost productivity (European Obesity Day 2019). That is from 1.9% to 4,7% of the annual healthcare cost in Europe (Cuschieri 2016, 2-3). Such problems include high depression rates, low self-esteem, anxiety, inability to work, cardiovascular diseases and others (Kaiser 2011, 64).

Stability of all three dimensions is crucial in defining whether a country or a household in food secure. For policy makers it is important not only to make sure that all the three dimensions are in place, but also if there are any external risks or threats that could intervene and negatively affect any of them, or all together. That would include climate change and weather conditions impact, political instability in a country/region, economic and social factors. In countries with big migratory flow such issues as security, social stability and nutrition needs are on the agenda. Thus, it should be considered while looking at a broad picture of food system in each country. For example, it can be beneficial for local food production as many newcomers are actively engaged in agricultural activities (Shamsi 2018).

Although the definition and main pillars of food security suggested by FAO became the main one in this field, there is still an ambiguity whether it will fit in the policy-making as much as it does in the academic papers. For instance, Pinstrup-Andersen (2009) argues

that there might be a need for changing the concept according to the type of the problem and solution required (Pinstrup-Andersen 2009, 6). Thus, the interpretation of the food security concept and its measurement can vary depending on the given situation of a country. In addition, one would underline the necessity for policy makers to adjust the policy goal of achieving food security addressing the most urgent issues in the food and related sectors.

1.1. From 'old' to 'new' food security governance in Europe

Nowadays Food Security has become a vital issue. Food Security Governance involves many institutional stakeholders, such as international organizations, national corporations and governments, private sector and civil society. The effective food security governance can be organized on regional, national and international levels and requires collaborative work of all stakeholders to produce, implement and monitor necessary policies. It is worth to mention that food security does no longer affect the agricultural sector only but constitutes a cross-cutting discipline with a significant range of subjects and problems.

The food security governance has changed over time. In the course of the last fifty years, various policy solutions were found and implemented in order to achieve security for countries all over the world. As the main goal was to ensure that people physically have food available throughout a year, at first the main goal was to increase food production. The main issues were to make it affordable for consumers and profitable to farmers. Therefore, the main strategy for the first version of the Common Agriculture Policy, which was launched in 1962 was to subsidize farmers and food producers. The policy measures for food security in the EU were evolving together with the Common Agricultural Policy. During the first decades of CAP, the attention was given to the production side. Thus, all policy measures were directly related to means of how to intensify agriculture (Ackrill 2008; Fischler 2008)

In the aftermath of the Second World War, Europe witnessed nutrition crises, hunger and scarcity of food products. This problem received a lot of attention from policy makers as it was evident that some radical changes should be made in the whole system. The most important goal was to ensure that European citizens will never face hunger again. This initiative was transformed into the idea of creating one overarching food policy, which

would address the issue of food production and consumption (Coleman 1998; Skogstad 1998; Ackrill 2008). As a result, in 1962 the EU's Common Agricultural Policy was launched. This policy presented a synthesis of policy measures designed to strengthen and support agricultural sector in the member states. The main policy instrument of the new policy was price support. That was due to assumption that "free market" would create a low price for the food products, which will lead to unsatisfactory incomes for the farmers (Ackrill 2005).

The objectives of the first version of the CAP were as follows: "to increase agricultural productivity by promoting technical progress and by ensuring the rational development of agricultural production …; thus to ensure a fair standard of living for the agricultural community, in particular by increasing the individual earnings of persons engaged in agriculture; to stabilise markets, to ensure the availability of supplies, to ensure that supplies reach consumers at reasonable prices." (Art. 33 (Art. 39) of the Treaty of Rome 1957). At that time, most of the OECD countries chose the developmental or state-assisted paradigm of agriculture, which had one goal - provide a secure and stable supply of food items for all citizens (Coleman 1998, 636). That would mean adopting policies which would not only regulate prices and market, but also intervene in the farm structure. The goal of increasing efficiency of the agricultural sector led to the discussion of farms expansion, as a "modern" farm meant a "larger" farm (Coleman 1998, 638).

Therefore, that paradigm sought to target bigger farms and food productions, which could be the most successful in enhancing productivity. It included such policy measures, as directs payments based on the quantity of produced product (the more one farm produces, the more subsidies it receives), trade barriers for agricultural commodities, education and training initiatives for making farms more efficient, loan programs, land consolidation initiatives, modernization of equipment and facilities (Coleman 1998, 639). As a result of such a significant policy intervention, the amount of agricultural production in Europe increased significantly. In fact, what Europe started facing after the first decades of the CAP is overproduction of food.

In the late 1980th and 1990th, the model of market liberalism became more prominent and changed the policy direction for agricultural sector. New reforms cut the assistance to agriculture, reducing the trade barriers and transforming agriculture in an industry, which would be shaped by the market (OECD 1995, 47). It was evident, that after decades of assistance, small-scale farmers became victims of the system, as the assistance to them was disproportionally smaller (Coleman 1998, 643). In order to improve the situation, the national governments started implementing such policy instruments as modernization of investment, compensatory payment for small farmers, compensation for disadvantaged areas, farm business plan trainings.

Due to complexity of the food system in general, food security embodies a challenge which applies to different sectors and policy areas. Maxwell et al. (2003) argue that in the last decades of the 20th century there was a shift from studying food policy to a narrower food security (Maxwell et al. 2003, 531). Food security is a multi-disciplinary field and can be studied from various perspectives such as health, economy, land governance, environment etc. At the same time, it is both a local and an international issue. There are different important drivers of development in the food security sector, such as business environment, adequacy of implemented policies, institutional and organizational innovations etc.

Thus, one could say that for a very long period, all policy measures were concentrated on the *availability* dimension, while neglecting *access, utilization* and *stability*. However, the situation started changing with introducing measures which would put the other dimensions in the picture as well. Some policy proposals and actions, which were in place even a decade ago might not be relevant in the developed world today. For instance, the subsidies for agricultural activities under the CAP led to overproduction of food, which in turn causes a significant amount of food waste (Perroud 2019). Today in Europe 20% of produced food is wasted (Stenmarck et al. 2016, 3-5). Many scholars have discussed these changes, trying to attract attention of policy makers. As current agricultural practices driven by the market have a negative impact the environment, the policies should go beyond production side: "we need to aggressively invest in a combination of market mechanisms and policies that advance agriculture while scaling -up the approaches that improve its delivery of ecosystem services" (Giobannucchi et al 2012, 6).

Therefore, the new policies related to food in the EU should opt for re-orientation of the system towards more sustainability through financial incentives for organic transition, support and tax exemptions for environmentally-friendly practices (Izac et al. 2009, 459-66).

New Food Security Governance in Europe: from quantity to quality

In the early 2000th, scholars and policy makers in the EU were underlining the need for new policies, as the surrounding environment had changed significantly since the CAP was adopted. First, it became evident the policies related to agriculture failed to address the emerging issues. Second, the environmental and social aspects were neglected. There was a lack of public participation and interest in the policy making process (Baldock et al 2001, x).

The intensification of agriculture caused such issues as degradation of natural and farmed habitats; degradation of soils and water quality; difficult conditions for small farmers as industries could provide food with lower price, thus making a small-size farm hold difficult to sustain economically (Baldock et al. 2001, 10). The most significant change was proposed in 2000 by introducing a new comprehensive Rural Development Policy. The main reason for creating a rural development policy was the need to address the problem of environmental damage, caused by non-sustainable agricultural practices. The new rhetoric had a strong focus on such issues as environmental sustainability, organic farming promotion, supply chain shortening (promotion of local production, consumption and distribution) and supporting agri-environment schemes. (Badlock 2001, 34). Supporting of organic agriculture is one of the main goals of rural development strategy (Badlock 2001, IX). Due to the special financial measures, the EU is witnessing environmental progress. Many countries have witnessed a boom in organic agriculture in recent years. For example, in 1998, only 12,3% of the arable land was dedicated to organic farming in Austria (Baldock 2001). This figure reached 21.25% in 2016 (Eurostat 2017). The similar trend could be identified in Sweden (18,03 %), Estonia (18,02 %), Italy (13,99%) (Eurostat 2017). Although one could argue that these changes are partly driven by the changing market, the main reason for this increase is a financial support by CAP and national policies (Offermann 2009, 278-279). Today, CAP aims at supporting farmers and improving agricultural productivity to provide consumers with affordable food;

ensuring that farmers can make a reasonable living and promoting jobs in agricultural sector; tackling climate change through sustainable natural resources management; maintaining rural areas across the EU (European Commission 2019).

The CAP is a policy which functions in all European member states. It is funded at the EU level, using the resources of the European budget. Currently, there are two funds operating in the sector. The European Agricultural Fund (EAGF) – Pillar I, which provides direct payment to the farmers, and the European Agricultural Fund for Rural Development (EAFRD) – Pillar II, which finances rural development (EU Commission 2019).

It is important to mention that currently multiple discussions are made to reform the CAP. In June 2018 the new legislative proposals were presented by the EU Commission. The main aims for the new CAP will be to mitigate climate change and support sustainable agricultural practices, such as organic farming (European Commission 2017, 35-27). It is worth to mention that the countries decide how much of financial support to allocate for the sector. For example, such countries as Denmark and Sweden allocate more than 10% of the CAP money to organic farming. These countries also have the biggest share of organic in the EU, while other countries with smaller investments, such as Romania and Portugal have a smaller share of organic (EUROSTAT 2017).

Food security topic also has been on the agenda during all CAP reforms. Most of the literature and studies are concentrated on developing countries, where the percentage of undernourished population is high, while the support for agriculture from the government is either non-existent or not systemic (Maxwell 1990; 1995; Devereux et al 2000; Levin et al 1999; Mbow et al 2014). Thus, one could have a wrong picture of perceiving food security as a problem only in countries where people are severely undernourished. In developed countries problems which are associated with food security are concentrated around the *access, utilization* and *stability* dimensions. These are the consequences of the "old" food system. In general, the food system can be easily affected by various factors, such as political, economic, environmental, scientific progress, social etc. It is changing over time and it is important to acknowledge these changes to be able to adjust it on time. One of the conceptual works regarding the New Food Policy was published by Maxwell and Slater (Maxwell & Slater 2003). This work has become a guide in the Food Policy

field, as it identified the 19 current trends and threats, which were brought by the era of food industrialization, liberal economy and globalization in general (such as longer supply chains; prevalence of chronic dietary diseases such as obesity and diabetes; food safety issues related to excessive amount of pesticides residues etc) (Maxwell & Slater 2003, 534). These challenges for developed countries were recognized by the scientists, scholars and policy makers, and could be put together in the following groups:

Affordability of healthy food by the population

Nyambayo 2015 argues that in developed countries, food insecurity of some parts of the population is caused by poverty and, therefore, inability to afford healthy food. That, in turn, leads to substitution with cheaper and lower in quality food items, which can cause several health issues (Lake et al 2012).

Food-related health issues

For the first time in history the amount of overweight and obese people is equal to the amount of undernourished people (FAO 2018). That is the result of new dietary habits, caused by increased production and trade. Broadly speaking, both undernutrition and overnutrition are the results of food security inputs, such as food production, availability and access, as well as consumption patterns and assets creating (which constitute the utilization dimension of food security) (Lunze 2015, 2). Thus, the new goal for food policy should be "more human nutrition", rather than "more production". For people in developed countries obesity had become a serious problem, which has a lot of serious health implications. Giobannucchi et al. (2012) argue that food security can be perceived as a part of national security. In this case, the governments should act in creating balanced policies which would support self-provision, "improve the trade regimes and market delivery systems" (Giobannucchi et al 2012, 5). It seems irrelevant to rely only on local production or trade for ensuring food security. These two elements should be balanced. However, if dependence on imported food is high, that puts a country at risk.

Resilience of the current agricultural system under the environmental threats

Climate change becomes a threat for food security due to its high impact on agricultural productivity (FAO 2017). Agriculture shapes and modifies landscapes, as well as

primarily affects ecosystem and biodiversity. Non-sustainable agricultural practices are harmful to the environment (Alfoeldi 2002). The root of the problem lies in the introduction of the chemical fertilizers and different types of pesticides, which were initially put in place to increase production of food. This way, the process of growing food became independent of both natural regulation processes and resources of the current locality, shifting the accent towards non-renewable resources. This led to regional specialization and mono-cropping, as the natural cycle was broken by artificial intervention. In turn, this created a need to constantly sustaining the system with these chemical fertilizers, as the system itself was already unable to sustain itself. Thus, the vicious cycle was established (IFOAM 2006, 18). Conway (1987) as well argued that in the new system the new way of ensuring sustainability is a renewed fertilizes application or control agent, such as pesticides. These chemical measures became an intrinsic part of the system. In addition, according to the Committee on Climate Change, food sector in its modern way is one of the largest contributors to the greenhouse gas (GHG) emissions (Committee on Climate Change 2010).

Thus, one could conclude that the issues associated with food insecurity in developed countries are concentrated around the *access* (affordability of healthy food by the population), *utilization* (food-related health issues) and *stability* (resilience of the current agricultural system) dimensions. Food Security is not a theoretical concept which "exists on paper". It is one of the most important indicators of a wellbeing and survival of a country's population. Food Security plays a vital role in human development and therefore was recognized as a human right. Thus, the level of food security should not only be monitored on the regular basis, but also one needs to take into consideration possible threats. In a situation when at a present moment one country or household is considered food secure, but there is a possibility that in the spare of one year this will be compromised, the preventive actions should be made urgently.

Agriculture is a unique sphere of human activity, which connects the environment and society, while having significant economic implications as well. This way it goes far beyond the common understanding of solely food production and supply. All the elements are important and interdependent for ensuring food security. Another signifier of the agriculture systems is its “liveliness”. That means that the system is not stable, but

constantly evolving due to the changes of the surrounding environment. To become food secure one country needs to address the emerging threats, while ensuring durability of the system in the current reality. Thus, if the modern practices such as unsustainable food production and unequal distribution create risk for the environment and social development, they inevitably affect the status of food security. It became evident that a sustainable and equal food system can address food insecurity.

The changes that the new mode of agriculture brought were acknowledged by various stakeholders. Noticeably, both national and international bodies should work in cooperation to address this problem and to change the system towards a more sustainable way. Conway (1987) defines sustainability as "the ability of an agroecosystem to maintain productivity when subject to a major disturbing force" (Conway 1987, 101). This definition implies that sustainability of a system is its resistance to a potential intensive stress or a shock, which would have a cumulative effect. "Sustainability thus determines the persistence or durability of an agroecosystem's productivity under known or possible conditions" (Conway 1987, 102).

The idea of abandoning industrial food production and switch towards small or medium-sized farms was voiced by many researches and international organizations, such as FAO and IFOAM. The "more production" oriented model of agriculture is outdated and no longer addressed the current issues, which the society is witnessing. "Although food is critical, it is not just about food" (Giovannucci 2012, 1). Studies show that small farms are more productive per area unit that big farms. (Rosset 1999; IFOAM 2006; Patel 2009). If the productivity of small farms is increased, it can result in local production of a bigger amount of food, as well as increased wellbeing of the farmers. It was also shown that not only small farms have lower negative impact on the environment, but also provide better conditions for people working there (Altieri 2009; Patel 2009;). It is vital to understand that the definition of small-size farm may vary according to the context, geography, industry and other factors. The definition can be based on such factors as size of country, size of the sector and production system in general, availability of assets, dependency on family or local labour etc. Thus, there is not a universal measurement of small in the context of analysing agricultural sector. Nevertheless, for the purposes of this study, the following FAO criteria should be in place in order to consider a farm as a small-scale

farm: a farm can defined small if it uses two (or less) hectares, with a maximum limit of 10 hectares of land there is no or little mechanization for the planting, growing and harvesting purposes; reliance of family labour with a possibility to employ 7 workers (SAFA, 35-36).

The "new" approach to food security manifested itself in the Rural Development part of the CAP reform. The main indicator of a policy change was the CAP reform in 2003, which decoupled direct payment from Pillar I and allocated more budget for agri-environmental schemes, such as organic farming. That brought a positive change in terms of profit of organic farming (Nemes 2009, 25). Today food security is no longer identified by the quantity of food products, but by their quality and the effect it gives to the environment. In some countries, the current food system is facing threats which are caused by unsustainable agricultural practices. Consequently, if a country is unable to address the problems it is facing and there is a potential threat – it cannot be called food secure. Therefore, it is important to acknowledge these challenges and take them into consideration while addressing food security. The issues and problems mentioned above are ones of the biggest threats for food system in general, and particularly to food security. Conventional agricultural model could not explain and address these concerns as it does not provide an "insight into the dynamic character of agri-food systems" (Thompson and Scoones 2009, 386). The following section will discuss organic farming as one of the milestones in transition from quantity to quality.

1.2. The role of organic agriculture in food security

This section will conceptualize organic agriculture, show evidence of the benefits of organic farming in the context of the "new approach" for studying food security, examine the link between organic farming policy measures and dimensions of food security, and provide examples of successful policy instruments.

1.2.1 Organic farming

During the Food Security Forum organized by FAO the world leading experts identified the current problems and threats for food security on the international level. Everyone agreed that in the current reality of food overproduction, the issue is the quality of food products and the way the food is grown. The modern farming systems were identified as

the biggest factor which contributes to food insecurity both in developed and developing countries (FAO 2017, 2). It was mentioned that the dominant agri-food regime failed to ensure food and nutrition security. The system needs to be changed towards more sustainable and environmentally -friendly practices (ibid 3).

The small-size farms are believed to be more sustainable and environmentally-friendly. Thus, the proliferation of these types of food production is actively promoted and supported both on the EU and national levels. However, it is usually very costly for farmers to survive in the reality of an open market where big corporations supply the market with food for a very low price. Therefore, farmers face difficulties in sustaining their current practices, leave alone the adoption of new sustainable practices and the governmental intervention is crucial in dealing with this situation. There should be both financial incentive for farmers to switch to new methods of agriculture, and a policy support (FAO 2017, 4).

