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Agri-Environmental Policy of EU: The case of organic farming in Greece

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I hereby declare that the work submitted is mine and that where I have made use of another's work, I have attributed the source(s) according to the Regulations set in the Student's Handbook.

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Abstract

This dissertation was written as part of the MSc in Sustainable Agriculture and Business at the International Hellenic University.

Heading into a new era of constant changes and uncertainty, planet's sustainability must be secured and the environmental issues should be a main concern. Part of these concerns is the agricultural processes and the impact they have on the global health. EU especially in the last thirty years is working towards a more sustainable model of production and organic agriculture has a main role in it. The main tool of the union is CAP and every member state adapt to its suggestions. Hellenic agricultural policy is mainly following CAP's footsteps. In the recent years there is an increase in the attention in organic products mainly coming from the increase in funding.

As it is expected not every issue is resolved and solving problems regarding food production in most of the cases is more complex than it may appear. Their complexity generates from the fact that everything is connected to the food production and any intervention affects multiple sectors.

This dissertation aims to give an aspect of the current EU agri-environmental policy and especially the condition of Hellenic organic agriculture. In this process, concerning issues will be highlighted and possible suggestions for improvement will be made.

I would like to express my special thanks to my supervisor Dr. Stamatis Aggelopoulos. Even though his great workload he made time for suggestions and guidance in this whole process. I have to highlight that he played a major role in the completion of this dissertation.

Keywords: (Organic, Agriculture, EU policy, Environmental, CAP)

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Preface

Being born and raised in a rural area of Greece (Kozani, Western Macedonia) my connection with agriculture started in a very young age and is getting stronger by years. As an agronomist and a farmer I have always been interested in the policy guiding the whole industry. Especially when it comes to environmentally friendly processes like organic agriculture.

After the Covid-19 outbreak everything in life suddenly is being questioned. Part of my concerns is the world's sustainability and I believe that organic agriculture has to play a major role in it. Even though in Greece OA is getting a lot of attention the motives behind it are not what they should be. That's the reason why I decided to work on this study.

This dissertation is addressed to every concerned person about the future of organic agriculture in Greece.

I have to give my thanks to Dr. Aggelopoulos S. for giving me the opportunity to work with this topic which is of great interest to me and gave me guidance during the process. I also want to thank my teachers who during this MSc gave me new perspectives and much appreciated knowledge.

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Introduction

What is organic farming.

Organic farming or organic agriculture according to FAO describes a management system that is ecologically friendly, promotes biodiversity biological cycles and soil biological activity. Its' main purpose is the adaption of a management plan that excludes inputs that originate outside farming. The action plan takes into account the micro-climate and special conditions of the area it is implemented. In other words, organic agriculture is an environmental friendly approach of agriculture, where there is more concern on ecosystem management than the unaccounted implementation of external inputs.

What concerns organic agriculture is the direct and indirect impact of agriculture in the ecosystem and also the effect they have on human life. Relying on these purposes, it attempts to eliminate the usage of synthetic fertilizers and pesticides along with veterinary drugs and genetically modified seeds and breeds. In 1980 in USA it was reported that the economic and social impact of pesticides was about 45.000 annual fatal and non-fatal human poisonings and \$839 million annual losses (Pimental D., *et. al.*). Nowadays, more emphasis is given to public health so there are limits for every chemical input even in conventional farming with international voluntary standards which are implemented and regularly reviewed by IFOAM.

What seem to promote organic agriculture for the time being is:

- Customers who can identify organic products because of the mandatory labeling and consciously prefer them. According to the research done by Sandalidou E. and her team about Greek organic olive oil, the multicriteria satisfaction analysis showed that 78% of the costumers around the globe were satisfied with the product. Quality and price seemed to be the main reasons.
- Adopted policies for farming and environmental sustainability like subsidies and promotion campaigns.
- Farmer groups who try to avoid external inputs.

The history of organic farming.

It would not be a stretch to say that organic farming has its roots on the ancient years, when people started traditional farming without any agrochemical use but only at some reported cases, organic inputs. According to K. Behera and his team it reported in the scripts of Ramayana which is estimated to be about two and a half thousand year old, that all dead things, rotting corpses and garbage always come back to earth as a wholesome that provides life.

However, organic agriculture in its current form is only a century old. The organic movement began in the early 20th century by individuals who opposed the industrialization of agriculture. There are three important movements that are worth mentioning. The biodynamic, the organic and the biological agriculture. As it is to be expected, these movements were approached from the public with wary, due to difficulty of daily life and the lack of knowledge. The International Federation of Organic Agriculture Movements (IFOAM) implemented certain standards on which it described that in order for the production to be called organic, implements of 95%, at least, had to be organic (M. Srutek & J. Urban, 2008).

In Greece there were some amateur cultivators in early 90s however the first commercialized organic farm started in 1982 due to the organic currant demand from Denmark. Since 1986 a German firm supported the conversion in organic olive farms for exporting oil as well as olives. By 1999, the total organic sector of the country accounted for 0.6% of total industry (Van Der Smissen N., 2001). According to Hellenic Ministry of Agriculture the total organic cultivations for 2020 reached 172.440,016ha while the organic meat production was 923,77tn. Some of the approved certifiers in the Greece are ΔΗΩ, ΒΙΟΕΛΛΑΣ, IRIS, TUV HELLAS and EUROCERT.

It is worth mentioning that until today the theoretical cost of organic agriculture, meaning the smaller production and the higher attendance needed by the producer play a major role on the farmer's decision on how he will cultivate his fields. Therefore, the need subsidies and compensation for the extra hours producers put in order to achieve a satisfying production, is clear and critical.

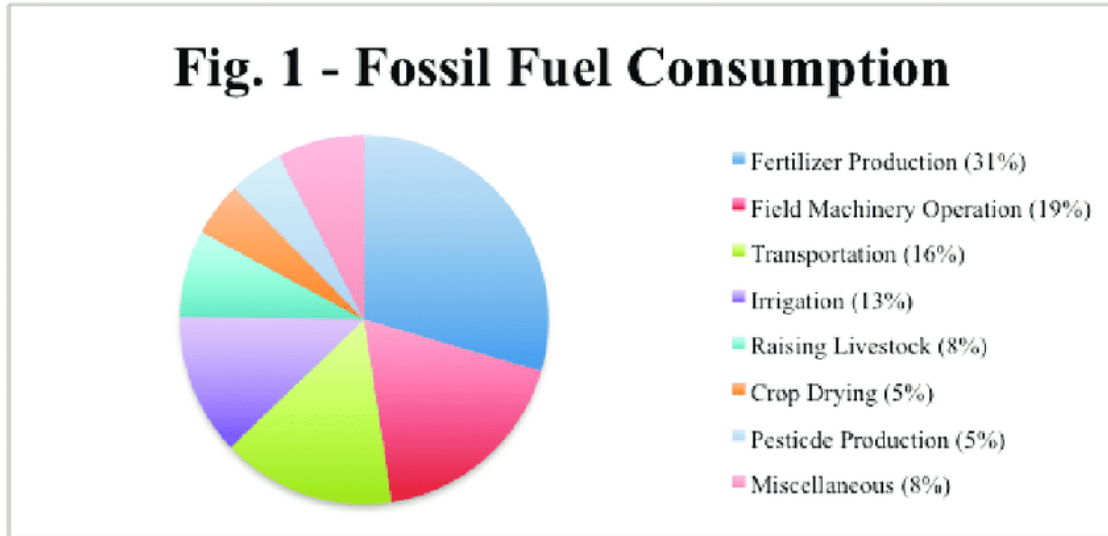
The importance of organic agriculture and environment.

To farther understand the need of agri-environmental policy adoption it is essential to point out the benefits of organic agriculture. Nowadays the environmental change is obvious even for the most unwilling to notice. The impact that mankind has on earth is yet to be revealed however there are things that are undeniable. The climate change is affecting everything on the planet so it is necessary to actively monitor and medicate its impact. According to DJ Wuebbles and his team the contribution of mankind in the global temperate change is estimated to be 93%-123% for the analysis made from 1951 to 2010. Trying to avoid farther damage the Paris agreement in 2015, calls for countries to only try to medicate the global mean temperature to 1.5°C in the year 2100.

Also, the carbon footprint or in other words the emissions of carbon, or even greenhouse gases, trying to be controlled while deforestation keeps increasing. Furthermore there is water pollution, from water wastes and agriculture practices which is a matter of great importance since clean water is limited for the time being.