There are many definitions and interpretations of organic farming. The first person who introduced the term of organic farming was Lord Northbourne (1896 – 1982). His book called "Look to the Land" is acknowledged as a manifesto of organic farming and agriculture (Northbourne 1940; Rigby 2001; Paull 2014). In that book, he advocated for proliferation of small, self-sufficient and environmentally-friendly units, while opposing industrial production, where both people and nature become subordinated to one same corporate identity. Scofield argued that organic farming does not only imply the priority of environment and surrounded nature, but also emphasises the "systematic connexion or co-ordination of parts in one whole" (Scofield 1986, 5). Mannion refers to organic agriculture as holistic approach, which provides interrelationship between farm and the surrounding environment (Mannion 1995).

However, the widely accepted and most commonly used definition was given by Professor Nicolas Lampkin. According to him, the organic farming aims at "creating integrated, humane, environmentally and economically sustainable production systems, which maximise reliance on farm-derived renewable resources and the management of ecological and biological processes and interactions, so as to provide acceptable levels of crop, livestock and human nutrition, protection from pests and disease, and an appropriate return to the human and other resources" (Lampkin 1994, 5). In 1980 the International

Federation of Organic Agriculture Movements first published the standards for organic agriculture, based on four principles:

Principle of health – "Organic Agriculture should sustain and enhance the health of soil, plant, animal, human and planet as one and indivisible"

Principle of ecology – "Organic Agriculture should be based on living ecological systems and cycles, work with them, emulate them and help sustain them".

Principle of fairness – "Organic Agriculture should build on relationships that ensure fairness with regard to the common environment and life opportunities".

Principle of care – "Organic Agriculture should be managed in a precautionary and responsible manner to protect the health and well-being of current and future generations and the environment".

(IFOAM 2005)

Organic farming can address the issues which conventional agriculture failed to tackle. For example, it forbids usage of synthetic substances for increasing productivity. This way, using a systemic approach it prevents soil degradation, loss of resources and productivity of land. In organic farming the ecosystem itself creates all necessary conditions for food production. Therefore, there is no need for additional chemicals which can negatively affect the surrounding environment (Alföldi 2002, 3). The core idea of organic farming is to protect and preserve the nature. Some of the potential benefits from the organic agriculture include improvement of soil fertility and soil structure, decreased susceptibility to erosion, producing less pollution due to refusal to use pesticides and chemicals, increased biodiversity etc. (Kasperczyk and Knickel, 2006). Organic agriculture is known as an ecology-based approach, which contributes to a vision of "farming with nature", which shares the values of protecting biodiversity and soil from erosion, conserves water resources, reduces the amount of tillage and integrates livestock and crop production in a farm (Thompson& Scooner 2009, 392).

In some countries, agriculture is a big contributor to the national economy. Most of these countries are developing, having most of the population involved in the industry. According to the World Bank, in the least developed countries the share of agriculture in

the GDP is 23,7%. However, in the developed countries the situation is different. In the European Union, this figure does not reach 1,5%, being the smallest numbers among other groups of countries (ibid). Nevertheless, it is one of the most supported areas of development. In 2016, the Common Agricultural Policy accounted for 41% of the total EU budget expenditure (European Commission 2018b). On the EU level the importance of the agricultural sector is acknowledged despite of the small contribution to the GDP. According to FiBL & IFOAM report, by the end of 2014, the data on organic farming was available in 172 countries with 43.7 million hectares of agricultural land devoted for this type of farming (Willer 2016, 24). The report also indicated that one percent of agricultural land in those countries is used for organic farming. The highest organic share by region is in Oceania (4.1%) and Europe (2.4%) (ibid.)

The organic products are usually more expensive, as they require more investment and time to grow. On the one hand, prices are usually the main driver for consumers when it comes to buying products. Thus, one could argue that the premium prices for organic would cause a less demand between consumers (Meemken 2018, 45). However, this assumption is not true for the European market (Stam 2018; Tranter et al. 2009). First, as it was indicated above, the organic agriculture as such appeared as a grassroot movement. Citizens-led campaigns were the core of proliferation of organic agriculture. They were demanding control over the food they consume and sought more transparency in the while food-supply chain (Thompsonn & Scoones 2009, 394). Rigby (2009) argues that there are two reasons for that. First, there was a demand for more environmentally-friendly, "green", pesticides-free food products. It was no longer a "secret" that the chemicals used in conventional agriculture are harmful for the human health and environment. Second, the interest to organic products increased in response to various food safety crisis (BSE crisis on the 1990th). The general public became more concerned about animal welfare and the impact which industrial agriculture produces (Rigby 2009, 22-25).

There are various studies showing the profitability of organic farming in comparison with conventional farming (Nemes 2009; Crowder and Reganold 2015; Padel and Lampkin 1994). However, there are two reasons why these results and the topic itself can be questionable. First, the holistic approach of how to measure the economic profitability has not been introduced. Different authors use different indicators, depending on each

case. In some studies, the farmers are shown as the priority group for receiving the financial benefits after conversion, while in others the government's investment was put as a priority. It becomes impossible to draw a clear-cut conclusion about whether one type of farming is more profitable than the other. Second, the priority and the main goal of organic farming is to create a sustainable system with the lowest impact on environment as possible. This angle implies switching the attention from importance of economic performance to the impact on the environment, health and society. Thus, it becomes a question of priorities. One could argue that in the current reality of climate change and its consequences, the transition should be made to a new understanding of agriculture in general. There is no doubt that any activity should be economically feasible and profitable, however, the focus should be on how this activity is affecting the nature.

Nevertheless, as it was mentioned above, one of the important components of profitability of organic farming over conventional is the opportunity of increasing the prices. On average, organic product are 50% more expensive than non-organic (Seufert et al 2017). According to Maine Organic Farmers and Gardens Association, the difference in price for food products grown organically can be more than 100% (the biggest difference of 134% was indicated for organic beef, while the lowest price difference was 9% for cereal) (White Pillsbury, 2011). It is evident that in general organic is more expensive, however, the ratio will vary from a type of the product, as well as marketing and sales channels. For example, organic products sold from a farm directly will be lower on price in comparison with the same products sold from a retailer. For example, in Britain and Germany 40-73 percent of profits for organic products for arable farms was due to higher prices (Offermann and Nieberg, 2000). However, the opportunity for farmers in Europe to increase prices is given by the active policy support. In developing countries, where the situation with subsidies for agriculture is different, the prices for organic sector still rely on the market. Thus, the profit of such activities is much lower (Offermann and Nieberg, 2009; Nemes 2009).

All in all, the current agricultural model has proven ineffective in addressing the environmental issues, while the system based on organic farming is more resilient and able to counteract the effects of climate change. Although these findings were mostly observed in developing countries, they can also be applied to the countries with more

advanced economies (Pretty et el. 2003). These countries face emerging issues which arise from the problems related to intensive and industrialized agriculture models.

The organic farming was not included in any public food policies or regulations. At first, it was a creation of a private sector, which with time entered to a public discussion scene. The movement started in the 1970th when Organic farmers founded growers' associations and International Federation of Organic Agriculture Movements (IFOAM) was established. In 1980 they first published the standards for organic agriculture, based on four principles: health, ecology, fairness and care. (IFOAM 2005). The movement became stronger and had more influence, which led to a creating of the first regulation on the EU level. In 1991 the Council Regulation (EEC) No. 2092/91 on "Organic farming and the labeling of organic farm produce and foods" was introduced. This first document was primarily based on the IFOAM standards. This regulation became a set of EU-wide minimum standards, which implied that private organization or companies are free to have stricter rules with regards to organic production. However, no food item could be called "organic" without compliance with the Council Regulation (Padel 2009).

The discussion of organic farming and its positive effect on the environment was continuing at the EU level. The introduction of the Rural Development Policy as a second Pillar of the CAP reform required more detailed and updated regulation for this type of agriculture. The course for developing this dimension further was taken by the EU policymakers by adopting a new Council Regulation (EC) No. 834/2007 on "Organic production and labeling of organic products" and two implementing regulations (No. 889/2008 and No. 1235/2008). (EC, 2007). The new document was emphasising the topics of more sustainable cultivation systems, environmental protection, consumer confidence etc.

In developed countries, the costs related to certification and other administrative fees are usually covered by farmer cooperatives, development organizations or receive other type of compensation (Meemken 2018, 416). Otherwise, this type of added cost can become a burden, especially for small producers in case of a third-party certification. Also, the certification costs are not an issue for conventional farmers, as they do not require any additional control. Therefore, these expenses can be perceived as a barrier for entering the sector and are to be covered by governmental entities or other organization. Denmark

is one of the most successful examples in this respect, as certification is provided free of charge by the governmental certification scheme using public resources. That was done to support the already growing organic sector and create an opportunity for the farmers to invest those money in the production (POECOM 2018).

The discussion of whether organic labelling and certification should be done by public or private sector is still ongoing. In Sweden, where the percentage of organic farms is one of the biggest in Europe, the private certification body KRAV has become an active member of the organic farming community on the EU level, which has higher standards for organic production than widely accepted in other countries. This label has obtained a strong reputation for good quality and is widely accepted outside Sweden as well (KRAV 2018).

1.2.2. Organic farming for food security

The role of organic farming in ensuring food security in developed countries has been studied during the last decades. Food security is a holistic approach to a food system, which is measured by various indicators through the given dimensions: availability, access, utilization and stability. The effect of organic farming on food security is still being researched. There is not a straight answer whether it has a positive or negative effect. Nevertheless, the studies made by FAO and IFOAM support the idea that organic farming can contribute to food security both in developing and developed countries. As it is indicated in those studies, the results will depend on the context of the problem, farmers themselves, their skills and knowledge about the technique and accessible resources (Morshedi 2017, 2086). In general, organic farming can be more beneficial for farmers due to an opportunity to increase the prices and, a possibility of a lower price for inputs in case of right way of implementation (ibid).

Many scholars, as well as international organization, show that there is a need for more research and a more holistic approach to be taken to assess how organic farming affects food security (Meemken 2018; Juma 2007; IFOAM 2002). According to the literature, the positive effect of organic farming on food security can be grouped according to three dimensions: social, economic and environmental (Midmore and Lampkin 1994; Morshedi 2017; Sitthisuntikul et al 2018; Scialabba et al 2002).

The positive environmental effect of organic farming is the biggest contribution to food security regardless of whether a country is developed or developing. As discussed above, organic farming restores the agricultural system by implementing more natural solutions and increase its resilience. Therefore, from the environmental perspective, organic farming contributes to food security equally both in developed and developing world (IFOAM 2006). The improve soil fertility secure farm future, leads to stability, can increase production, protect soil and water resources, and, therefore, improves environmental services. All this can improve food security in a longer perspective (Omidi 2014; Azadi et al 2011). On the EU level, organic farming is acknowledged as an important contributor to food security, as it creates a system which "respects natural life cycles and the environment" (Michalopoulos 2015).

From the social perspective, as organic farming is more labour intensive, it could become an employment opportunity for more people and, therefore, create more jobs in the agricultural sector. Additionally, organic empowers farmers and local rural communities by combining the traditional and indigenous knowledge with modern production procedures (Morshedi 2017 ,2086; Ward 2013, 66-68). At the same time, it provides consumers with healthier food options (IFOAM 2006).

However, from the economic perspective the effect can be different in developing and developed countries. While it is acknowledged, that in developing countries the yields (and therefore the production of a single farm unit) increase, in developed countries the results are the opposite. It is because the big prevalence of chemical fertilizers on conventional farms in the latter, which is used to boost the productivity (FAO 2018b). On the other hand, in developed countries farmers can benefit from the premium prices and a growing consumer demand for "cleaner and healthier" food (Meemken 2018; Lappe 2010). The following section provides some examples of successful policy instruments to support organic agriculture in accordance with four dimensions of food security.

Availability dimension

This dimension addressed the physical availability of food products in a country, region or a household. It is measured by level of food production and concentrated on a supply side of a food system. The policies related to this dimension would address such topic as

agricultural productivity, urban agriculture, local provisioning etc. (FAO 2007 1, v). The example of measures can be promotion of organic market development in way, so the national/regional policies become organic farming-oriented; the use of EU funds for promotion of organic farming (as each country decides how the money will be allocated); creating of special institution responsible for monitoring/advising on the issues related to organic (Haring 2009, 268-270).

In France, the Scientist of Organic Agriculture advisory board was created to advise the public authorities on issues related to Organic Farming (PAB 2017, 25).

Access dimension

This dimension touches upon the access to healthy food for people, but also to productive natural resources and decent payments for farmers and people working in the industry. The policies related to this dimension would address such topics as credit and debt system for farmers, markets, farmers' income, labour, knowledge, community development etc (FAO 2007, v). The example of measures can be fiscal policy for organic farming, tax reduction, development of agri-tourism (Haring 2009, 268-270).

The governmental additional financial support proved to be a crucial factor in sustaining organic farming in Europe. Since 2015, only two countries witnessed decrease in organic sector – the Netherlands and the UK. Both have withdrawn the subsidies for organic (Barbière 2017). In France, Spain and Italy the policy support for organic is very strong. All countries issued a national action plan specifically for organic farming (IFOAM 2006).

In Spain the government launched the program called "Green Spain", which unites Autonomous Communities in the North of the country and, therefore, promotes tourism in rural areas. The special quality scheme was created for this program (each establishment is awarded by a certain amount of "apple" marks) (Canoves et al 2004, 763).

Utilization dimension

The policies related to this dimension would address such topics as quality and safety of food, nutrition, health, consumption patterns (FAO 2007, v). The example of measures can be promotion of consumer awareness, protection of the sector from the negative effect of GMO, education activities among youth, public procurement (Haring 2009, 268-270).

Sustainable Consumption is food is one of the most important parts of ensuring Food Security. In the reality of market economy, the demand creates the offer. Thus, if people change their consumption patterns, they can reshape the industry in a more sustainable way. FAO shows that one third of the food produces in the EU is wasted (Stenmarck et al. 2016). In the Northern Mediterranean European countries, the diet -related disease are also associated with very high animal produce content in the food intake (CIHEAM/FAO 2015, 8). The meat industry is the main source of food loss. The overconsumption of meat should be reduced, and people should switch towards more plant-based diets. In fact, it is no longer a recommendation, but a current necessity. In a scenario when meat consumption is decreasing, nough amount of healthy vegetables should be provided. Organic agriculture can have a valid contribution. Increased consumption of organic food can be associated with raised awareness of people about more sustainable living (Van essen and Englander 2013).

In France, the National Action Plan for organic proposes a set of communication measures, which introduce new partnership with education institutions and hospital (PAB 2017, 19). The Ministry of Agriculture of France launched "Localim"- a toolbox for public purchasers of catering under direct management to guide the development of local supply and quality. That was created to facilitate the access of organic products to the catering industry (PAB 2017, 25).

In Italy, organic production was introduced in schools' cafeterias. Today, it serves more than 70,000 children in big cities, such as Rome, Bologna, Turin, Padua. Therefore, it created additional distribution channel for organic and presented healthier options for children, education them about importance of the food people consume (Compagnoni 2000, 181). Also, the National Action Plan allocate budget for creation of cooking workshops in schools, as well as school education garden with organic (National Action

Program for organic farming and biological products in Italy 2007, Action 3.1.). Additionally, the program aims at creating information channels for organic farming at schools as well as specialized shops (ibid, Action 3.2.).

Stability dimension

Organic farming could contribute to this dimension of food security by proving social stability and justice. Organic farming is more labour intensive, since most of the work on the field should be done manually, instead of using chemicals. In most of the cases they rely on family members. However, in developed countries the situation is different. In many cases the labour should be hired from outside, as young generations are reluctant to stay in the field of their parents (Hosnedlová 2018). In France, the twelve farmers receive a financial support from the European Social Fund (ESF) which accounts for 40,000 euros per year for starting organic farming business. In addition, they are receiving start-up assistance from the RDP. The program exists for ten years and proved to be very successful: 80% of the applicants remain in the sector, while 40% create and maintain their own businesses (Haas Guego 2018).

Another important aspect of this dimension is research in the area of organic, so there is an opportunity to prove the profitability of organic to the conventional farmers and encourage them to convert. Under the National Action Plan for organic farming in France, the budget of 1 million euros is allocated for research about organic farming (PAB 2017, 27).

In the era of industrialized agriculture the attention shifted from the ones "on the ground", both from consumers and policy-makers. Policies are mostly concentrated on the production side and quantities of food. Organic farming not only addresses a very important issue of connecting consumers with producers, but also puts farmers instead of the inputs "at the centre of farming strategy" (Juma 2007, 5; FAO 2007). It restores a decision-making role of local farming communities and guarantees their active participation.

As it was shown above, organic farming has a lot of benefits in comparison with conventional farming. However, it is harder to start and grow business due to very strict regulation and certification. Therefore, the policy support plays crucial role in

development of organic farming, especially in the EU. Without policy support, farmers may experience difficulties in achieving results and convert this type of farming into a profitable business. One could argue that organic farming is hard to achieve without policy intervention. Therefore, it is crucial to analyse the current policies and their effect on this type of food production. In addition, these policies would indirectly affect the status of food security.

Food Security is a very complex issue. Therefore, one cannot argue that switching from one type of agriculture to another will solve all problems. Organic farming as well as other methods are not a "silver bullet". However, it can contribute significantly to improvement of the current situation and prevent possible threats

Chapter 2 Research problem and methodology.

This chapter discusses the methodology of the research. There are two main research questions and several sub-questions, which guide the empirical analysis of the following chapter. The case selection strategy, research design and data collection and analysis information are presented in the second half of this part.

2.1. Research questions and case selection

To assess the policy measures related to organic farming which are currently in place, one needs to look at recently adopted policies. The latest program, which was supposed to incentivise organic farming in Malta is the Rural Development Program 2014-2020. Thus, the first research question of this work is as follows:

- **How effective is the Rural Development Program 2014-2020 in incentivising organic farming in Malta?**

The sub-question is as follows*: what is the reason behind a small share of organic farming in Malta?*

According to the literature, as well as expert's opinion and the discussion of the "Food rights, privilege and security: Perception vs Reality" conference, held on October 16th, 2018, there is a problem of food security in Malta. However, as the latest Rural Development Program (RDP) was recently implemented, it is early to discuss how organic affected food security, as the percentage is still very low. Nevertheless, by analysing the current situation, as well as available literature of effect of organic on food security and interviews with experts from Malta who are familiar with the local context, it is possible to identify how organic farming can potentially contribute to food security. So, therefore, there is an incentive for policymakers to increase attention to this dimension of agriculture, as it was proven that organic farming has a significant share only in those European countries which heavily subsidize it. Therefore, the second research question of this work is:

- **How can organic farming potentially contribute to food security in Malta?**

The sub-question is as follows: *To which food security dimension can organic farming contribute the most?*

2.1.1. Case of Malta

Being an island-nation, Malta is limited is space and resources for agriculture. In comparison with the average European level, the land holding size for farms is small. That is due to land scarcity on a densely populated island, topography and land fragmentation. According to the National Statistics Office, 75,6% of farms utilize agricultural land which is less than 1 hectare; 22% occupy territories between 1 and 5 hectares; and only 2,4% exceeds 5 hectares (NSO 2014, xii). The contribution of agriculture to the national economy is low as well. The agricultural sector covers 1,3% of the total Gross Value Added and can give jobs only to 1,5% of the employed population. Therefore, one could argue that the sector's overall contribution to the national economy is very low (National Agricultural Policy 2018-2028, 24)**.** This problem is countered by active development and investment in infrastructure. The expansion of tourism sector creates additional demand for food products, which in turn leads to increased demand of imported food. Nevertheless, agriculture is the biggest contributor to the shape of rural landscape in terms of environmental character. It is also important for recreation and tourism industries, which is one of the biggest contributors to the national economy. Agriculture as an industry and source of income is vital for significant amount of people in Malta. It is worth to mention that it plays a big role in sustaining of rural communities.

Access dimension: purchasing power

According to EUROSTAT, 20% of the Maltese population are at risk of poverty or social exclusion (EUROSTAT 2016). Therefore, their purchasing power is lower

Availability dimension:

Although according to FAO, the physical availability of food in Malta is sufficient to supply the whole population, high import dependence on food has become alarming for the local experts (FAO 2010). Only 20% of the consumed food is produced locally, while the rest is imported from abroad (Food Security Conference 2018)

Lack of investment is one of the biggest constraints which is acknowledged by farmers, and other people from the industry, including businessmen, activists, NGOs etc. However, this situation created a vicious circle, when on the one hand the industry is developing slow due to the lack of investment, but on the other hand, there is a lack of investment because the industry does not contribute much to the economy. In some cases, Maltese agricultural sector does not adhere to technological progress and automation (Walker 2004, 29). According to the National Agricultural Policy, there is lack of investment for modernization in almost all sectors, including olives, wine, different vegetables etc (NAP 2018-2028, 32-62). One could also include a small capacity of governmental entities dealing with the sector, which creates a situation where the public services and advice are in a limited supply (Delia 2002, 194-214). Lack of investment in niche products (such as organic) is indicated as a weakness of the current system by the National Agricultural Policy (NAP 2018-2028, 108).

Utilization dimension:

Another issue with relation to food security and health is the high obesity rate in the country. According to WHO, in 2008 64,3% of the population was overweight, while 28.8% counted as obese. This facilitated the discussion about countermeasures on a country level, which in turn led to the launch of a series of policies which would support healthy lifestyle. However, the problem still exists, and it is evident that there is a lack of consumer awareness raising initiatives.

Stability dimension:

Lack of sustainable land management, which causes loss of wildlife and biodiversity. It is also characterized by excessive use of chemicals, such as pesticides, herbicides, fertilizers etc; inappropriate irrigation; intensification. Due to a small land mass and a high population density, Malta is witnessing the challenge of a growing demand for land, water, food, while halting the loss of biodiversity and ecosystem degradation (Malta's National Biodiversity strategy and action plan 2012-2020). Water pollution and deterioration of groundwater quality is one of the major consequences of the use of agro-chemicals (Birdi 1997). The Environment and Resource authority has reported that "on the economic and environmental implications of soil degradation, the main threats to soils

in Malta are erosion, decline in organic matter, soil contamination, and salinization" (ERA 2005). It is caused by urbanization and intensified agricultural systems, which are currently in place in Malta. That results in big pressures on the land.

Another alarming issue is the excessive amount of pesticides, found in the locally grown fruit and vegetables samples. The reports showed the highest number of chemicals in Europe. This does not only contaminate the soil and water sources, but also poses a public health risk, especially for people who are exposed to the chemicals (Martin 2017).

Climate change

One of the biggest challenges that Malta faces is the adverse impact of climate change. The effects of climate change have become visible the EU countries, resulting in heat-waves, floods and droughts. Today we already witness significant changes, but the prognoses are not comforting as well. The recent study made by a group of scientists from Newcastle University and Willis Research network presented some alarming results. After analyzing climate projection for more than 500 European cities, the researchers came with three possible scenarios of the impact of climate change: low, medium and high impact scenarios. However, in any case the scholars argue that Iberia and the Mediterranean regions will see the biggest increase of heat-wave days. Being an island in the Mediterranean Sea, Malta is at risk of having up to 63 days of heat-waves in case of the high impact scenario. That constitutes an increase of more than 60% from the current situation in the country. Valletta and Gozo are in the top 5% of both drought indices and heat-wave days (Guerreiro 2018).

Lack of human resources has become an issue in all Europe, not only in Malta. According to the statistics, there are fewer young farmers in the country than on the EU level in general (3.8% vs 6%) (EU Commission 2016). This figure shows the reluctance of the new generation to enter the sector. The percentage of older farmer is substantially higher, however, still less than an EU average (25.1% vs 30.0%) (ibid). In general, the aging workforce and reluctance of the young generation to work in this field has become a big issue in many countries. The wages in the farming sector are dropping after the EU accession and the industry in general became less attractive (CAP 2016). During the period between 2005 and 2013 the employment in agriculture indicated a small growth

of 6.1%. However, it is composed of an increase of a part time employment (7.7%) and decrease of fill time farmers accordingly (11.3%) (NSO 2016). Unfortunately, more recent data is not available.

Society

Another issue which Malta is facing in the recent years in migratory flow. In 2017 there were more than 1500 asylum applications from citizens Libya, Syria, Somalia, Eritrea, Iraq and others UNHCR (2017). Also, many people come from Italy searching for job opportunities. However, hundreds fail to receive documents or official permission and stay to work illegally with very low wages (Tory-Murphy 2018, Malta Independent 2018). In 2014, Centre for Faith and Justice reported on "severe and criminal forms of labour exploitation of migrant workers in Malta" (McKay 2014).

All in all, it is evident that the problems which Malta is currently facing have different nature. However, a common solution could be found in choosing a sustainable agricultural model such as organic farming. It could address not only the issues directly related to food industry, but also tackle political, social, environmental and economic problems. Therefore, approach would focus on environmentally-friendly local production and sustain short food supply chains. Based on what have been discussed above, one would argue that food security currently is an important issue in Malta due to the lack of necessary resources for agricultural activities. In the context of a food system which is constituted by small landowners and family farms, organic agriculture is central for proving and ensuring sustainability.

There are different types of farmers and food producers in Malta. Most of them are conventional as most of the farmers are in this sector for decades and their methods remain the same (NAP 2018-2028, 24-34). Nevertheless, there is still a share of people who prefer non-conventional methods, such as organic farming. They produce vegetables, fruit or livestock. As for now, meat or dairy is not produced organically in Malta, but it is imported. The total share of organic farming in the country is the lowest in Europe, which is than 2% (EUROSTAT 2016). The importance of organic is acknowledged by the government and it is included in all food security-related policies, however, the sector is developing very slow. Therefore, given the high dependency on

policy support of the organic farming, one could assume that the reason of such a low share of this type of agriculture lies behind the failure of policy implementations.

All in all, as it was mentioned in the theoretical part, there is a lack of research on food security in the developed world. The conceptual literature shows that there was a transition made towards more sustainable practices and the food security in the modern era differs from twenty years ago. It also shows that the indicators should be revised and show a quality side of the problem. Nevertheless, there is still not enough applied research done when it comes to putting theory into practice. Therefore, Malta as a developed country in the EU is a case to look at. Agriculture in Malta faces a set of issues and constraints, which impede its development and expanding. These problems are the ones which are distinctive for the developed countries. Therefore, despite of being a small-island state, Malta is a representative case of a developed world country in the EU for the following reasons: first, according to the FAO's definition, on a general level the country can be considered food secure (FAO 2010); second, although there is a very high import dependence and low domestic production, the availability dimension is still can be considered developed, because as long as there is enough food (even if it is imported) a country is food secure ; but nevertheless, some countries are trying to facilitate domestic production to be less dependent on import; third, organic farming can significantly contribute the stability dimension of food security in the region, as it is able to mitigate the climate change impact and make the ecosystem more resilient; forth, organic farming addresses the important issues of diet-related diseases, which have become a threat to public health in the developed world.

2.2. Methodology

The thesis is a qualitative study: "What qualitative research can offer the policy maker is a theory of social action grounded on the experiences—the world view—of those likely to be affected by a policy decision or thought to be part of the problem (Walker 1985, 19). In a policy research, qualitative methods are implemented to meet different objectives: contextual (exploring the nature of a certain action), diagnostic (examining the reasons behind/causes), evaluative (examining the effectiveness) and strategic (identifying new plans, actions, policy measures etc.) (Ritchie 2011, 3).

In Malta, there is a lack of quantitative data available for agricultural sector, which is as well acknowledged by the National Agricultural Policy (NAP 2018-2028; Measure 48 - Tackle data gaps in agricultural sector). Therefore, most of the information was gathered through in-depth interviews. Also, in order to explore the policies and programs related to organic farming and food security are in place, the document analysis was conducted.

The single case study design provides a fuller understanding and enable a research to gain rich evidence about the processes and the context of a certain issue. Odell (2001) argues that case study is a suitable research design for analyzing certain policy decisions and exploring the policy dimension in general (Odell 2001, 161-163).

2.2.1. Timeframe and program selection.

The timeframe of the work chosen for several reasons. According to the Ex post evaluation of the Rural Development Programme of Malta 2007-2013, the previous RDP was not successful and resulted in a low take up rate (KPMG 2016). Therefore, the new RDP 2014-2020 aimed at correcting the mistakes of the previous program and incentivize organic farming. The time frame for this research is 2014 until the current time. First, in 2014 Malta stopped receiving the additional funding from the EU, so it had to start implementing their own policies and actions to support national agriculture. Second, in 2014 the Rural Development Program was adopted after the CAP reform in 2013. This reformed aimed at changing the focus from product to producer; from quantity to quality; and to encourage sustainable practices. Thus, it put more attention on the more environmentally-friendly agricultural approaches, such as organic farming. Third, the current RDP remained the only policy in place related to organic farming before the adoption of the National Agricultural Policy in 2018.

Considering the specificity of the country, it would be over ambitious to say that Malta can sustain be 100% self-reliant in terms of food production. The variety of products of general consumption cannot be grown there (such as coffee, tea, chocolate, tropical fruit etc). However, what can be done is an increase of organic production of food which can be grown in Malta, especially fruit and vegetable. Meat and dairy cannot be produced organically in the country. Therefore, the policies concentrate only on these two groups of food products and in this work only those two will be considered for analysis.

2.2.2. Program monitoring and impact evaluation

The Rural Development Program 2014-2020 aims at incentivizing organic farming in the country. Yet, the share of organic is still very low. The program was accepted in 2015, therefore, the measures dedicated to organic farming are supposed to be working for three years. Therefore, one could assume that the industry is facing the policy implementation failure. In order to answer the main research question and sub-questions, the program monitoring and impact evaluation were done.

Program monitoring

In the literature on policy evaluation one could find that impact evaluation is advisable to conduct in conjunction with at least a minimal process evaluation (Rossi et al. 1999, 199). "*Program monitoring* is the systematic documentation of key aspects of program performance that are indicative of whether the program is functioning as intended" (ibid 192). Monitoring consists of different domains. First, what is actually done is compared to what was intended on paper. It shows whether the programs meets the planned targets. Second, it investigated whether the targeted audience received those benefits stated in the program, and if they are satisfied with the provided services. It aims at showing whether what was done was in line with what the certain measure intended to accomplish.

Based on the set of questions suggested by Rossi et al (1999), the following questions are addressed in the analysis:

- Was the Measure targeting organic farming in the RDP 2014-2020 launched? When was it launched?
- What is the target audience? Are there any targets who are not able to receive the service?
- Are there program functions which are performed inadequately?
- Are members of the target audience aware of the program? How well is it communicated?
- Is the target audience receiving a proper amount of financial support for the industry they work in?
- Is program stuffing sufficient in numbers and competencies to perform the program?

Impact evaluation.

Impact evaluation is undertaken to detect whether the intended interventions were implemented and to what degree it was successful (Rossi 1999, 235).

The program will finish in 2020 and there are two more years for implementation. Therefore, it is early to argue about the final impact of the introduced measures. Nevertheless, in order to identify the already existing results, the following evaluation scheme was used. It is divided into direct and indirect impact, as it was proposed by KPMG 2016. The direct impact is consisted of indicators, which are proposed by the program (RDP 2014-2020, 663). The indirect impact in this work will be analysed through the food security dimensions.

Type of impact	Evaluation criteria	Indicators
Direct	Support to enhance farmers' participation in food quality schemes, such as organic farming, to foster their competitiveness on the market	Area (ha) - conversion to organic farming (11.1) Area (ha) - maintenance of organic farming (11.2) (RDP 2014-2020, 663)
Indirect	Other effects of the implementation related to other objectives	Food Security Dimensions indicators (see below)

Table 1. Impact Assessment indicators

Food security is complex phenomenon and includes different dimensions. One of the most used sets of indicators was developed by FAO (Perez-Escamilla et.al 2008). USAID proposes set of "basic indicators for studying food security", which include total expenditure, food expenditure, income, calorie consumption, share of expenditure on

food, nutrition status. (Riely et al. 1999). However, Riely et al 1999 argue that the most common indicators of measuring food security are not always applicable. The relevance of the chosen indicators depends on the certain situation (Riely et al 1999, 38). For instance, if one measures the availability dimension, there will be no need for such indicators as access to clean water or sanitation. Therefore, for the puspose of this research, the comprehensive framework for studying food security developed by United Nations System High Level Task Force on Global Food Security (HLTF), was adopted as it acknowledges the specificity of the country in terms of food security issues (UN HLTF 2011).

Dimension	Indicators	Sources
Availability	Local production quantity	NSO
Access	Price for food Expenditure on food Institutions capacity and multisectoral engagement Food distribution (supply chain)	NSO NSO Documents/interviews Interviews
Utilization	Obesity level Public Procurement Consumer awareness	WHO Documents Documents/interviews
Stability	Import dependency Ecosystem resilience and climate change adaptation Gender equity	FAO Documents/interviews Interviews

	Employment and Labor conditions	Interviews

Table 2. Food security dimensions indicators

2.2.3. Sampling strategy

The sampling for the interviews were based on the rules of purposive-plus-snowball sampling. As Mosley (2013) states that "purposive sampling, sometimes called judgement sampling, is a form of non-random sampling that involves selecting elements of a population according to specific characteristics deemed relevant to the analysis …" (Mosley 2013, 41). This type of sampling allowed to reach to different groups of stakeholders and, therefore, can be more representative, than random sampling. The logic of the sampling was connected to the theoretical framework of the research (ibid). Sampling was done to identify the relevant groups of stakeholders, who are related to the issues of food security and organic farming in Malta. The three groups were identified:

1. Farmers (organic farmers as a group, which benefits from the current policies)
2. Research group (NGO representative, researchers, consultants and activists)
3. Policymakers (representatives of the RDP Managing Authority, Ministry for Environment and Sustainable Development; Agricultural Directorate)

(see Appendix 1)

The snowball method is characterized by choosing the respondent because of a recommendation given by a previous respondent (Mosley 2013, 42). In this case, snowball sampling was used in reaching the policymakers through a person, who had close relationships with the Ministries. Therefore, I was introduced to them before coming to the interview.

Some stakeholders which were contacted did not agree to meet for an interview. Five people rejected meeting (2 farmers and 3 representatives of NGOs). These potential respondents were replaced by other representatives of same group of stakeholders. The ones who agreed to meet were not only willing, but also excited to talk to me about food security and organic farming for various reasons. For farmers it was a chance to voice their problems and to reach out to a wider audience. The common response from almost

all respondents "from the ground" was that "*we do not receive any help. The government does not care about us*".

All participants gave a verbal consent for being recorded; however, some of the respondent swished to stay completely anonymous. Therefore, the direct quotes are referred to a stakeholder group (Farmer/Research/Policymakers), rather than giving the name. The researcher introduced herself as a master student who is in process of writing her thesis on the topic of organic farming and food security in Malta. All the respondents were informed that the purpose of the interview is to gather information about the identified topic, and that this information will be used further to drive conclusions. Also, it was mentioned that as this study is an MA dissertation project, it will be eventually published with an open access. All the interviewees were given a chance not to participate in the project.

The interviews were formed following the semi-structured principle, which included open-ending questions and allowed a certain level of flexibility (Mosley 2013). Two interview protocols were created: one related to the RDP policy specifically and another to analyze the potential effect of organic farming for food security in Malta. The former was asked to the policymakers and farmer groups, while the latter concentrated on the research group. However, in some cases, the questions from both protocols were asked to the same participants if she/he had a knowledge on a specific topic. For example, some researcher from academia had a deep understanding of the issue of food security, however, did not know the particularities of the RDP program and vice versa (see interviews protocols in Appendix 2 and Appendix 3).

In addition to the interviews, the document analysis as a means of triangulation was conducted – "the combination of methodologies in the study of the same phenomenon" (Bowen 2009, 28 with a reference to Denzin 1970, 291). To avoid bias, the researchers are advised to use different sources of data in qualitative analysis. Therefore, the results can be considered credible (Bowen 2009, 28). The sampling of the documents was purposive as well, as this technique allows a researcher to identify, select and make use of the information in the most effective way when resources are limited (Patton 2002). Indeed, there are not many sources available when it comes to agricultural sector in Malta. All food security-related policies in Malta, published by the legislative FAOLEX

database under the Malta profile, were analyzed (FAOLEX 2018). Also, for the purpose of this study, the program documents including measures, targets, guidance notes, budget, as well as conference notes, other relevant literature discussing organic farming and food security were analyzed (See Appendix 4).