However the issue that rises is, how organic farming can improve this condition or at least narrow down its threats. According to FAO the benefits from organic agriculture are really essential for the world's sustainability. First of all, organic farming main purpose is to produce enough goods but always in comparison with the ecological impact it may have. In other words it aims for a well balanced practice system with the minimum effect on the environment. Secondly, as a concept it focuses on minimizing the soil practices like heavy tillage and such, so while soil erosion is avoided at the same time soil productivity is protected. The erosion is small so there are not as many needs for fertilizers as they would have. Also, soil fauna is increased which benefits soil conditions. By adopting practices like crop rotation, cover crops and minimum tillage, the need for fertilizers is decreased, the environmental impact from both tractor gases and fertilizers is decreased as well, while on the other hand it also results in healthier-chemical free yield. Thirdly, organic farming prevents water contamination because the use of pesticides and fertilizers is not accepted. As a replacement for those, compost and animal manure is used. It is really remarkable that countries use organic farming as water management method in many European countries. French public action privileges organic farming in areas with water quality problems as a way to

prevent diffuse agricultural pollution (A. Vincent & P. Fluery, 2015). Furthermore, because most agrochemicals require great quantities of fossil fuels it is obvious that practicing a non-chemical production avoids their use along with their wastes.



Εικόνα 1 Agricultural Fossil Fuel Consumption (Pfeiffer, 2003)

In addition to these, organic agriculture promotes biodiversity because chemical interference is prohibited farmers resort to “traditional” varieties of seeds which are adopted to the local environment and more resilient to the pathogens of the area. Also, this clean micro-climate provides a great habitat for wildlife and soil fauna as well. This, assumption is also confirmed by Gerold Rahmann (2011) who proved that organic farming is more beneficial for biodiversity than any other farming practice. To sum it up, organic agriculture consist a stronghold in the constant battle to prevent climate change.

The importance of organic agriculture in Greece.

There is history regarding the excessive use of fertilizers in the country, in which farmers due to the availability of fertilizers and pesticides along with the lack of knowledge they had, they tend to use much higher doses that are recommended, thinking that it will benefit their crops more. As a result, these overused amount of chemicals leach into underground waters and eventually rivers. This is exactly the case that M. Pyrovetsi and P. Gerakis (1987) are highlighting as they present the situation in Prespa National Park. According to them, farmers’ environmental approach in the area varies from indifference for pollution, to even hostilities against wildlife. As a result, the main outcome from agricultural practices in the area is the high concentration of phosphorus and pesticides, which pollutes the lake. Also, in Kavala’s area Arsenic, Cd, Cu, Mn, Pb and Zn show high concentration in most of top soil samples (Papastergios A., *et al*). These elements are clearly connected to fertilizer use of the area, at least at some degree.

These are many of the reasons why, it essential to provide enough motives for the farmers so they adapt more eco-friendly practices, like the obvious choice of organic farming. A way to that direction is the implementation of common agri-environmental policy.

European Agri-Environmental Policy.

The farming policy originates in the effort to boost production while World War II was in action and later led to the Treaty of Rome (1957) which is basically the substructure of the European Union's foundation. In the years, prior to the war there was a tendency of abandonment of agriculture and rural areas along with it, due to the fact that there were not sufficient returns. CAP along with modernization of agriculture supported rural employment status and increased production which was a major issue. The policy in this form was introduced to countries members of EU through the Regulation 2078/92 which was part of the reformation of 1992's Common Agricultural Policy. Among other things its purpose was to verify that the changes would take place in compliance with the market organization rules and not be capitalized by individuals, aid the Community's Policy regarding farming and ecology and ensures producer's income. There are of course indicators where this Policy should and could be applied. These signs main goal is to quantify and evaluate the impact of agriculture in the areas measured. In order to do that, countries based on 1992's Rio conference developed a framework of agri-environmental indicators (AEIs) (Paris, 1997). All farmers even if they are benefited from EU agricultural funding or not must follow the statutory management requirements which are describing public, animal and plant health standards.

What is the Common Agricultural Policy.