For some indicators, the statistical data was analyzed (for example, obesity rate). However, in Malta most of the data available for agricultural sector provided by the National Statistics Office (NSO) is outdated (for example, the latest data on net trade statistics is published in 2003 (NSO 2003).

After collection the qualitative data, the next step was to create a coding system for analysis. For the purpose of working with textual data for both interviews and documents, the template analysis was conducted. The main idea is that the researcher created an initial list of codes (frame), in many cases based on the interview questions, and them develop it further and adjust once all data is analyzed. The template is organized in a way so the relationships between themes is represented in a hierarchical structure (King 1998). Later, in the course of analysis, mismatches and inadequacies are revealed, and the template develops its final form. (ibid). Template analysis is a more flexible technique, which allows researchers to tailor their coding system according to their own research requirements (ibid). The final coding frame consisted of seven main categories, which reflected the four dimensions of food security, organic farming and the chosen policy program (See Appendix 5).

2.2.4. Validity and Reliability

The researcher who uses interviews as a main method of collecting the data, there are two main validity threats: asking the right questions and receiving truthful answers (Mosley 2013, 21). The first issue was address conducting five additional interviews in a preliminary stage of the project for the researcher to better understand the environment and the scope of the problem in Malta. All the respondents were related to organic farming: two certified farmers, one policy maker from the Ministry for Sustainable Development, one scholar from the University of Malta and one environmental activist. The final interview guide was created thanks to the preliminary study. This preliminary work allowed to generate a more comprehensive list of potential respondents.

The second issue was addressed by giving the interviewees the opportunity to remain anonymous (which was taken by one respondent).

The limitation of a purposive sampling is a possibility of receiving a bias. Therefore, for the purpose of the study the respondents were chosen from different groups as mentioned above. In a qualitative research the primary emphasis is made on data saturation, meaning that a research will continue sampling until there is now new substantial information acquired. (Miles & Huberman, 1994). Data saturation was achieved for all groups.

All interviews were recorded and transcribed within two days, in order to avoid ambiguity. All interviews were conducted in English language, which is one of two official languages in Malta (together with the Maltese language). Thus, the participants did not have any constraints in expressing their thoughts and opinions due to linguistic issues. All respondents were considered native English speakers.

Chapter 3. The case of Malta

This chapter will give the overview of the chosen program, as well as provide a background for the organic sector related measures and policies in the country. It is followed by the results of the program impact assessment, recommendations and a discussion.

3.1. Rural Development Program for Malta 2014-2020

In Malta, agriculture contributed to 1,6% of total GDP (NSO 2016). It also plays an important role in the local food production sector, part-time employment and maintaining the rural landscape of the country (ibid). According to the latest "Agro-Katina" report of the Friends of the Earth Malta, the latter benefits are overlooked. Small contribution to economy creates a situation where government is not interested in investing much in the industry (FOE 2017). During the third national conference on wellbeing - "Food rights, Privilege and Security: Perception vs Reality", which was held on the 16th of October 2018, many stakeholders in the agricultural sphere agreed with the FOE's statement, while trying to attract more attention to the problem of neglecting the importance of agriculture. Two conclusions could be made after the panel discussions and key stakeholders' speeches. First, although the contribution to the total GDP is very low in Malta, it is still slightly higher than at the EU level. Second, agriculture should not be valued only in terms of its contribution to the national economy. It has multiple functions, which go beyond its small share in the GDP. One should look at a broader picture and give credit to the added value and the benefits of this sphere.

This role is acknowledged in a few Government's policies related to agriculture, which seek to support the industry while achieving sustainable development of rural areas. One of the important roles of these policies is to protect the environment. It was mentioned by one interviewee that in 2014 there was a plan to create a separate policy for organic farming in Malta, which later was abandoned. Currently, organic farming is mentioned in several programs and policies, which are related to agricultural and rural development. In general, through these policies the agricultural directorate aims at "Promoting and increasing awareness of organic farming in the Maltese Islands" by several measures, which include providing communication between the farmers and the funds managing

authorities, facilitate the development of organic farming in the country, perform spot checks, perform audit etc. (Agricultural Directorate 2018). Among all these aims, only the first one is directly related to supporting and creating an environment for organic farming. However, it is not indicated which measures should be taken in order to achieve this result.

When it comes to food security, the Maltese government and policy makers do not give a clear definition of this phenomenon. The only document that briefly mentions it is the National Agricultural Policy, which says that *"Food security is not just related to what we consume today but it entails having an active farming population with the capacity to produce food for the local population in case that the current situation is disrupted* (p.204). However, this understanding only considers the availability dimension, while neglecting the others. All in all, one could conclude that there is not a clear strategy aiming at ensuring food security in the country.

According to the "Agro Katina" (2017) report, the importance of self-sufficiency in food sector is acknowledged not only by policy makers, but by farmers and consumers as well (FOE 2017, 12-14). Reducing the import dependence on food would increase country's resilience and provide more support for the local food producers. The possibility of crises was also mentioned in the report, showing that people fear a scenario when there will be no longer an opportunity to import food and the population will become vulnerable. It is indicated that a better self-sufficiency would reduce the risk of facing some outside shocks, such as "higher food prices, food shortages and trade sanctions" (FOE 2017, 12).

Even though the official definition does not state that self-sufficiency of food is crucial for food security, this is an important aspect for providing sustainability. The availability part of the concept includes the ability of a country to provide its population with safe and healthy food products. In this respect, the potential of a country to grow and sell its own food is essential. The scarcity of water, fertile soil and labor skills is of the main problems, which impede the development of the local agriculture.

Since 2004, the agricultural sector in Malta has changed significantly. Prior to the EU accession, the Maltese government implemented various trade policies which were imposing levies on food imports (FOE 2017, 23). Thus, local farmers were protected by the government and had more security. However, following the accession in 2004, Malta had to eliminate any trade barriers and comply with the Common Agricultural Policy, opening the market for food products from other countries. In order to support local food producers, Malta received funding though the Special Market Policy Programme for Maltese Agriculture (SMPPMA). Maltese farmers had to adjust to the new conditions of a free market, where the competition increased significantly. The country witnessed the flow of imported products which were cheaper in price than locally produced ones. For this reason, farmers were "forced" to concentrate on the quantity, rather than quality of food production in order to sustain their businesses. The funding mechanism was in place before 2014 (NAP 31).

Rural Development Program 2014-2020

After the reform of the CAP in 2013, the second Pillar to support Rural Development was established. It provides funding to all members states in accordance with the submitted program. In total, there are 118 programs for 28 Member States. The new Rural Development regulation addresses six environmental, economic and social priorities. In order to be approved, every program must address at least four of those themes:

Priority 1: "Knowledge transfer and innovation in agriculture, forestry and rural areas"
Priority 2: "Competitiveness of agricultural sector and sustainable forestry"
Priority 3: "Food chain organisation, including processing and marketing of agricultural products, animal welfare and risk management in agriculture"
Priority 4: "Restoring, preserving and enhancing ecosystems related to agriculture and forestry"
Priority 5: "Resource efficiency and climate"
Priority 6: "Social inclusion and local development in rural areas" (European Commission 2015).

In Malta, the Rural Development Program 2014-2020 was submitted to the EU and afterwards adopted in 2015. For this time period € 97 million was allocated from the EU budget, together with € 32 million of national co-funding. One of the most important part of the program is to provide support for current farmers and to attract newcomers to the industry by giving the business start-up financial aid (RDP 2014-2020, Measure 4). This aim was put in place in order to improve competitiveness of local farmers and increase their production while respecting the environment.

The program for Malta addresses all six Rural Development priorities, while specifically emphasising actions related to "restoring, preserving and enhancing ecosystems, resource efficiency and climate and improving the competitiveness of the farm and forestry sectors" (European Commission 2015). This priority received most of the attention, as it focuses on the most urgent problem in the Maltese context. This measure provides investment for supporting, creating and managing environmentally-friendly farm practices, which would improve water and soil management. 40% of the Fund is devoted to actions under this priority, which would be implemented as area-based payments for farmers to encourage them to use environment/climate – friendly agricultural practices, which includes organic farming.

The program consists of different measures, which are allocated under the six main priorities. Organic farming itself represents a separate measure - M11 Organic Farming.

It is indicated that it is "extremely difficult" to achieve organic farming in Malta due to a high possibility of cross contamination coming from conventional agricultural practices. Pesticides or other chemicals residues which could be found in areas in conversion due to its proximity to non-organic farms. Thus, it will be harder to receive organic certification and achieve a status of a "clean" organic production. Nevertheless, this type of farming is beneficial for the environment and should be supported. Also, there are farmers who are interested in practising it. Therefore, the proposed measures aim at engaging conventional farmers in conversion to organic and assist those who are already certified organic. The requirements of what is considered as organic are listen in the Council Regulation (EC) No 834/2007 and the process of conversion is made accordingly to those measures listed there. The core objectives of the regulations are as follows:

“a) establish a sustainable management system for agriculture that:

(i) respects nature's systems and cycles and sustains and enhances the health of soil, water, plants and animals and the balance between them;
(ii) contributes to a high level of biological diversity;
(iii) makes responsible use of energy and the natural resources, such as water, soil, organic matter and air;
(iv) respects high animal welfare standards and in particular meets animals’ species-specific behavioural needs;

b) aims at producing products of high quality;

c) aims at producing a wide variety of foods and other agricultural products that respond to consumers’ demand for goods produced using processes that do not harm the environment, human health, plant health, or animal health and welfare." (Council Regulation (EC) No 834/2007; Article 3)

Therefore, the main objectives and principles of organic farming reflect and address the current issues of the Maltese agriculture system and need for rural development. It brings to the agenda such topics as quality of products over quantity, sustainable agricultural practises which reduce the impact on water and soil, preserve biodiversity and animal welfare, and production of a bigger variety of “clean” products, which would satisfy the consumer demand.

The Measure 11 includes two sub-measures:

- 11.1 – payments to convert to organic practises and methods
- 11.2 – payments to maintain organic farming practises and methods

The sub-measure 11.1

This sub - measure aims as providing support for farmers to convert their production to organic. After receiving the certification “in conversion for organic”, farmer can apply for the financial aid which will be provided for the following two years. After the period

of conversion commitment, the payment rate will change to maintenance support. The measure acknowledges the need for advisory support and training for farmers, while emphasizing the importance of promotional activities during the period of conversion (RDP 2014-2020).

It is explicitly stated that the financial under this sub-measure is granted for 2 years only, regardless of whether the organic status is achieved or not.

The sub-measure 11.2

This sub- measure follows the sub-measure 11.1. and is awarded for already certified organic farmers to maintain their practices for a period of minimum 5 years (after 2 years under the previous measure). The payment will revert from 11.1 to 11.2 based on the certification recognition, given by the competent certification authority (RDP 2014-2020). The beneficiaries will be required to apply separately for this sub-measure.

It is important to mention that farmers who were already organic at the time of launching the measures are able apply for the sub-measure 11.2, skipping the measure 11.1. for conversion. In that case, they also must commit themselves for at least 5 years of growing organic.

Among the commitments of the beneficiaries, the following is required:

- To attend the special courses which must be awarded during the first 3 years of commitment
- To demonstrate the "in conversion" certificate
- To demonstrate the "organic" certificate

The trainings and advice are to be free of charge and to be delivered by the Managing Authority, which will be covered by the Measure 1 – *Knowledge Transfer and Information Action*; and Measure 2 - *Advisor services, farm management and farm relief services*

All in all, RDP 2014-2020 is meant to incentivise organic farming through the proposed measures: education training and advice; two types of financial aid (for farmers in conversion and for current organic farmers). However, these measures do not cover

certification costs required by the Maltese Authorities. Thus, all expenses related to that are to be covered by farmers themselves.

Other programs

There are several national policies targeting food, nutrition and environment dimensions for the Maltese islands. Although these programs do not explicitly state that they are to ensure food security (except for the Food and Nutrition Policy p.46), they cover the aspects of all four dimensions.

Availability and Access dimensions

National Agricultural Policy 2018-2028

This is the first agricultural policy for the Maltese islands, which encompasses all areas of agriculture, including organic farming. It pays attention to the production side, support for agriculture, research, employment etc. Thus, it fully addresses the availability and access dimensions of food security in Malta.

Utilization dimension

These are the policies which are oriented on the way food is consumed and, therefore, addresses the utilization dimension of food security.

Food and Nutrition Policy and Action Plan for Malta 2015-2020.

Healthy Weight for Life strategy for 2012-2020

National Breastfeeding Policy and Action Plan 2015-2020.

Dietary Guidelines for Maltese Adults 2016

Stability dimension

These programs are concentrated on the environmental side of agriculture and preservation of soil, water and biodiversity. They are in place to ensure that the eco-system is not damaged and there are all necessary conditions for growing food on the Maltese islands. Therefore, they primarily address the stability dimension.

Malta's National Biodiversity Strategy and Action Plan 2012-2020.

Strategic Plan for Environment and Development. 2015

National Climate Change Adaptation Strategy 2012.

All in all, there is not a policy or a program, which addresses the issue of food security directly in the country. However, there are several policies targeting specific parts and dimensions of the phenomenon. Therefore, the current situation can be analyzed according to the measures proposed by these programs. For example, the food consumption patterns are supposed to be affected by the policies allocated to the Utilization dimension. The consumption of organic product might not be addressed by the RDP, however, it could be tackled in one or a few programs of that group. Thus, all these policies are important for the analysis of current situation in the organic farming sector and its potential impact on food security.

3.2. Results of the impact assessment

This thesis aims at exploring the effect of the current Rural Development Program as a part of the EU's Common Agricultural Policy on organic farming sector in Malta and whether the proposed have or could influence improving food security status in the country. Therefore, the two main research questions are as follows: *How effective is the Rural Development Program 2014-2020 in incentivising organic farming in Malta? How can organic farming potentially contribute to food security in Malta?* Preliminary research showed that the current program is ineffective in facilitation of organic farming. Therefore, the program monitoring was made to understand the reasons behind it.

To answer the first research question, firstly, it is important to examine how the program is being implemented or whether it is implemented at all. Second, the direct impact of the program will be analyzed by comparing the targets and the available results.

The answer to the second question lies in analyzing the indirect impact of the proposed measures according to four dimensions of food security: availability, access, utilization and stability.

Program monitoring

The latest RDP was planned for the period of six years from 2014 until 2020. The next program will be adopted for the period between 2021-2027. The current program introduced a separate measure on Organic Farming which is intended to incentivize the sector. The following section analyzes how the program is currently being implemented (by December 2018).

Was the Measure 11 of the RDP 2014-2020 launched? When was it launched?

The Measure 11 was launched in April 2018. During the interview with the managing authority, the necessity to prioritize the actions was mentioned many times. Therefore, it led to a situation when there was public money allocated to the sector, however, the funds were not available. It was evident that organic farming does not receive as much attention from the side of implementors of the program as other measures. This problem was raised by all farmers and confirmed by the managing authority as well.

"It was only postponed for 2 years; it was not immediately launched because first we were waiting for the modification; second, there is a priority list obviously" RDP Managing Authority

"We had to prioritize a bit which measure to launch first and see which measure are the most essential for the sector" RDP Managing Authority

"There is not enough attention paid to organic farming sector – definitely; there is not attention to agriculture in general. Agriculture is not on the priority list of the government. This is why funds are not being available, this is why there is no assistance for farmers" - Farmer

What is the target audience? Are there any targets who are not able to receive the service?

The target of the Measure 11 is the active farmers and groups of farmers both conventional and organic. In the first version of the program, the Measure 11.2 for maintenance of organic farms was only available for those, who benefit for the Measure 11.1 for farmers in conversion. Therefore, farmers who were already certified organic were not able to apply. In 2017 the managing authority unit requested program

modification, which was approved only in December 2017. While waiting for approval, none of the measures related to organic farming were launched. After the measure was launched in April 2018, the managing authority received six applications: three for M11.1. and three for M11.2. According to the list provided by the Malta Competition and Consumer Affairs Authority (MCCAA), in Malta there are currently 10 farms registered as organic and 6 in conversion (MCCAA 2018). The measure M11.1. is supposed to attract conventional farmers to convert to organic. However, the newly applied candidates were already in conversion when applying (Interview, Farmers group). Therefore, the measure covered the half of the farmers already in conversion (three out of six) and a third of already organic under the Measure 11.2. (three out of ten).

Are there program functions which are performed inadequately?

The measure 11 for organic was launched with a substantial delay – in 2018. According to the program, the farmers who applied for the measure 11.1. are obliged to attend the relevant course. However, since the courses have not been organized by the managing authority within this first year, it will be delivered later than it should be. All in all, the farmers who already applied for conversion and started the process will be obliged to attend courses of how to start a conversion and what organic farming is.

"Farmers will be required to attend a relevant course. Course must have been awarded in first 3 years of commitment"- RDP2014-2020

"The courses in the first 3 years since the commitment is started so there is still some time"- Policymakers group

"*However, I agree that There is a slight mismatch. It would make more sense to have a course before so that people can actually educate themselves and then actually apply for measure 11"* – Policymakers group

Additionally, there is a discrepancy between National Agricultural Policy and the RDP in terms of responsibility for the organic sector.

"RDP is program which should be based on a policy. We had some issues where there was no agricultural policy. So, RDP had to fill the gaps where there was no policy. In my

humble opinion it is the policy that needs to guide the RDP not the other way around" – Policymakers group

"The RDP should adopt a more pro-active approach and actively encourage and facilitate organic farming through various measures" – National Agricultural Policy p.184

"Please, keep in mind that the policy is drafted for ten years from 2018-2028. And we are experiencing the RDP of 2014 and then we are going to experience another RDP. The policy is drafter between Rural Development Programs. That's why it is vague"- Policymakers group

Are members of the target audience aware of the program? How well is it communicated?

There was a clear lack of communication between the Managing Authority and the potential beneficiaries. The launch of the program was announced in the media (Times of Malta 2015 (a). However, it was announced in a way when the farmers who were already certified organic could not apply. After the program modification and launch of the Measure 11, the current organic farmers still were not aware about the possibility to apply for the funds, as it was in the first version of the program.

"They published it in newspapers. Such a big news that there will be so much money for organic farmers. But they only give it to the ones in conversion. There is nothing for us" – Farmers group

Another example of miscommunication between farmers and policymakers is the fact that all respondents, including the research group, were not aware that the certification costs for farmers in conversion can be covered by the RDP. However, it is done under Measure 3 - Quality schemes for agricultural products and foodstuffs. In the previous RDP, the certification costs both for conversion and maintained were covered under Measure 132 - *Participation of farmers in food quality schemes,* which was devoted to organic farming (RDP 2007-2013, 201). All types of costs which are covered by the program were explicitly indicated in the program. However, in the new RDP, the Measure 11 does not

include any information about the certification costs. Therefore, it requires a deep understanding of the way the program function to understand, that the certification is still covered, but under a separate Measure. One could not expect farmers to be an expert on how the CAP functions. Therefore, it should be communicated properly by the managing authority.

Is the target audience receiving a proper amount of financial support for the industry they work in?

The farmers who applied for Measure 11.1. for conversion argued that the amount of money given for farmers in conversion is not enough to support them. According to them, it was only enough to cover the certification costs. However, since they were not aware about the possibility to be reimbursed for those expenses under the Measure 3, their response cannot be considered valid. In general, the amount of money paid under both sub-measures depend on the size of the territory.

Is program stuffing sufficient in numbers and competencies to perform the program?

All groups of stakeholders, including the policymakers themselves, agreed that the capacity of the authorities responsible for agriculture is not enough to address all issues in the sector.

"There were not enough people to implement the program; the unit has recently acquired necessary administrative set up to be able to carry out the program" – Policymakers group

"The current program is overly ambitious, we have to learn from out past mistakes and draft accordingly" – Policymakers group

There are different reasons which could cause such a small increase, however, the most visible one is the complex and long procedure of obtaining permits and certification. The current responsible authority for registration, control, testing and placing products on the market is the Malta Competition and Consumer Affairs Authority (MCCAA). In a situation when a conventional farmer wants to become organic, it must initiate the process by applying for conversion through the responsible authority. The farm is being audited

with an initial inspection by a team of experts in organic farming and the report is later presented to the Certification Board. In case of a positive decision, the "in conversion" to organic status is granted. It will remain so for two or three years, depending on growing crops. During this period, the food producers are obliged to stop using chemicals in compliance with the EC 834/2007 regulation. After this time, if the client proves her competence in meeting the necessary requirements, the Organic Certification Logo is given.

All in all, Rural Development Program is the only policy in Malta which suggest measures to support and incentivize organic farming in the country, mainly by offering subsidies for farmers in conversion and for maintenance of organic farms. However, during the interviews with farmers and the program managing authority it was discovered that the program started being implemented only in April 2018. This delay was due to various factors, such as late approval of the program by the EU Commission (2015), the *necessity to amend the organic measures in the first version of the program*, *small capacity of the unit* and *relatively low priority* given to organic farming in comparison with other measures under the same program. Also, the interview reveled a lack of communication between the managing authority and the farmers, as the latter were not aware of certain benefits of the RDP.

Impact evaluation: direct impact

Although a national organic quality brand/label does not currently exist in Malta, the fund is not intended to support the creation of such a mark. The financial resources are used to attract more people to the sector and to support those who are already operating. The main aim is to compensate the additional costs which occur during the process of conversion and during the first 5 year of maintenance.

The information about the value is published by the RDP Monitoring Committee on a regular basis and is available on the eufunds.gov.mt website. However, the last update was made in May 2018 when it has only been 1 month since the Measure was launched. Therefore, this type of data was gained thought the interview with the RDP Managing Authority.

Measure name	Indicator name	Target (ha)	Value
M11 - Organic farming (art 29)	Area (ha) - conversion to organic farming (11.1)	22.50	No data available*
M11 - Organic farming (art 29)	Area (ha) - maintenance of organic farming (11.2)	6.50	No data available**

*the number of farmers applied for the sub-measure 11.1 is three (3). This information was obtained thought the interview with a representative of the RDP Managing Authority. However, she was unable to present the information about how many hectares each farm was.

** the number of farmers applied for the sub-measure 11.2 is three (3). This information was obtained thought the interview with a representative of the RDP Managing Authority. However, she was unable to present the information about how many hectares each farm was.

In terms of public money allocation, the total public expenditure is targeted to reach 100,000.0 euros. This is the lowest budget allocation among all RDP measures, which represents only 0.08% of the overall budget (Factsheet on 2014-2020 Rural Development Programme for Malta).

There were 4 supported farms holding during the previous RDP program. Since April 2018, there were already 6 applications for the organic farming support measures. Therefore, one could argue that this is already a better result than under the last program, given that the application will be still open for the upcoming years.

Organic farming as such did not officially exist in Malta before the Accession to the EU, as there were no regulations to comply with or any sort of certification. Since 2004 the number of certified organic farms in Malta has not increased significantly. In 2009 there were 8 farmers officially certified organic, while in 2018 there 10 farms registered as organic and 6 in conversion (RDP 2007-2013; MCCAA 2018). Therefore, that less than

a half of currently active farmers applied for funding under the RDP 2014-2020 during the first 9 months of implementation. It is important to mention that among the farmers who applied for the Measure 11.1. for conversion, two have obtained the certification for conversion in the previous years (Interviews, farmers group) and one was already engaged in the support under the sub- measure 6.1. - Business startup aid for young farmers. Therefore, this measure has not yet attracted new entries to the sector.

Among the existent farms, only 8 produce different crops, specializing on a wide spectrum of fruit and vegetables. The two others are farmers specializing on monocultures: one is grape for wine production, another one is olives for olive oil production (ibid). All in all, organic farming accounts for less than 2% of the sector, which is the lowest rate in the EU (Eurostat 2017).

Indirect impact: Food security

"Is Malta food secure?" - This question has been asked to the interviewees from all groups to understand how they interpret this food security in Maltese context. All respondents gave a straight negative answer, while supporting the position with the following arguments. Firstly, high import dependence on food and low level of self-sufficiency is seen as a potential threat to the country. This element of risk is to be found both in the National Agricultural Policy and was given by the respondents.

"Food security is not just related to what we consume today but it entails having an active farming population with the capacity to produce food for the local population in case ***that the current situation is disrupted*** (National Agricultural Policy p.204).

*"Malta is Definitely not food secure. Although people feel quite secure in the EU, there is geopolitical instability in the EU**.** Food security is to be able to survive without being dependent on a lot on import; you get dependent on price fluctuation, trade negotiations deals, and at the end you deal with a market which is flooded with cheaper import" –* Research group

"What if Current situation is disrupted due to the climate change, or due to European Union break down? We are not sure what is going to happen tomorrow. We are not sure what is the future. We are not sure what EU will be like"– Research group

Second, while giving their own definition of food security, all the respondents mentioned access to healthy food. In the Maltese case, where the level of diseases caused by non-sustainable food consumption practices is high, the concern is whether citizens can access good quality products, including fruit and vegetables.

"Food security – to provide good nutritional healthy food for everyone" – Research group

Third aspect which was mentioned during the interviews was to ensure that food is coming from a sustainable practice, regardless of whether it is imported or produced locally. All respondents acknowledged the fact that it is impossible for Malta to become totally self-sufficiency in terms of food production. Thus, they mentioned that not only should government ensure that local food is grown in a sustainable manner, but also create a more efficient monitoring system for the sources of imported goods.

"Food security – food for everyone. It should be clean and accessible, coming from a sustainable practice. So, we don't harm the environment in order to get that product" – Research

Thus, all respondents included *self-sufficiency, access to healthy food, sustainability of agricultural practice and unsustainable consumption patterns* to their definition of Food Security. According to these indicators, Malta cannot be considered food secure.

Availability dimension

Local production quantity, Food Stock and Net trade

The proposed measures are targeted to increase the size of organic sector up to 58 hectares, while the total agricultural land on the islands reaches 11,689 hectares (NSO 2014, xii). Even if this target is reached, it constitutes less than 0.5% of the total agricultural land. Imported agricultural commodities account for 545 million euros, while export is worth 123 million euros (EU Commission 2018). This indicated a negative trade balance.

Therefore, all these indicators cannot be affected by the proposed by RDP measures due to a very low target and budget allocation. For these indicators to change, the quantity of produced food needs to be significantly increased. Since the accession to the EU, the number of organic farms has not grown significantly. Most of the currently working farms are small-scale and do not have a massive production capacity. For this reason, there is a lack of evidence whether organic farming can increase the yields in Malta, and therefore, positively affect the self-sufficiency indicator, which was pointed out by all stakeholders.

"I think that food security does not really depend on the type of production unless this type of production can be intensified, so the quantity is increased. So as things stand - no; organic cannot contribute to food security, unless there is a capability to produce enough of diverse and safe food"- Research group

At the same time, all respondent agreed that it is impossible for Malta to become completely self-sufficient due to a small size of the country and the constantly growing population. Also, for conventional farmers it is hard to compete with cheap imported goods which became easily accessible for all people. Therefore, the quantity should not be a goal. Rather, they could win in quality.

"We cannot really say how it works in Malta – we don't have concrete results of whether organic given more output in comparison with conventional. But I think it is not a matter of the amount of output; it is about how it will affect the natural surroundings and also the quality of the products we have. We are not going to be self-sufficient in Malta. The population is too high and agricultural land is limited. Now it is about improving the quality; not the quantity" – Farmers group

From a supply-chain perspective, there are a few aspects to be taken into consideration. Firstly, the organic farmers shorten the supply chain the way they currently function as most of them sell directly the produce to the consumers. Thus, there are less "food miles" between the beginning and the end of the supply chain, which in turn is recognized as a more sustainable way of food production.

"Usually customers find us themselves. Look, I have many unrecognized calls. It is all the time the same phrase like "Hello, do you sell organic" and this is how it works here."- farmers group

However, on the other hand, selling directly from the farm limits the number of potential customers. Most of the farms are located in the rural areas in a long proximity from the cities. It there affects such vulnerable groups as elderly, students and foreigners, who can only approach those remote areas by public transport, which makes it less convenient and, in some cases, even impossible to travel. As for the big supermarket chains, as well as restaurants, they import organic food as there is not enough locally produced food to supply in bulk.

Restaurants are actively looking for people who provide organic in bulk. Because at the moment they import, but they would rather prefer buying it locally. The more organic farmers the better, frankly, over here there is a big market for it.- Research group

All in all, the proposed measures cannot positively affect the availability dimension as they do not aim at increasing the yields significantly. However, from the supply chain perspective, it makes a good contribution, as it reduced the number of stages between producer and consumer and, therefore, leave less negative impact on the environment.

Access dimension

Expenditure on food

According to the Household Budgetary Survey (HBS 2015), the expenditure on food remains the largest household expenditure in country. However, the positive trend was discovered in the share of total spending: it has decreased from 22.5% in 2008 to 19.8 in 2015. That amounted to 85 euros for food and beverages per week per household. Therefore, one could argue that the purchasing power of the Maltese population is increasing.

One of the most controversial aspects in the topic of organic farming is the higher/ premium prices for the products. In Malta the prices for organic are in general 40% higher than non-organic (RDP 2014-2020). Therefore, it becomes more difficult to some parts of the population to access it financially. Most of the respondents mentioned the high price argument while talking about accessibility of organic products for the population. Thus, on a common-sense level it is questionable whether organic production can make the country more food secure access-wise.

"For many people in Malta it is not affordable to buy organic at the current prices; we need to address this issue" – Farmers group

However, the response given by NGOs presents a different position. They argue that if one buys local and seasonal organic, rather than imported, the price difference is not as substantial. Another point which was raised is the example of the Netherlands, where the offer of organically produced food products is higher than in Malta, thus, the price is lower.

"Price is what limits people. You need to know farmers and buy directly from them, then the price difference is not that high; while if you buy imported organic from a supermarket, the difference will be huge;" -Research group

"Buying organic can be quite economical if it is seasonal. In Malta the difference must be bridged somehow. There is still a large part of the population which wouldn't be able to afford it on a regular basis; in the Netherlands the price is not as big as here because there are more organic farmers"- Research group

Thus, it is evident that the current situation does not contribute to the access dimension of food security due to a significant price difference. However, there are possibilities to diminish this difference.

Institutions capacity

The RDP does not allocate money for strengthening institutions.

Utilization dimension

In contrast with the access and availability dimensions, utilization does not deal with the food production or supply. Rather, it perceives people as food consumers. Any diet-related diseases or illnesses are considered a threat for food security of nation. One of the biggest issues in the country is very high level of obesity.

Obesity level

According to the WHO European Health Report 2018, Malta shows the highest level of obesity in the EU and the second in Europe (after Turkey with 32,1%) (WHO 2018). The obesity rate increased from 22% in 1986 to 28,9% in 2016 (Cuschieri et al 2016). Among adolescents, the level of obesity reached 35%, which is 10% higher than in other countries in the EU. Given the trend of growing share of obesity, what has been done in terms of obesity prevention cannot be considered successful. Special policy measures must target the school-aged groups specifically.

Although proliferation of organic farming cannot change the level of obesity, it can indirectly affect it. The National Obesity Strategy "A Healthy Weight for Life Strategy" 2012-2020 shows that increased local organic production can positively affect the issue and suggest such policy instrument as tax credit for primary producers for food production (NOS 2012-2020, 28). However, such measures are not introduced by any of the policies in Malta.

Healthy Food Consumption

According the Food and Nutrition Action Plan (FNAP), the Maltese population has very poor eating habits which are characterized by high intake of high-energy food, but low in nutritious components (FNAP 2015-2020, 24). Therefore, the current policies, including FNAP and the Dietary Guidelines (2016) for Maltese Adults promote eating locally produced seasonal fruit and vegetables (Dietary Guidelines 2016, 14-16). Supporting local will affect the availability dimension of food security, as if there is a low demand for locally-produced food and people prefer purchasing imported products, the local farmers have smaller chances to sell their produce and, therefore, the sector is not attractive.

All groups of the interviews were asked about local population's consumption patterns and what role organic products play in that. All respondents confirmed that there is a big demand for organic food in Malta. There is no data available on this issue, thus, the statement that there is a big demand for organic is derived from the experts opinion.

Yes, there is a demand and it is growing. Especially the middle and upper classes change in awareness; they have the means to buy this sort of products; - Farmers group

There is a huge demand for organic in Malta. We were asking people and the most common answer was: "We want food with less pesticides" – Research group

Another point raised by the respondents was the people lose trust in the locally produced food and vegetables. That was partly caused by dozens of journalist articles in the local news paper regarding the excessive use of pesticides on conventional farms (Times of Malta 2018 a,b,c,d). The farmers group argued about a hidden agenda behind those articles. For them, this is done with the only purpose to destroy local production. However, other groups did not express such concerns.

"Personally speaking I don't buy local. I buy organic local. Then, I would buy imported organic. If that is not available, the I would buy something from abroad but not from Malta". – Research group

"There might be a hidden agenda behind all those articles. People don't trust the local produce" – Research group

"Now farmers need to clean their name and going organic would help them to do so" – Research group

It was also mentioned, that if there were more locally produced organic options available, people would prefer those to imported fruit and vegetables. People are more concerned about their health and their awareness is rising. All respondent agreed that for the last few years the level of consciousness of the consumers grew significantly and is still on the rise.

"Nowadays, there is a big dilemma: people want local and they do not want local at the same time because of the pesticides. If this dilemma can be solved with organic, then good for them" – Research group

All in all, the current RDP program does not propose any measures for promoting local organic among the Maltese consumers. That means that in case of high demand for organic, consumers will opt for imported products, instead of support local production. Also, in case of obesity epidemic the active promotion of plant-based diet is necessary. As organic in Malta is concentrated around these types of product, there is a big potential for this industry.

Stability dimension

The stability dimension is complex by itself as it concerns any potential disturbing forces for the food system in a country. As it was mentioned by all respondents, there are various problems which the current agricultural system is facing in Malta. The role of organic production in addressing these issues depends on the nature of the problem.

Import dependency

In Malta, 80% of consumed food is imported (FOE 2017; Conference 2018). Agricultural products part 10,6% of all imported commodities (EU Commission 2018).

Therefore, in order to decrease the level of import dependency, the stronger production is necessary. The proposed by RDP 2014-2020 measures will not be enough to increase production to the level so the organic food producers supply food stores or markets with their produce. Currently, most of the farmers produce in small quantities, which allows them to sell directly to consumers, but not enough to supply catering services, big supermarket chains etc. Although the program is still ongoing, and it might attract more farmers to the sector, the initial targets and budget allocation are the lowest among all other measures. The small amount of financial resources allocated to the Measure 11 leads to a conclusion that the support given by the program can be beneficial for maintaining and increasing the number of small-scale (family) farms, while large scale production expansion is not set as a goal. Therefore, the increase of production on a country-level cannot be achieved.

Eco-system resilience

The positive effect on the environment is the strongest side of organic farming and is acknowledged by all current Maltese environmental policies, including NAP 2018-2028, Malta's National Biodiversity Strategy and Action Plan 2012-2020, Strategic Plan for Environment and Development 2015 and National Climate Change Adaptation Strategy 2012. There are dozens of indicators measuring this dimension, which are summarized in the Strategic Environmental Assessment on Malta's national Rural Development Programme for the programming period 2014-2020 (SEA). The assessment reveled that although a several environmental benefits are indicated in the program, the RDP did not

allocate enough budget to ensure any significant positive impact on the eco-system (SEA 2014-2020, xxv). The program encourages the program proponents to change the budget allocation under RDP in a way so organic farming is facilitated and increased in the long perspective. Nevertheless, the program indicates that organic farming in Malta can contribute to development of such environmental receptors as biodiversity, human health and soil productivity.