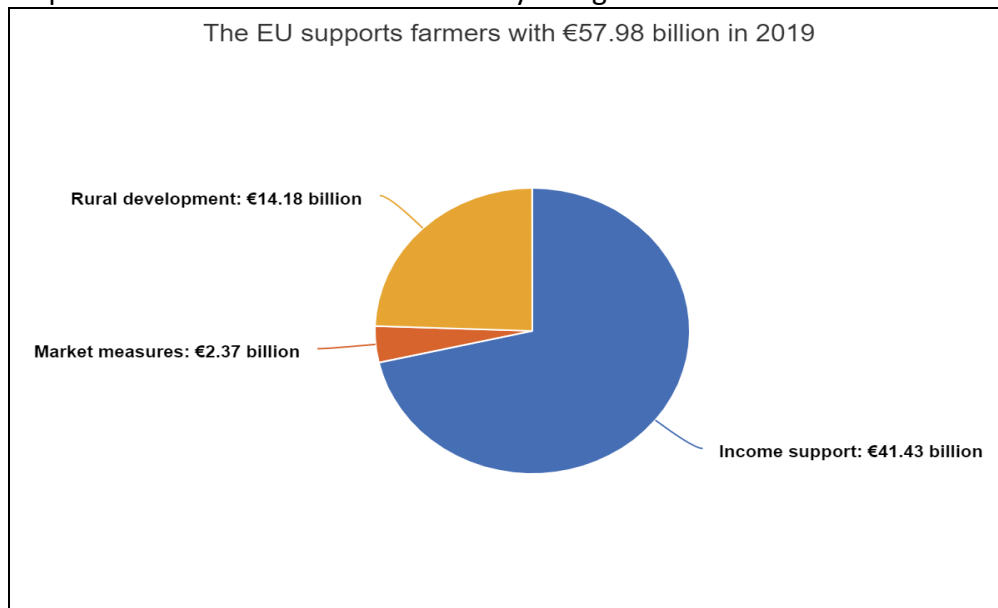
According to European Commission the European Common Agricultural Policy is an agreement between European country members to define the prospects of agriculture for the next years, and define a beneficial pathway for each member. Its main goals are to:

- ensure that farmers are financially capable of producing enough and affordable food
- protect farmers' living standards
- provide a guideline to mediate environmental change and the sustainability of resources
- ensure that rural areas across Europe are not abandoned
- promote rural economy by providing new jobs in agricultural industry

Two pillars of CAP

Common agricultural policy is organized under two pillars which gives a guideline of what the goals are and where the funding should be targeting. The first pillar includes market management and direct funding to farmers which by order conclude to 5% and 72% of total policy's budget. After 2005 the payments are calculated by the total land size of the farmer which was introduced as a measure to avoid overproduction. The second pillar is about the environmentally friendly actions, the rural support and sustainability. The total funding committed for pillar II accounts for 23% of the budget. What is interesting is the fact that these programs according to Scown at his team (2020) require governmental funding of the members states accounting for 50% of the total expense. The total EU funding towards union's policy is estimated about \$54 billion annually. Explaining it a bit further CAP is a guideline for every member of EU and it is fully funded from the resources of EU's budget. There are two funds that are

financing this project. The European agricultural guarantee fund (EAGF) that is basically provides money directly to farmers or provides enough for market measures to take place and the European agricultural fund for rural development (EAFRD) which is responsible for rural areas sustainability and growth.



Εικόνα 2 European Commission Website (2021)

As far as capital allocation among country members of EU, the funding takes different parameters into consideration. As it is to be expected countries with the larger acreage receive more money than others. France is the EU country with the greater cultivation area. The policy also computes the number of farming population in every country, with Hellas and Ireland being the countries with the highest number of beneficiaries per capita. Another part of the equation is that older members of EU are entitled to larger funding in contrast with newcomer countries who due to transitional arrangements qualify for smaller financing. This is a matter of conflict between new country members and old ones regarding the fairness of the situation.

The need of CAP in Greece.