Malta's National Biodiversity Strategy and Action Plan 2012-2020 advocates for development and increase of number of organic farms in Malta as it is a "good agricultural and low intensive practice", which leads to improvement of agrobiodiversity (p. 13).

As for the expert interviews, many of the respondents, especially the farmers group, were concerned about the quality of the soil, water and resistance of the agricultural system in general. It takes three years for the soil to rejuvenate from the harmful pesticide residues and all respondents agreed this is a very long time for farmers to wait, especially if this is their full-time job. However, many saw it as the only way to clean the land and to make it more productive in the longer perspective.

"They flood the field with pesticides and fertilizers so what is local in Malta doesn't have a safety amount of Roundup[1]*. Many farmers overexaggerate with using pesticides. The quality of the land has been damaged. It would take some time to rejuvenate the soil and get everything back on track with organic farming"* – Research group

In that respect, many advocated for a switch towards pesticides-free as a first step towards a more sustainable practice

"Therefore, pesticides-free would be more realistic because it is hard to certify organic because the land is bad"- Research group

While talking about organic farming and its benefits in comparison with conventional one, many respondents mentioned the issue of monoculture on farms and the decrease of biodiversity. There are certain risks associated with the former. For example, if there is a disease it can kill the whole harvest at once, while in case of polyculture the system

[1] Roundup – a glyphosate-based herbicide. It is banned in several countries, including Belgium and the Netherlands. https://www.monsanto-ag.co.uk/roundup/roundup-agriculture/

becomes more resilient to any "stress from outside". In Malta, due to a small size of the land, the current organic farmers combine as many crops as possible and avoid monoculture. Another issue pointed out by the research group was that in a pesticides-free environment, the biosystem functions better as there are no chemicals which would harm the fauna. Thus, most of the respondent from different groups agreed that organic farming which uses the principles of polyculture in a long run can make the system more resilient and increase productivity of the soil.

"Yes, organic would make it more resilient. In Malta organic farms that we worked with don't have monoculture, they have a big diversity. The whole issue is that we are used to import seeds and rootstocks and spray everything; so a lot of diseases became more resilient. With organic there is a chance for regeneration of biodiversity" – Research group

"If it is monoculture then it does not create biodiversity, it does not help the system to become more resilient. However, if it is multicultural then quality of everything goes up" – Research group

The organic farms the way the currently function are able to ensure food safety on a better level than conventional farmers. All farmers and researchers acknowledged the lack of control for conventional agriculture in terms of the use of pesticides, the use of imported plants which could provoke some diseases and lack of traceability. Organic farming in Malta can address all these issues, as there is a stricter control for certification purposes and the supply-chain is shorter. Most of the farmers sell directly to consumers and restaurants, or to stores without going through different stages of agents and retailers. In addition, some respondent mentioned that due to a high interest in organic, people are willing to go to farms and buy directly from them, which also eliminated gap between producers and consumers.

"If people buy organic directly from farmers than yes, it does ensure food safety. Some conventional farmers spray more than necessary so organic would provide food safety health wise as well" – Research group

***"**In general organic has a short supply chain when we know the farmers and can pass by. I think there is a lot of potential with local people" – Research group*

"Maybe in general organic does not shorten the food supply chain but in general it does. Some farmers contact the consumers directly and vice versa" – Farmers group

All in all, while the environmental benefits of organic farming are acknowledged by the policies and experts in the field, there is a very small budget allocation for putting this into practice.

Labor conditions:

From the social justice perspective, organic farming provides a better work conditions for the farmer and positively affect their wellbeing. In conventional farming, the farmers are the ones who are imposed to the chemicals which are sprayed on the plants. Thus, any labor force involved become at risk of being poisoned by that.

"I would buy organic for human health and for natural environment; and for the farmers themselves because they get exposed to all those chemicals" - Research group

Organic farming is more labor intensive in comparison with conventional one and also includes more manual work. This type of work does not require physical abilities and thus can engage more women to provide a gender balance in the agricultural sector. However, this is not the case in Malta. Due to land fragmentation and small size of the agricultural fields, the agriculture in Malta does not include heavy machinery and requires a lot of manual work. Thus, the gender gap balance will remain the same regardless of the type of agriculture.

"In other countries organic farming can ensure gender equality as it gives more manual work which could be done by women, but in Malta agriculture is very manual. We still use tools because of very small areas. So, I don't think it is going to make a difference because the reality as such is that the work is very manual already"

On another hand, as organic is more labour intensive it can potentially create more job opportunities. Many respondents mentioned that agriculture is one of the main areas where people with migration background can find job. Mainly due to reluctance of the Maltese people to work in agriculture, but also because many of those people come from agrarian countries, and therefore, have already some experience in doing that. As it was also confirmed by the interviews, currently many of them work illegally and their wages are low. Thus, there is a situation where there is a lack of labour force for agriculture and

many jobless people, who could not find a legal job due to their status and agree to work in agriculture out if necessity. However, the farmers also confirm that as it is very difficult for them to receive proper documentation, they are also "forced" to employ people from a black market and keep their status the same.

"It was much more decent to work in an organic farm for migrants; if a person comes from a rural area, it will be better. Yes, since organic is more labour intensive; working conditions are better since there is no pesticides"- Research

"This is already happening with all farmers in Malta, we cannot use the technology, we cannot use big machinery which are used elsewhere because of the size. In Malta in general agriculture is very labour intensive and therefore, they use migrants as a cheap labour force. As they mostly come from agrarian countries they are used to this kind of job. But the problem is that some of them work illegally".

They have come to rely on a lot of migrant work – Research group

"Migrants can work with us but I need people with the right papers. It is hard for us to find people who have right documentation. Maltese people don't want to work in fields and it seems to be very difficult to arrange the right papers for people with refugee status" – Farmers group

"If the government could help us with documentation for those people, it would be much better. I have no problems with them whatsoever, but I prefer if I can find right people with the right documents, or if they can fix the documents. I believe that at the end everybody will benefit – they will pay social security and they will not work on a black market" – Farmers group

All in all, it is indicated that the current agricultural practises which are in place in the country have an adverse impact on the environment, such as habitat fragmentation, loss of wildlife and biodiversity, soil pollution and degradation, water and air pollution etc. All above mentioned supports the argument about multifunctionality of agriculture and the importance of sustaining it. Given the specificity of the islands, in modern society the success of Maltese agriculture depends on people who work on the farms – their capacity and willingness to implement more sustainable practices. Maltese farmers need to adopt

suitable measures and actions to mitigate the environmental impact which results from their activities. To ensure that farming in Malta is moving towards sustainable agriculture, policies should integrate more environment-oriented approach. Organic farming is proven to be effective in addressing the above-mentioned issues, but there are not enough incentives from the policy side to implement it into practice. The main results are summarised below in the table 1.

Dimension	Indicators	Results
Availability	Local production quantity	Low target and not enough budget allocation to enhance production
Access	Price for food Expenditure on food	The proposed measured do not compensate the difference in expenditure, therefore, farmers cannot reduce the price. A big part of the population cannot afford buying organic with premium prices.
	Institutions capacity and multisectoral engagement	The program does not allocate money for strengthening the institutions; there is a low multisectoral engagement and a high level of discrepancy between policies regarding development of organic farming
	Food distribution (supply chain)	Shortens the supply chain due to direct sales – positive impact
Utilization	Obesity level Public Procurement Consumer awareness	The RDP does not propose direct measures which would affect this dimension. Nevertheless, it was revealed that organic farming positively affect food safety and potentially can positively affect the health dimension by introducing more sustainable consumption measures
Stability	Import dependency	The small money allocation cannot lead to the development of a large-scale production. Therefore,

		the increase of production on a country-level cannot be achieved.
	Eco-system resilience and climate change adaptation	Organic farming can potentially positively contribute to this indicator; however, it was revealed that the RDP did not allocate enough budget to ensure any significant positive impact on the eco-system
	Gender equity	Organic farming does not help to achieve gender equality in the case of Malta due to local specificity of the sector
	Employment and Labor conditions	Organic farming can potentially attract more people to the agricultural sector due to better working conditions

3.3. Discussion and recommendations

This part is a final discussion of the findings related to organic farming and its connection to improving food security. It also contains recommendation for the Maltese policymakers on how to build that connection stronger. In general, it is evident that organic farming can have a positive impact on food security dimensions. However, this could only happen is a scenario when organic farming sector becomes more feasible in Malta.

Availability dimension

Although it seems unrealistic to have organic production on an industrial level in Malta, there are still some targets in this dimension which could be achieved through the means

of organic farming. To facilitate the production in the sector there is a need for applied research. The government should support the projects which could provide more knowledge on how possible improve the sector in the given conditions of the country. For example, more resources could be allocated to for the experimental farms dealing with organic. In order to attract more farmers to the sector and increase the production, more evidence of profitability must be provided, and resources should be allocated. The latter could be done through the RDP by allocation a certain amount of financial resources to support young farmers for growing organic, as it is currently done under Measure 6.1. but for the conventional farmers.

Another way to facilitate the production of organic farming is to attract different EU funds for the organic sector. Each member state decides what share of each fund will be allocated to which sector. To make a change in any dimension through the means of organic farming would require more budget allocation.

The analyses in this research showed a high level of discrepancy between policies and, therefore, institutions, regarding the organic farming. The institutional support must be stronger not only to create a set up where organic would become feasible, but also to work with consumers.

Making organic product more available would increase the demand, which in turn could have a positive effect on a supply. Now, organic farmers cannot sell their produce on the farmers market, where conventional farmers can benefit from better prices. Therefore, allowing organic producers participating in the market would increase the visibility of the products to a large part of the population and make it more attractive for potential organic farmers, as they will be sure tat there is a stable supply channel.

Access dimension

It was revealed that the current prices for local organic are in general higher and this becomes a constraint for some groups of people. To reduce the prices the market should grow significantly, so the competitions between the local producers is higher.

One of the common ways of support of sustainable agricultural practices is introduction of tax exemption. This could be a motivator for conventional farmers to reconsider their way of practising farming and switch to a new way of working.

As it was mentioned by different respondent, there was a plan to create a separate policy for organic, but it was abolished. The current National Agricultural Policy does not propose any specific measure or instrument to promote organic farming. Therefore, there is a need for a separate action plan for organic industry, which would incorporate all dimensions and will be targeting farmers, consumers, public institutions.

Utilization dimension

The analysis revealed a low trust to the locally produced fruit and vegetables by consumers as they believe that there is a high amount of pesticides and it is not safe to eat local. Now the situation with a high demand for organic food jeopardizes the availability dimension of food security, as when there is a high demand for organic, but the supply is not enough, people will opt for imported options. Therefore, the government should take actions and implement measures which would support local organic produce. Otherwise, a significant part of the population might switch to imported organic, rather than local.

One of the biggest threats for food security in Malta is a high level of diet-related diseases. Promoting organic would positively affect the consumption patterns of vulnerable groups, as an increased fruit and vegetables intake is associated with a healthier diet and lifestyle.

In order to increase trust in locally produced fruit and vegetables, such policy measures as organic kitchen garden at schools and community organic gardens are suggested. The examples of measures for this dimension include promotion of consumer awareness, protection of the sector from the negative affect of GMO, education activities among youth, public procurement. However, as it was mentioned above, there should be a well-structured action plan or strategy, tackling all these issues.

One of the unexplored niches in Malta is agritourism. Tourism sector is well-developed in the country and there are many opportunities to create a separate sector. That would bring an additional income for the farmers and make the sector more attractive for the potential customers.

Stability dimension

This is the main dimensions where organic farming, being a sustainable agricultural practice, could have a strong impact. Indeed, this is reflected in many national programs and policies, however, the scale of operating is not enough. One way forward could be finding a "middle ground" and encourage farmers to follow principles of organic farmers if they are not willing to go through the tough procedure of qualification and compliance to the organic regulation.

From the perspective of social justice, organic farming presents better employment conditions, as the workers are not exposed to chemicals. For this reason, the sector is more labour intensive as it requires more additional manual work to be done by people. Today in Malta agricultural sector is one of the biggest illegal employers for people with migration background. In many cases, those people are underpaid and are subject to abuse. Organic farming could potentially create more green jobs, where those people could find a stable job. However, this must be regulated by the government.

In addition to the food security discussion, the following part adds some more general recommendations, which are the result of the RDP monitoring. Considering the upcoming CAP reform and adoption of the new RDP 2021-2027, the previous mistakes should be considered.

The new RDP discussion must build an alliance with the National Agricultural Policy. This is important to understand exactly who is doing what and who is responsible for incentivizing organic farming in Malta. As for now, NAP states that this role belongs to the RDP, while managing authority of RDP points at NAP. In this respect, also creating an action plan for organic would help, as it could give a direction for the sector while taking a full advantage of EU funds opportunities.

In order to avoid unnecessary delays in implementation, the previous mistakes should be considered. One needs to make sure that the program is drafted according to the current reality of the sector to avoid a situation where a program modification was needed to adjust it. This implies the good level of coordination and involvement of other stakeholders in the process of drafting the next RDP.

During the research it was revealed that certification fee is a barrier to enter the sector. Therefore, these expenses should be covered, as it is perceived as an unnecessary cost for the farmers, thus, eliminating this part can be beneficial. First, the problem is that even there are farmers who do organic but are not certified because they do not want to pay the fee and go through a long and tough process of certification. Second, the money which are given under the measure for organic farming are only enough to cover the certification costs. At the end, farmers to do not benefit from these measures and therefore, organic farming cannot be incentivized this way. Farmers should be able to cover the extra expenses during the period of conversion. Under current conditions, farmers do not benefit from going organic money-wise. It becomes riskier, because this can only become more profitable in the long run.

There is a strong need for an entity which would keep the communication between farmers and the government, while supporting the funds application and guiding through the possible fund opportunities. This role is currently assigned to the agricultural directorate; however, it was revealed that all above mentioned is not well communicated to the farmers. In addition to that farmers need a stronger representative form their side. That implies creating a body which would represent and actively advocate for the interest of the farmers. The negative attitude towards the governmental authorities, expressed by the farmers during the interviews, should be overlooked.

Conclusion.

Thesis aimed to explore the connection between organic farming and the four dimensions of food security in the EU on the example of Malta. The current Rural Development Program for the Maltese islands 2014-2020 was chosen for the analysis, as it is currently the only program directly providing measures to incentivize organic farming. The work showed that the program was not implemented successfully in a way it was planned, which caused a significant three years delay of the launching the measures related to organic farming. That was mainly due to a small capacity of the unit and a lower priority of the sector in comparison with the others. It was revealed that the proposed instruments are not enough to reach the targets indicated by the RDP. The program does not allocate enough budget to achieve substantial results. Also, there was a clear lack of communication between the authorities and the target group.

The thesis analyzed organic farming measures through the four dimension of food security: availability, access, stability and utilization. It showed that to significantly impact the availability dimension, the production must be intensified, which is not possible in the current realities of the development of organic farming not only in Malta, but in the EU in general. It was also reveled that organic can have a limited impact on the access dimension, mostly due to the premium prices, which a big part of a population cannot afford. The price difference can only be bridged if the sector has a strong policy support, which would compensate the extra expenses, such as certification costs in the Maltese case.

When it comes to the utilization and stability dimension, the situation is different. Organic farming consumption is associated with a healthier lifestyle and dietary patterns. The promotion of organic farming in schools, public institutions, as well as among general public will raise the awareness about diet-related diseases and increase health and environmental consciousness. The stability dimension is the one which is impacted the most by organic farming practices, as they increase the ecosystem resilience, by sustaining biodiversity, soil and water quality. In addition, they propose a better labor conditions for farmers and employees.

Bibliography

Adams, E. J., Grummer-Strawn, L., Chavez, G. (2003). "Food insecurity is associated with increased risk of obesity in California women". *Journal of Nutrition*, *133*, 1070–1074

Agricultural Directorate (2018). *Organic Farming*. [online] Available at: https://agriculture.gov.mt/en/agric/Pages/organicfarming.aspx [Accessed 6 Jan. 2019].

Akkelidou, D. (2010). "Food Security in the Euro-Mediterranean Area: Main Challenges". *IeMedObs Observatory of Euro-Mediterranean Policies*.

Alföldi, T. Fliessbach, A. Geier, U. Kilcher, L. Niggli, U. Pfiffner, L. Stalze, M. Willer, H., (2002). Organic agriculture and climate change. In: El-Hage Scialabba, N.; Hattam, C.(Eds) Organic agriculture, environment and food security. Environment and Natural Resources Management Series, N°4. FAO, Rome

Azadi, H.; Ho, P. (2010) Genetically modified and organic crops in developing countries: A review of options for
food security. Biotechnol., 28, 160–168.

Barbière, C. (2017). *France to cut support for booming organic farming*. [online] euractiv.com. Available at: https://www.euractiv.com/section/agriculture-food/news/france-to-cut-support-for-booming-organic-farming/ [Accessed 5 Jan. 2019].

Barilla (2016) Fixing food: the Mediterranean region. Barilla Center for food and Nutrition, Parma, Italy

Baldock, D., Dwyer, J., Lowe, P., Petersen, J. and Ward, N. (2001). The Nature Of Rural Development: Towards A Sustainable Integrated Rural Policy In Europe. *A Ten-Nation Scoping Study for WWF and the GB Countryside Agencies (Countryside Agency, Countryside Council for Wales, English Nature and Scottish Natural Heritage).*

Birdi, N. (1997). Water scarcity in Malta. *GeoJournal*, 41(2), pp.181-191.

CAP (2016) CAP in your country: Malta available at: https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/by_country/documents/cap-in-your-country-mt_en.pdf [accessed 5 January 2019]

Capone, R., Bilali, H., Debs, P., Cardone, G. and Driouech, N. (2014). Mediterranean Food Consumption Patterns Sustainability: Setting Up a Common Ground for Future Research and Action. *American Journal of Nutrition and Food Science*, 1(2), p.37.

Casey, P., Goolsby, S., Berkowitz, C., Frank, D., Cook J., Cutts, D.B., et al. (2004).Maternal depression, changing public assistance, food security, and child health status. *Pediatrics*, *113*, 298–304.