Being one of the weaker economies across Europe it is only expected that are many limitations on the help the country can provide to farmers so they can be competitive with international markets. It is far from obvious that CAP contributes to global sustainability however in a country like Greece with many different micro-climatic zones it provides a great aid, towards their management. In addition to that, by funding alternative kinds of cultivation it gives the opportunity for Greek farmers to abandon conventional farming for other methods which are friendlier to the environment. A great emphasis is given to organic agriculture, with subsidies and also with promotion of the benefits it possesses. While Hellenic farming population is aging with 68.4% of them being 40-64 and even 6.8% being over 65 year old, according to Labour force survey (LFS) (2016), Hellenic government in collaboration with Europe is trying to attract more young people to associate with agriculture.

| | Total | | | Agriculture | | |
|----------------|-------|-------|-------------|-------------|-------|-------------|
| | 15-39 | 40-64 | 65 and over | 15-39 | 40-64 | 65 and over |
| EU-28 | 42.4 | 55.2 | 2.4 | 31.8 | 59.2 | 9.0 |
| Belgium | 44.1 | 54.9 | 1.0 | 26.9 | 64.6 | 8.5 |
| Bulgaria | 40.2 | 57.8 | 2.1 | 35.3 | 60.7 | 7.0 |
| Czech Republic | 41.8 | 55.8 | 2.4 | 32.7 | 63.8 | 3.5 |
| Denmark | 44.0 | 52.8 | 3.2 | 44.7 | 43.2 | 12.2 |
| Germany | 40.2 | 57.2 | 2.7 | 29.5 | 62.1 | 8.4 |
| Estonia | 42.4 | 52.6 | 5.0 | 29.9 | 64.4 | 8.7 |
| Ireland | 46.3 | 50.4 | 3.3 | 22.2 | 56.1 | 21.7 |
| Greece | 40.3 | 57.9 | 1.7 | 24.8 | 68.4 | 6.8 |
| Spain | 40.6 | 58.5 | 0.9 | 36.9 | 61.3 | 1.8 |
| France | 42.6 | 56.1 | 1.3 | 30.3 | 66.0 | 3.7 |
| Croatia | 46.2 | 52.3 | 1.5 | 23.5 | 62.3 | 14.2 |
| Italy | 35.0 | 62.7 | 2.3 | 32.5 | 60.6 | 6.9 |
| Cyprus | 49.0 | 48.4 | 2.5 | 32.2 | 52.1 | 15.7 |
| Latvia | 42.7 | 53.8 | 3.5 | 26.5 | 67.9 | 5.6 |

Εικόνα 3 Distribution of working population by age groups (LFS,2016)

Towards that area it continues to create more beneficial programs for newcomers in agriculture with total funding reaching out to 40.000€ for CAP 2021-2027, from the current limit of 21.000€. Furthermore, Hellenic farming population consist mostly of small farmers who as a default cannot survive against international markets, predicting their elimination CAP is trying to secure a decent income for every individual.

Historic data of CAP.

As it is already mentioned CAP has its root in the Treaty of Rome (1957), however its official introduction took place in 1962. From the early stages of this policy implementation it was clear that farmers of the country members benefited from it as in a time when yields and livestock rose about 5-8%, prices took off with reports of 131% rise in poultry, 175% in beef, 185% in wheat and 438% in white sugar, just to mention a few. While this was happening UK, Denmark and Ireland decided to join the agreement in 1973 so their farmer would enjoy the same outcome. In the present years it is safe to say that all farmers receive more budgeting from their countries than they would have without CAP (Howarth R.,2000). In order to protect the price of the production CAP managed to increase the Nominal Tarrif Equivalent (NTE) to 56% in 1966 from 16% which it was in 1956. Even though there were concerning issues in the agreement, for about thirty years there were no major changes in the policy. There could be some mentions during that period like the 1969 measures for cows, where due to the oversupply of cow milk Europe encouraged the change of dairy farms to beef by premium funding or even urged them to leave farming for good. Also, milk quotas in 1984 which started as a temporary measure but it is still active.

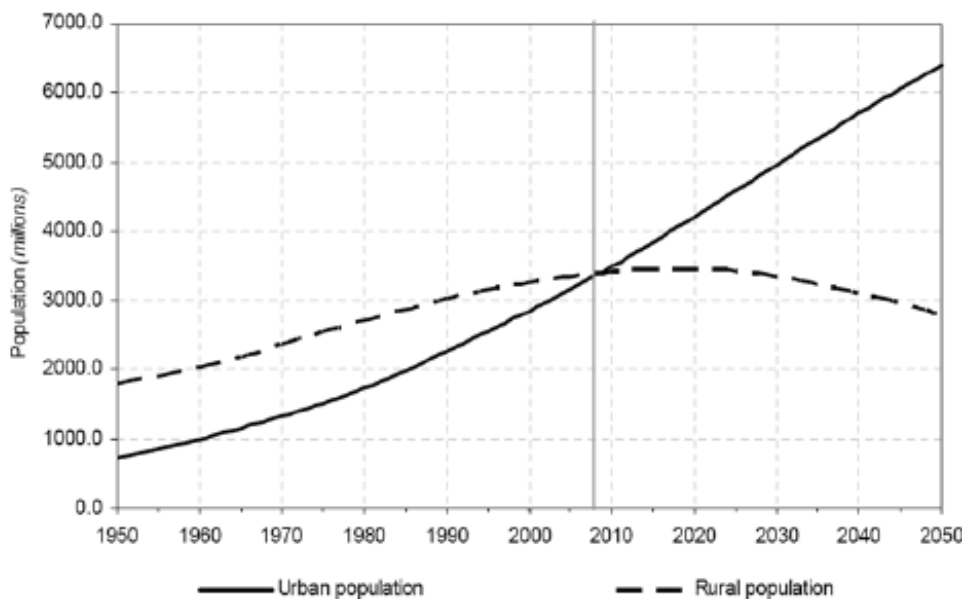
Besides a handful of changes CAP only reformed in 1992 and since. The “MacSharry reforms” (1992) as it is called set the grounds for the ‘Uruguay round” which resulted to the GATT Agreement in 1993 and it basically achieved the price reduction of most products like cereal and corn, by compensating farmers on the acreage they were cultivating.

Agenda 2000 (1999) had great impact on the reformation of CAP the original proposition was the price reduction of most agricultural product through compensations for the farmers and a more environmentally friendly approach of the policy. The plan was the reduction of farmer budgeting and the allocation of capital in eco-friendly projects. After the criticism it received from Germany and France the final

agreement stipulated the price decrease in cereal oil seeds and butter by 15%, beef prices by 20% and overall changes that would slow down the budgeting for CAP (Garzon I., 2006).

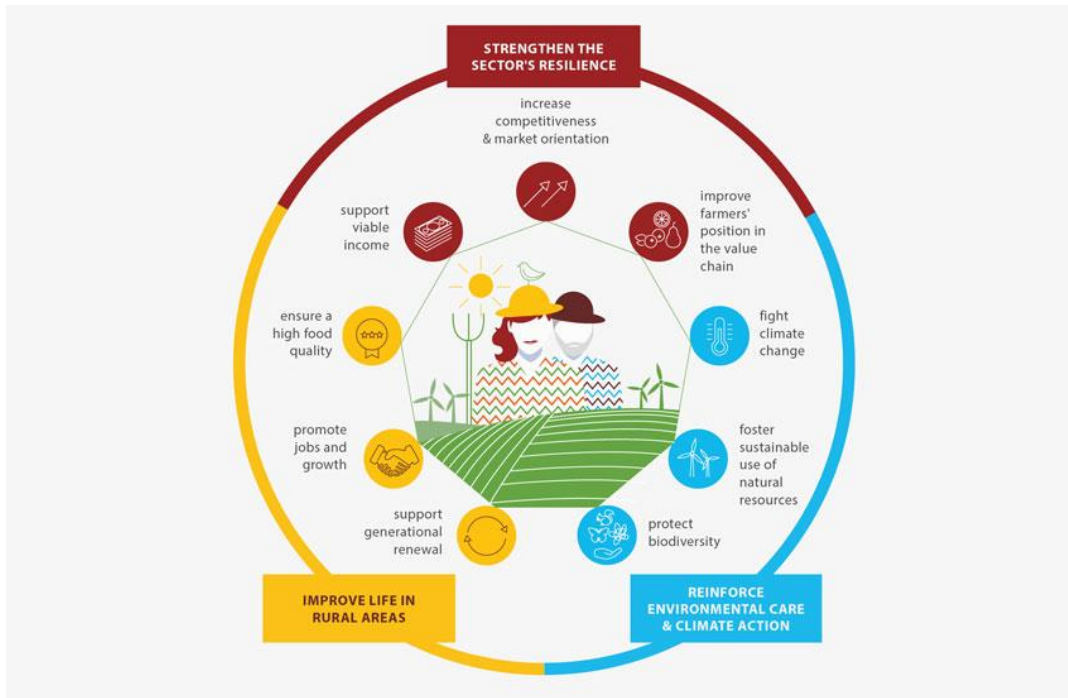
In 2003 the whole approach of the agreement changed. From the emphasis on the production in the agricultural sector, it was decided that production and subsidies were no longer connected, and so the funding was provided by taking into account farmland, animal welfare and environmental impacts. Even though, it was a welcomed measurement at that time, there is still criticism on the impact it had on the whole industry.