Cánoves, G., Villarino, M., Priestley, G. and Blanco, A. (2004). "Rural tourism in Spain: an analysis of recent evolution". *Geoforum*, 35(6), pp.755-769.

Clendenning, J., Dressler, W. and Richards, C. (2015). "Food justice or food sovereignty? Understanding the rise of urban food movements in the USA". *Agriculture and Human Values*, 33(1), pp.165-177.

CIHEAM/FAO. 2015. *Mediterranean food consumption patterns: diet, environment, society, economy and health*. A White Paper Priority 5 of Feeding Knowledge Programme, Expo Milan 2015. CIHEAM-IAMB, Bari/FAO, Rome.

Conway, G. (1987). "The properties of agroecosystems". *Agricultural Systems*, 24(2), pp.95-117.

Coleman, W. (1998). From protected development to market liberalism: paradigm change in agriculture. *Journal of European Public Policy*, 5(4), pp.632-651.

Committee on Climate Change (2010) The fourth carbon budget. Reducing emissions through the 2020s – report.
Committee on Climate Change, London, UK

Compagnoni, A; Pinton R.; Zanoli R. (2000) "Organic Farming in Italy"; Stiftung Ökologie & Landbau (SÖL), Bad Dürkheim, Germany

Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91

Crowder, D. and Reganold, J. (2015). Financial competitiveness of organic agriculture on a global scale. *Proceedings of the National Academy of Sciences*, 112(24), pp.7611-7616.

Cuschieri, S. and Mamo, J. (2016). Getting to grips with the obesity epidemic in Europe. *SAGE Open Medicine*, 4, p.205031211667040.

Cuschieri, S., Vassallo, J., Calleja, N., Camilleri, R., Borg, A., Bonnici, G., Zhang, Y., Pace, N. and Mamo, J. (2016). Prevalence of obesity in Malta. *Obesity Science & Practice*, 2(4), pp.466-470.

Delia, E. (2002). *Papers on Malta's Political Economy*, Malta, Midsea Books Ltd.

Delia, E. (2005). *The Economic Relevance of Agriculture for Malta's Economy*. 1st ed. Malta: AN APS bank publication.

Devereux, S. (2000). *Food insecurity in Ethiopia*. Brighton: Institute for Development Studies.

Dietz, W. H. (1995). Does hunger cause obesity? *Pediatrics, 95*, 766–767.

ERA (2005) Background report soil. Environmental and Resource Authority, Malta.

EC, 2007. Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91. Official Journal of the European Union L189, 1–23 (20.7.2007).

European Commission (2015) Factsheet on 2014-2020 Rural Development Programme for Malta

European Commission (2017) Future of CAO: modernising and simplifying the cap Background Document Economic challenges facing EU agriculture. Available at: https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/future-cap_en#documents [accessed 5 January 2019]

European Commission (2018*)* Agriculture Statistical Factsheet: Malta available at: https://ec.europa.eu/agriculture/sites/agriculture/files/statistics/factsheets/pdf/mt_en.pdf [accessed 5 January 2019]

European Commission (2018b) CAP expenditure in the total EU expenditure available at: https://ec.europa.eu/agriculture/sites/agriculture/files/cap-post-2013/graphs/graph1_en.pdf [accessed 5 January 2019]

European Commission (2019) The common agricultural policy at a glance available at: https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/cap-glance_en [accessed 5 January 2019]

EUROSTAT (2016) People at risk of poverty or social exclusion available at: https://ec.europa.eu/eurostat/statistics-explained/index.php/People_at_risk_of_poverty_or_social_exclusion [accessed 5 January 2019]

EUROSTAT (2017) Organic farming statistics available at: https://ec.europa.eu/eurostat/statistics-explained/index.php/Organic_farming_statistics [accessed 5 January 2019]

European Obesity Day. (2019). *Policymakers - European Obesity Day*. [online] Available at: https://www.europeanobesityday.eu/tackling-obesity-together/policymakers/ [Accessed 6 Jan. 2019].

Elinder, L. (2005). Obesity, hunger, and agriculture: the damaging role of subsidies. *BMJ*, 331(7528), pp.1333-1336.

FAO (1945) Constitution of the Food and Agriculture Organization of the United Nations available at: https://www.jus.uio.no/english/services/library/treaties/14/14-01/food-organization.xml [accessed 5 January 2019]

FAO (1996) World Food Summit available at: http://www.fao.org/wfs/ [accessed 5 January 2019]

FAO (2006) Food Security. Policy brief Issue 2. available at: http://www.fao.org/fileadmin/templates/faoitaly/documents/pdf/pdf_Food_Security_Cocept_Note.pdf [accessed 5 January 2019]

FAO (2007) International conference on organic agriculture and food security. 3-5 May 2007, FAO Italy available at: http://www.fao.org/tempref/docrep/fao/meeting/012/ah953e.pdf [accessed 5 January 2019]

FAO (2010). Country Profile: Food Security Indicators. [Online] Available at: http://www.fao.org/fileadmin/templates/ess/documents/food_security_statistics/country_profiles/eng/Malta_E.pdf [Accessed 5 January 2019]

FAO (2016) The state of food and agriculture: climate change, agriculture and food security. Rome (Italy): FAO; 2016. available at: http://www.fao.org/3/a-i6030e.pdf [accessed 5 January 2019]

FAO (2017) Sustainable farming systems for food and nutrition security; FSN Forum Summary of online discussion №145 available at: http://www.fao.org/3/I8603EN/i8603en.pdf [accessed 5 January 2019]

FAO (2018) The state of food security and nutrition in the world available at: http://www.fao.org/state-of-food-security-nutrition/en/ [accessed 5 January 2019]

FAO (2018b) Organic Farming [online] Available at:http://www.fao.org/organicag/oa-faq/oa-faq7/en/ [accessed 5 January 2019]

FAOLEX dataset (2018) country profile: Malta. Available at: http://www.fao.org/faolex/country-profiles/general-profile/en/?iso3=MLT [accessed 5 January 2019]

FOE (2017) Agro-Katina Report. "From apricots to zucchini. The local fruit and vegetable supply chain in Malta". Friends of the Earth Malta available at: https://foemalta.org/wp-content/uploads/AgroKatina-Report.pdf [accessed 5 January 2019]

Fischler, F. (2008). Europe's CAP: Changes and Challenges Die europäische GAP: Änderungen und Herausforderungen La PAC européenne: changements et défis. *EuroChoices*, 7(2), pp.22-27.

Giovannucci, D., Scherr, S., Nierenberg, D., Hebebrand, C., Shapiro, J., Milder, J. and Wheeler, K. (2012). "Food and Agriculture: The Future of Sustainability". *SSRN Electronic Journal*.

Guerreiro, S., Dawson, R., Kilsby, C., Lewis, E. and Ford, A. (2018). "Future heat-waves, droughts and floods in 571 European cities". *Environmental Research Letters*, 13(3), p.034009.

Haas Guégo, N. (2019). *In Lorraine, the European Social Fund supports organic market gardening*. [online] euractiv.com. Available at: link [Accessed 5 Jan. 2019].

Häring, A., Vairo, D., Dabbert, S. and Zanoli, R. (2009). Organic farming policy development in the EU: What can multi-stakeholder processes contribute?. *Food Policy*, 34(3), pp.265-272.

HBS (2015) Household Budgetary Survey, National Statistical Office, Malta

Heidhues, F. (2004). *Assessing development strategies and Africa's food and nutrition security*. Washington, D.C.: International Food Policy Research Institute.

Hosnedlová, P. (2018). *Farming's ageing and negativity problem*. [online] euractiv.com. Available at: https://www.euractiv.com/section/agriculture-food/news/farmers-are-ageing-younger-generations-see-agriculture-negatively/ [Accessed 5 Jan. 2019].

IFOAM. (2002). Organic Agriculture and Food Security. International Federation of Organic
Agriculture Movements, Tholey-Theley, Germany available at: https://www.ifoam.bio/sites/default/files/organic_agriculture_and_food_security_printcopy.pdf [accessed 5 January 2019]

IFOAM, 2005. Principles of Organic Agriculture International Federation of Organic Agriculture Movements. Bonn.

IFOAM (2006) Organic agriculture and food security available at: https://www.ifoam.bio/sites/default/files/organic_agriculture_and_food_security_printcopy.pdf [accessed 5 January 2019]

Izac, A-M., et al. 2009. "Options for enabling policies and regulatory environments". In: B.D. McIntyre, et al., eds. International Assessment of Agricultural Knowledge, Science and Technology for Development: Global Report. Washington, DC: Island Press, pp. 441–94.

Juma, C. (2007). "food security, agriculture and economic growth. Opportunities for Cooperation between the United States and Sub-Saharan Africa". *Belfer Center for Science and International Affairs Kennedy School of Government Harvard University*.

Kasperczyk N. and Knickel K., (2006). *Environmental Impacts of Organic Farming.* In: Kristiansen P. (ed) Organic agriculture: a global perspective. CSIRO, 2006, pp. 259-282.

KPMG (2016) Ex post evaluation of the Rural Development Programme of Malta (2007-2013)

KRAV (2018) About KRAV [online] available at: https://www.krav.se/in-english/about-krav/ [accessed 5 January 2019]

King, N. (1998). Template analysis. In G. Symon & C. Cassell (Eds.), *Qualitative methods and analysis in organizational research: A practical guide* (pp. 118-134). Thousand Oaks, CA, : Sage Publications Ltd.

Lake, I., Hooper, L., Abdelhamid, A., Bentham, G., Boxall, A., Draper, A., Fairweather-Tait, S., Hulme, M., Hunter, P., Nichols, G. and Waldron, K. (2012). "Climate Change and Food Security: Health Impacts in Developed Countries". *Environmental Health Perspectives*, 120(11), pp.1520-1526.

Lang, T. and Barling, D. (2012). "Food security and food sustainability: reformulating the debate". *The Geographical Journal*, 178(4), pp.313-326.

Lampkin, N., (1994). *Organic farming: sustainable agriculture in practice.* CABI, Oxford.

Lappé, Traub, Cook and Zenko (2010). *Don't Panic, Go Organic*. [online] Foreign Policy. Available at: https://foreignpolicy.com/2010/04/29/dont-panic-go-organic/ [Accessed 5 Jan. 2019].

Lapple D. (2010). "Adoption and abandonment of organic farming: an empirical investigation of the Irish drystock sector". *J. Agric. Econ.* 61:697–714

Levin, C., Ruel, M. and Morris, S. (1999). *Working women in an urban setting*.

Lunze, K., Yurasova, E., Idrisov, B., Gnatienko, N. and Migliorini, L. (2015). Food security and nutrition in the Russian Federation – a health policy analysis. *Global Health Action*, 8(1)

Martin, I. (2017). *Malta's fruit and veg tops EU pesticide tests*. [online] Times of Malta. Available at: https://www.timesofmalta.com/articles/view/20170423/local/maltas-fruit-and-veg-tops-eu-pesticide-tests.645933; [Accessed 5 Jan. 2019].

Mannion, A.M., (1995). *Agriculture and environmental change. Temporal and spatial dimensions.* Wiley, Sussex.

Maxwell, S. (1996). "Food security: a post-modern perspective". *Food Policy*, 21(2), pp.155-170.

Maxwell, S. (1998a) "Saucy with the Gods: Nutrition and Food Security Speak to Poverty", *Food Policy* 23 (3/4): 215-30

Maxwell, S. and Slater, R. (2003). Food Policy Old and New. *Development Policy Review*, 21(5-6), pp.531-553.

MCCAA (2018) List of organic and in conversion to organic clients to Council Regulation (EC) №834/2007 as at 02/11/2018, Malta Competition and Consumer Affairs Authority

McKay (2014) “Severe forms of Labour Exploitation Supporting victims of severe forms of labour exploitation in having access to justice in EU Member States”. FRANET contractor: Centre for Faith and Justice

Meemken, E. and Qaim, M. (2018). “Organic Agriculture, Food Security, and the Environment:. *Annual Review of Resource Economics*, 10(1), pp.39-63.

Mbow, C., Van Noordwijk, M., Luedeling, E., Neufeldt, H., Minang, P. and Kowero, G. (2014). Agroforestry solutions to address food security and climate change challenges in Africa. *Current Opinion in Environmental Sustainability*, 6, pp.61-67.

Michalopoulos, S. (2015). *Commission: Organic farming 'not enough' to address food security*. [online] euractiv.com. Available at: https://www.euractiv.com/section/science-policymaking/news/commission-organic-farming-not-enough-to-address-food-security/ [Accessed 5 Jan. 2019].

Miles M, Huberman A. (1994) *Qualitative data analysis: An expanded sourcebook*. 2nd Sage; Thousand Oaks, CA:

Morshedi, L., Lashgarara, F., Farajollah Hosseini, S. and Omidi Najafabadi, M. (2017). “The Role of Organic Farming for Improving Food Security from the Perspective of Fars Farmers”. *Sustainability*, 9(11), p.2086.

Mosley, L. (2013). *Interview research in political science*. Ithaca: Cornell University Press.

Nemes N. (2009) “Comparative analysis of organic and non-organic farming systems: a critical assessment of farm profitability”, FAO, Rome

Northbourne, Lord C.J. (1940). *Look to the Land.* J.M. Dent, London

NSO (2003) International Trade National Statistics Office, Malta
Available athttps://nso.gov.mt/en/publicatons/Publications_by_Unit/Pages/A4-International-Trade.aspx [accessed 5 January 2019]

NSO (2014) Agriculture and fisheries, National Statistics Office, Malta. available at: https://nso.gov.mt/en/publicatons/Publications_by_Unit/Documents/B3_Environment_Energy_Transport_Agriculture_Statistics/Agriculture_and_Fisheries_2014.pdf [accessed 5 January 2019]

Nyambayo I. (2015) “Food Security In Developed Countries (Europe and USA) – Is It Insecurity and Insufficiency or Hunger and Poverty in Developed Countries?”. BAOJ Nutrition 1: 00 Available at: link accessed 5 January 2019]

Odell, J. (2001). “Case Study Methods in International Political Economy”. *International Studies Perspectives*, 2(2), pp.161-176.

OECD 1995 agriculture policy reform new approaches the role of direct income payments; paris; OECD

Offermann F. and Nieberg H., (2000). "Economic Performance of Organic Farms in Europe. Organic Farming in Europe". *Economics and Policy.* Vol. 5. Universität Hohenheim

Offermann F. and Nieberg H., (2009). "Impacts of the 2003 CAP Reform on Organic Farms" *Eurochoces* 8(1), 2009.

Oshaug, A. (1985) The Composite Concept of Food Security, in W. B. Edie et al. (eds), 'Introducing Nutritional Considerations into Rural Development Programmes with Focus on Agriculture: A Theoretical Contribution', *Development of Methodology for the Evaluation of Nutritional Impact of Development Programmes Report* 1, Institute of Nutrition Research, University of Oslo.

Omidi Najafabadi, (2014) "Gender sensitive analysis towards organic agriculture: A structural equation
modeling approach". J. Agric. Environ. Ethics 2014, 27, 225–240.

PAB (2017) Programme Ambition Bio 2017 – National Action Plan for France available at: http://agriculture.gouv.fr/sites/minagri/files/cgaaer_16118_2017_rapport.pdf [accessed 5 January 2019]

Paciello M.C. (2015). *Building Sustainable Agriculture for Food security in the Euro-Mediterranean: Challenges and policy options*, Books & Reports, OCP Policy Center, number 3, December.

Padel, S., Röcklinsberg, H. and Schmid, O. (2009). The implementation of organic principles and values in the European Regulation for organic food. *Food Policy*, 34(3), pp.245-251.
Padel S, Lampkin NH (1994) "The Economics of Organic Farming: An International Perspective, ed Lampkin NH (CABI, Wallingford, UK), pp 201–219

Paull, John (2014) "Plenty" and the Philosophy of Organic Agriculture. *Plenty*, 1 (Winter), pp. 52-56.

Patel, R. (2009). "Food sovereignty". *The Journal of Peasant Studies*, 36(3), pp.663-706

Patton MQ. Qualitative research and evaluation methods. 3rd Sage Publications; Thousand Oaks, CA: 2002

Pérez-Escamilla, R. (2017). "Food Security and the 2015–2030 Sustainable Development Goals: From Human to Planetary Health". *Current Developments in Nutrition*, 1(7), p.e000513.

Perroud, S. (2019). *Overproduction of food (waste)*. [online] Greens/EFA. available at: https://www.greens-efa.eu/en/article/news/overproduction-of-food-waste/ [Accessed 5 Jan. 2019].

Pillsbury M. (2018) "Price Differences: Organic Versus Non-Organic; Store Versus Farmers' Market; Maine Organic Farmers and Gardeners Association" available at: http://www.mofga.org/Publications/The-Maine-Organic-Farmer-Gardener/Fall-2011/Price-Differences [accessed 5 January 2019]

Pinstrup-Andersen, P. (2009). "Food security: definition and measurement". *Food Security*, 1(1), pp.5-7.

POECOM (2018) "Support for Organic Certification" Organic Pacifika Available at: http://www.organicpasifika.com [accessed 5 January 2019]

Programma di azione nazionale per l ' agricolurabiologicaeiprodotti biologici (2011) National Action Plan or organic farming for Italy

Pretty, J.; Morrison, J.I.L.; Hine, R.E. (2003) "Reducing food poverty by increasing agricultural sustainability in the development countries". *Agric. Ecosyst. Environ*. 95, 217–234.

Prosperi, P., Allen, T., Padilla, M., Peri, I. and Cogill, B. (2014). "Sustainability and Food & Nutrition Security". *SAGE Open*, 4(2), p.215824401453916.

Riely Frank, Mock Nancy, Cogill Bruce, Bailey Laura, and Kenefick Eric. Food Security Indicators and Framework for Use in the Monitoring and Evaluation of Food Aid Programs. Arlington, Va: Food Security and Nutrition Monitoring Project (IMPACT), ISTI, Inc., for the U.S. Agency for International Development. January, 1999

Rigby, D. and Cáceres, D. (2001). "Organic farming and the sustainability of agricultural systems". *Agricultural Systems*, 68(1), pp.21-40.