The next reformation took place in 2013 with an implementation period of 2014-2020, a time were the impact of economic crisis of 2007 and urbanization, already left their mark in rural areas where people already started abandoning them. So, it was decided the increase of farming sustainability, the enhancement of competitiveness and the insurance of employment in rural areas.



Εικόνα 4 Urbanization, a Global change issue (Wegmann M., *et al.*,2009)

Today (2021) most aspects of the new reformation have been settled however due to Covid 19 pandemic, its application will start after 2023, with two years as transition period. A great emphasis seems to be given on the aging farming population and also the flexibility of the policy. The goal is the achievement of more government freedom with less bureaucracy and more performance centered approach. In addition to this, CAP urges country members to comply with the Green Deal Communication (COM,2019) with clear strategic planning for agricultural sustainability and also neutralization of EU greenhouse gas emissions by 2050.



Εικόνα 5 The common agricultural policy 2021-2027: a new history for European agriculture (P. De Castro, *et al.*, 2020)

CAP in Greece.

After becoming an EU member in 1981, Greece rapidly embraced the agricultural agreement of the members. The chronologic aspect of the EU entrance is of great importance, because as one of the first countries (tenth), today it has the benefit of accepting higher contributions through the European budgeting than other countries, who entered the agreement later. Hellenic economy in 90s was trying to recover after almost a century of wars and the last twenty years of German occupation (1941-1945), civil war (1946-1949) and dictatorship (1967-1974). Before CAP in order to secure its agricultural production Hellenic government had implemented a guaranteed minimum price for agricultural products, with the ability of country's interference. Also, it provided direct support to farmers and promoted exportation with favorable terms while implementing import restrictions. After the embracement of CAP, government's ability to manage the agricultural sector was limited and it followed the terms of the agreement. On the other hand, national backing in agriculture was 16.3% of the agricultural income; in 1998 it reached the level of 48.6% with most it, about 42.5% coming from EAGGF (Baltas N., 2011). To this day, the effect of CAP in Hellenic economy is debatable.

EU policy on organic farming.

Organic agriculture in EU is a sector which has seen great improvement in the last forty years. The first country to implement a policy on it was Denmark in 1987 and after them almost all countries of the union. The reason why it was promoted by the union is because of its multiple benefits like the agricultural sustainability reassurance, the

avoidance of environmental degradation and also the healthier products for the consumers. Among these, EU saw a great economic opportunity in the uniqueness and superiority that these products have. There were a couple of direct interventions concerning organic products. In 1993 the EC Regulation 2092/91 which introduced the framework of organic production standards, labeling and certification put in action. Due to the influence EU had in world economy this regulation had major impact in organic agriculture around the globe. This alongside the EC Regulation 2078/92 which accommodated the direct funding of farmers who wanted to convert to organic producers and predicted their continuance, were the major legislation for OA promotion. It is worth pointing out that in 1985 the total area in the union which was covered by organic cultivations, totaled in 100.000ha which was accounted for 0.1% of total utilizable agricultural area (UAA). After about fifteen years these numbers skyrocketed, reaching out 4.000.000ha and about 3% of total UAA. This increase made organic farming a noticeable sector in the economical aspects of agriculture. It would not be an exaggeration to assume that this massive adoption of it didn't have its roots in the CAP. Since early twenties organic agriculture was supported by conversion policies and until 2000 it has seen an increase of 80% in the total acreage. In the recent years, according to EUROSTAT organic area covered about 8.5% of total EU farming land.