Ritchie, J. (2011). *Qualitative research practice*. Los Angeles, Calif: SAGE.

Rosset P. (1999), "The multiple functions and benefits of Small Farm Agriculture. Food First Policy Brief no. 4. Institute for Food and Development Policy, Oakland (CA.)

Rossi, P., Freeman, H. and Lipsey, M. (1999). *Evaluation*. Thousand Oaks, Calif.: Sage Publications.

SAFA (2014) Sustainability Assessment of Food and Agriculture systems guidelines, FAO, Rome Italy

Seufert V, Ramankutty N. 2017. "Many shades of gray—the context-dependent performance of organic agriculture".
Sci. Adv. 3:e1602638

Scialabba, N. and Hattam C. (2002). "Organic Agriculture, Environment and Food Security"
Food and Agriculture Organization of the United Nations, Rome.

Scofield A.M. (1986) "Organic Farming—The Origin of the Name", *Biological Agriculture & Horticulture,* 4:1, 1-5, DOI: 10.1080/01448765.1986.9754481

Seufert V, Ramankutty N. (2017). "Many shades of gray—the context-dependent performance of organic agriculture". *Sci. Adv.* 3:e1602638

Shamsi, K., Compagnoni, A., Timpanaro, G., Cosentino, S. and Guarnaccia, P. (2018). "A Sustainable Organic Production Model for "Food Sovereignty" in the United Arab Emirates and Sicily-Italy. *Sustainability,* 10(3), p.620.

Shogren, J., Lusk, J. and Roosen, J. (2013). *The Oxford Handbook of the economics of food consumption and policy*. Oxford: Oxford University Press, pp.546-565.

Sitthisuntikul, K., Yossuck, P. and Limnirankul, B. (2018). "How does organic agriculture contribute to food security of small land holders?": A case study in the North of Thailand. *Cogent Food & Agriculture*, 4(1).

Smith L, Subandoro A. (2007) *Measuring household security using household expenditure survey.* International Food Policy Research Institute Washington, DC. International Food Policy Research Institute.

Stam, C. (2018). *Agroecology can feed Europe pesticide-free in 2050, new study finds*. [online] euractiv.com. Available at: https://www.euractiv.com/section/agriculture-food/news/agroecology-can-feed-europe-pesticide-free-in-2050-new-study-finds/?_ga=2.69338582.71655561.1542098645-2112561389.1542098645 [Accessed 5 Jan. 2019].

Stenmarck. A, Jensen. C, Quested. T, Moates G. (2016) "Estimates of European food waste levels" (2016) Commissioned by the European Commission in the FUSION project available at: https://www.eu-fusions.org/phocadownload/Publications/Estimates%20of%20European%20food%20waste%20levels.pdf [accessed 5 January 2019]

Skogstad, G. (1998). "Ideas, Paradigms and Institutions: Agricultural Exceptionalism in the European Union and the United States". *Governance,* 11(4), pp.463-490.

Shaw, D. (2014). *World food security*. Palgrave Macmillan.

Tanyeri-Abur A. (2015) "Food Security in the Southern Mediterranean/North Africa". In: Vastola A. (eds) The Sustainability of Agro-Food and Natural Resource Systems in the Mediterranean Basin. Springer, Cham

Tauxe, R. (2001). "Food Safety and Irradiation: Protecting the Public from Foodborne Infections" 1. *Emerging Infectious Diseases,* 7(7), pp.516-518

Tilman, D. (1999). “Global environmental impacts of agricultural expansion: The need for sustainable and efficient practices”. *Proceedings of the National Academy of Sciences*, 96(11), pp.5995-6000.

Times of Malta (2015) “Rural plan adopted” [online] available at: https://www.timesofmalta.com/articles/view/20151126/local/rural-plan-adopted.593553 [Accessed 5 Jan. 2019].

Torres, J., Valera, D., Belmonte, L. and Herrero-Sánchez, C. (2016). “Economic and Social Sustainability through Organic Agriculture: Study of the Restructuring of the Citrus Sector in the “Bajo Andarax” District (Spain)”. *Sustainability*, 8(9), p.918.

Tory-Murphy, L. (2018). *Migrants Malta Does Not Want Are Powering Its Economy*. [online] News Deeply. Available at: https://www.newsdeeply.com/refugees/articles/2018/08/06/migrants-malta-does-not-want-are-powering-its-economy [Accessed 5 Jan. 2019].

Tranter, R., Bennett, R., Costa, L., Cowan, C., Holt, G., Jones, P., Miele, M., Sottomayor, M. and Vestergaard, J. (2009). “Consumers’ willingness-to-pay for organic conversion-grade food: Evidence from five EU countries”. *Food Policy*, 34(3), pp.287-294.

Thompson, J. and Scoones, I. (2009). “Addressing the dynamics of agri-food systems: an emerging agenda for social science research”. *Environmental Science & Policy*, 12(4), pp.386-397.

The Treaty of Rome (1957). Rome, Italy. available at: https://ec.europa.eu/romania/sites/romania/files/tratatul_de_la_roma.pdf [accessed 5 January 2019]

The World Bank (2017) Agriculture, forestry, and fishing, value added (% of GDP) [online] World Bank available at: https://data.worldbank.org/indicator/NV.AGR.TOTL.ZS [accessed 5 January 2019]

The Malta Independent (2019). *'Majority of migrants found on Qormi farm cannot work here legally' - PM working on Italy return - The Malta Independent*. [online] Available at: http://www.independent.com.mt/articles/2018-08-19/local-news/Majority-of-migrants-found-of-Qormi-farm-cannot-work-here-legally-PM-working-on-Italy-return-6736195092 [Accessed 5 Jan. 2019].

UNHCR (2017). *UNHCR Malta Stats & Graphs. Asylum claims and total number granted protection*. [online] Available at: https://www.unhcr.org/mt/charts/ [Accessed 5 Jan. 2019].

UN (2018) Sustainable development Goals available at: https://www.un.org/sustainabledevelopment/hunger/ [Accessed 5 Jan. 2019].

UN-HLTF. (2011). *Food and nutrition security: comprehensive framework for action. Summary of the updated comprehensive framework for action (UCFA).* United Nations

System High Level Task Force on Global Food Security (HLTF). Rome/Genиve/New York.

UNEP (2016) Mediterranean strategy for sustainable development 2016-2025

Vos, E. (2000). "EU Food Safety Regulation in the Aftermath of the BSE Crisis". *Journal of Consumer Policy*, 23(3), p. 240

Von Essen, E. and Englander, M. (2013). "Organic food as a healthy lifestyle: A phenomenological psychological analysis". *International Journal of Qualitative Studies on Health and Well-being*, 8(1), p.20559.

Ward, C.; Reynolds, L. "Organic agriculture contributes to sustainable food security". Vital Signs 2013, 20, 66–68.

Walker, A. 2004, 'Agriculture Co-ops in Malta" Proceedings APS Bank Seminar 2004, The Future of Cooperatives in the Agriculture and Fisheries Sectors: 23 – 34
Walker, R. (1985). *Applied qualitative research*. Aldershot, Hants.: Gower.

Wellbeing Food Rights, Privilege and Security: Perception vs Reality. Conference October 26, 2018 - Malta

World Bank (1986) *Poverty and Hunger: Issues and Options for Food Security in Developing Countries*. World Bank Policy Study. Washington, DC: World Bank

WHO (2016) Nutrition, Physical Activity and Obesity: Malta; Health Promotion and Disease prevention directorate, Malta available at: http://www.euro.who.int/__data/assets/pdf_file/0015/243312/Malta-WHO-Country-Profile.pdf?ua=1 [accessed 5 January 2019]

Willer (2016) "The World of Organic Agriculture. Statistics and emerging trends 2016". Research Institute of Organic Agriculture FibL; IFOAM – organic international available at: http://orgprints.org/31151/1/willer-lernoud-2016-world-of-organic.pdf [accessed 5 January 2019]

White Pillsbury, M. (2011). *Price Differences: Organic Versus Non-Organic; Store Versus Farmers' Market*. [online] Mofga.org. Available at: http://www.mofga.org/Publications/The-Maine-Organic-Farmer-Gardener/Fall-2011/Price-Differences [Accessed 5 Jan. 2019].
Zdruli, P. (2014). "Land resources of the Mediterranean: status, pressures, trends and impacts on future regional development". Land Degradation & Development. 25(4): 373–384. DOI:10.1002/ldr.2150

Appendix 1

Interview Protocol

Interviewee	Status	Format	Length	Recording	Group	Transcript
Gayle Murphy	Conducted in person November 2018, Naxxar, Malta	Semi-structured	30 min	Audio recording	Research	Transcript available
John Gauci	Conducted in person November 2018, Mosta, Malta	Semi-structured	60 min	Audio recording	Farmer	Transcript available
Nastia Finkel	Conducted in person November 2018, Floriana, Malta	Semi-structured	50 min	Audio recording	NGO-Research	Transcript available
Suzanne Maas	Conducted in person November 2018, Is-Swatar, Malta	Semi-structured	50 min	Audio recording	NGO - Research	Transcript available
Dr. Suzanne Piscopo	Conducted in person November 2018, Is-Swatar, Malta	Semi-structured	1 hour 20 min	Audio recording	Research	Transcript available

Malcolm Borg	Conducted in person November 2018, Valletta, Malta	Semi-structured	60 min	Audio recording	Research	Transcript available
Dr. Lydia Oukhaneva –	Conducted in person December 2018, Marsa, Malta	Semi-structured	1 hour 30 min	Audio recording	Research	Transcript available
Emanuela De Giorgio	Conducted in person November 2018, Balzan, Malta	Semi-structured	40 min	Audio recording	Farmer	Transcript available
Gloria Camilleri	Conducted in person November 2018, Mgarr, Malta	Semi-structured	50 min	Audio recording	Farmer	Transcript available
Mario Micallef	Conducted in person December 2018, Marsa, Malta	Semi-structured	1 hour 20 min	Audio recording	Farmer	Transcript available
Joseph Farrugia	Conducted in person December 2018,	Semi-structured	1 hour 20 min	Audio recording	Farmer	Transcript available

	Marsa, Malta					
Marylin Tanti	Conducted in person December 2018, Santa Venera, Malta	Semi-structured	50 min	Audio recording	Policy	Transcript available
Anonymous	Conducted in person December 2018	Semi-structured	50 min	Audio recording	Farmer	Transcript available
Marco Dimech	Conducted in person December 2018, Marsa, Malta	Semi-structured	60 min	Audio recording	Policy	Transcript available

(Source: Mosley 2013)

Interviewee:

Group 1 - Policy

1. Marco Dimech - Assistant Director at Agriculture Directorate, Rural Development Department
2. MGARR farmers' cooperative representative
3. Marylin Tanti - Senior Manager Managing Authority - European Agricultural Fund For Rural Development (EAFRD) Funds and Programmes Division
4. Joseph Farrugia – start-up organic farmer
5. Mario Micallef – organic farmer
6. Gloria Camilleri – organic farmer; founder of the biggest organic shop in Malta – "Vincent Eco-farm"
7. Emanuela De Giorgio – organic farmer; founder of an organic food shop "The Veg box"

Group 2 – Food security

1. Gayle Murphy – Sustainability consultant;
2. Dr. Lydia Oukhaneva – Doctor; Founder of a café and a shop with organic products;
3. Malcolm Borg – deputy director of **Centre for Agriculture, Aquatics and Animal Sciences**
4. Suzanne Piscopo - Head of the Department of Health, Physical Education and Consumer Studies in the Faculty of Education at the University of Malta
5. Suzanne Maas – Friends of the Earth Malta; researcher at the Institute for the Climate Change and Sustainable Development
6. Nastia Finkel – project Coordinator at Friends of the Earth Malta
7. John Gauci – Agriculture consultant, part-time farmer

Rejected: two farmers, Representative of the Malta Young Farmers Association NGO, Representative of the Slow Food Malta – NGO, Representative of the " Dilettanti tal-Agrikoltura, Siġar u Pjanti" – Enthusiasts of Agriculture, Trees and Plants – NGO

Appendix 2

Interview guide №1 (RDP)

Introduction

Can you present yourself and organization? How does you're your professional work related to organic farming and food/agriculture policy in Malta? What is the focus of your work?

RDP

What have changed after the Rural Development Program was established in 2014? Is organic farming incentivized by the RDP? How effective it is?

Is 58 hectares of farmland converted to organic a sufficient target?

Were the courses launched?

Was the Measure targeting organic farming in the RDP 2014-2020 launched? When was it launched?

Do you think that the program stuffing is sufficient in numbers and competencies to perform the program?

Would you say that the program is well communicated?

Do you think that the support for conversion matches the conversion rate?

Do you think that the support for maintenance matches the conversion rate?

Who is responsible for the funds? What are the constraints for farmers to apply for subsidies?

***NAP** still states that it is the role of RDP to incentivize organic farming. Do you agree with that?*

Do you think that NAP puts enough attention to organic farming?

Would you say that there is not enough attention paid to organic farming by the policy makers?

I heard that there was a plan to implement a separate policy for organic farming but then it was cancelled. Do you know why?

Would you say that the investment in organic farming and agriculture in general is low in Malta? Why so?

What is the motivation of the farmers to become organic?

In your opinion, which is more efficient: to convert conventional or to start from scratch but organic? the emphasis should be done on the work with current farmers, or engage new people in general?

Do you agree that the fee for certification of 500/600 euros should be covered by the government?

Were there any start-ups created? Do you think that organic farming as a start-up could be implemented in Malta?

What on the policy level could be done better?

Appendix 3

Interview guide №2 (Food Security)

Introduction

Can you present yourself and organization? How does you're your professional work related to organic farming and food/agriculture policy in Malta? What is the focus of your work?

Organic farming for food security

How would you interpret food security? Is Malta food secure? Do you agree with this definition given by the NAP?

Do you think that organic farming is a right direction for agricultural system to move? Is there a demand for organic farming?

Would organic contribute to the development of agri-tourism? Could that be a sphere to develop?

Availability dimension

Do you think that organic farming would increase the quantity of food production?

Does organic farming shorten the food supply chain in Malta? Is it the same as with non-organic products?

Access dimension

Do you agree that organic products are healthier than non-organic? Would you agree that organic would in general make the system more resilient under the challenges that Malta is facing?

Would you say that organic farming would be more profitable than conventional for farmers? In your opinion, if Malta goes fully organic, would it be affordable for the population?

Would you say that organic farming would ensure food safety more than conventional?

Utilization dimension

Do you think that people would prefer local if they knew it was all organic and therefore "clean"?

Do you think that people who buy organic are more conscious?

Do you think that more organic options available would help to create healthier consumption patterns?

Stability dimension

Can organic farming eliminate the gap between producer and consumer?

Do you agree that organic farming bring the farmers, rather than outputs to the center of policy making?

Does organic farming create more conditions for social justice?

Does organic provide better labor conditions?

Do you think that organic can increase employment in agriculture in the country?

Can organic ensure gender equality?

Do you think it can help in resolving the migrant issue in Malta?

Appendix 4

Analyzed documents

Conference notes (Wellbeing Food Rights, Privilege and Security: Perception vs Reality, October 26, 2018 - Malta)

Rural Development Program for the Maltese islands 2007-2013

Ex-post analysis of the RDP 2007-2013

M11.1. Guidance notes (RDP 2014-2020)

M11.2. Guidance notes (RDP 2014-2020)

Update on implementation 4th Monitoring Committee RDP 2014 – 2020, 16th May 2018

National Agricultural Policy 2018-2028

Malta's National Biodiversity Strategy and Action Plan 2012-2020.

Strategic Plan for Environment and Development. 2015

National Climate Change Adaptation Strategy 2012.

Food and Nutrition Policy and Action Plan for Malta 2015-2020.

Healthy Weight for Life strategy for 2012-2020

National Breastfeeding Policy and Action Plan 2015-2020.

Dietary Guidelines for Maltese Adults 2016

Appendix 5

Coding frame

№	Code	Sub-codes	Example quote
1	Food security	self-sufficiency, risk, access to healthy food, sustainable agricultural practices	*"What if Current situation is disrupted due to the climate change, or due to European Union break down? We are not sure what is the future".*
2	Availability dimension	productivity, local food, import dependence, supply chain	*"We don't have concrete results of whether organic gives more output in comparison with conventional. But I think it is not a matter of the amount of output; it is about how it will affect the natural surroundings and also the quality of the products we have"*
3	Access dimension	price, income, labor, employment,	*"For many people in Malta it is not affordable to buy organic at the current prices; we need to address this issue"*
4	Utilization dimensions	quality, nutrition, health, demand, trust in local, awareness, consciousness	*"There is a huge demand for organic in Malta. We were asking people and the most common answer was: " We want food with less pesticides"*
5	Stability dimension	diversification, climate change adaptation, resilience, pollution, social justice	*"They flood the field with pesticides and fertilizers so what is local in Malta is not safe. Many farmers overexaggerate with using pesticides. The quality of the land has been damaged.*
6	Organic farming	aging population, lack of knowledge, lack of time, land issue, profitability,	*"To work as really proper organic – the land does not produce enough for the farmers to cope with that earing"*
7	Policy	attitude towards government, lack of communication,	*"No support for us but we have to pay. For me it's a joke"*

Non-exclusive license for reproduction of thesis and providing access of thesis to the public

I, Angelina Guzel

(personal code _____),

herewith grant the University of Tartu a free permit (non-exclusive licence) to:

Organic farming for food security in the Northern Mediterranean: Impact assessment of the Rural Development Program for Malta 2014-2020,

supervised by Kristina Muhhina,

1. To reproduce, for the purpose of preservation and making available to the public, including for addition to the DSpace digital archives until expiry of the term of validity of the copyright.
2. To make available to the public via the web environment of the University of Tartu, including via the DSpace digital archives until expiry of the term of validity of the copyright.
3. I am aware that the rights stated in point 1 also remain with the author.
4. I confirm that granting the non-exclusive licence does not infringe the intellectual property rights or rights arising from the Personal Data Protection Act.

Tartu/Tallinn/Narva/Pärnu/Viljandi, 07.01.2019

_____ (*signature*)