How EU Supports organic producers

Producers of the country states receive direct payments through CAP for according to the "greening" initiative. Green direct payment, is a reward system for farmers who adapt eco-friendly practices. Also, through EAFRD there are payments which promotes conversion to biological agriculture as long as its continuance. For the years 2014-2020 EAFRD funding was 6.4% of the total budget for EU RDPs and about €6.3billion.

In addition to this, organic aquaculture is promoted and enhanced by European Maritime and Fisheries Fund (EMFF) as a conversion to sustainable aquaculture.

Providing money to the farmers is not the only way EU supports organic agriculture. Research programs are funded and educational establishment are ensured.

Nowadays, all EU members follow the IFOAM standards and everything that is imported needs to also comply with them. Every product that is a result of this process, it is mandatory to carry a label which prescribes different information about the product and inform the customer that he is before an organic product. European office of Harmonization in the internal market is responsible for logo and labeling control of the organic products. In Council Regulation (EC) 834/2007 the labeling policy, has implemented stricter and more detailed rules and also proceeded to production and import regulations. Whenever organic, eco or bio, are used, it is mandatory that the product comes along with the label. Having the label means that the product is produced according to EU regulations and it is ensured by EU control system. Moving forward the negotiations about the framework of organic agriculture started in 2012 and resulted in 2017 agreement. Part of embracing organic agriculture and eco friendly practices in their totality, green deal payments require farmers to cultivate at least three different crops and none of it to account for more than 75% of the total area. It was a measure formed to secure soil sustainability from the damage monocultures inflict to it.

There are some measures taken in order to avoid funding inequality and secure its fairness. For example, by handing out subsidies on the acreage it was predicted that large farmers would be formed and the excess amount of money they would get would only made them even stronger, leaving smaller ones to a total different level. The measure taken for this case was called “capping” and it was a management system its state could apply so they could form an upper limit for the totals receives of an individual farmer. Also, the redistribution of payments by each state is available with the purpose of supporting smaller farms.

How control system works.

The first OA standards were introduced in 1980 in an international level with many Eu countries adapting them, individually. EU in 1991 established its own regulations and build on them since then. Especially after 2007 regulation on OA many countries around the globe adapted its rules. Because it is not applicable to specify the quality requirements on the actual products, it is unable to categorize products bio or non bio by and scientific procedure. As a result, the control takes place in the production process and not the actual products (Eve Fueilleux & Allisson Loconto, 2017). There are independed control bodies authorized by EU and paid by the farmers, to certify them as organic producers. This means, that they proceed in physical inspections and sampling in order to identify any substances that are not approved by the regulation. The producers should be inspected annually, one time or more if needed. Since 2017, a new certification system is used in order to control the imports, which is expected to increase food safety and reduce frauds.

CAP and organic agriculture in Greece.

The number of farmer who adopted biological practices in Greece were strongly increased in 1990s. That is due to the fact that in that period EC 2092/01 and EC2078/92 were introduced, which were both focused on it. Until 2007 organic practices were promoted by CAP and they met great acknowledgement. According to the Global Organic Farming Statistics (GOFS) the acreage of organics in the country increased from 591 hectares in 1993 to 317.824 hectares in 2009. At that time organic agriculture became Axis three of the Agricultural Ministry and stayed like this until today. After the implementation of Agenda 2000 and Fischler reform in 2003 there was more funding towards the production of better products in terms of quality and increased subsidies towards organic farming. According to Eurostat for 2019 organic farming in Greece exceeded 10% of total farmland and it is now in the eighth place of organic producers inside EU.

Organic approach is all about minimizing the inputs. On that basis, as Greece has an excessive amount of microclimates it is logical to assume that the perfect condition for an organic cultivation can be identified. However, in the current state anyone can be approved by the government in the organic farming programs if he was the right amount of credits. In the last program, Action 11.1.1 in 2018 the criteria were:

1. The age of the farmer. The younger the farmer was the more credits he got. There were categories in which, if the age was 18-31, starting by 100 the credits were reduced by one, every two years. For 32-41, starting by 93

reducing by one for every year. The third category was 42-55 where starting by 83 credits were reducing by six for every year. Above 56 there were no credits.

2. The referred area. If it was in a mountainous area the max credits which the farmer could receive was 40. Also different credits got the areas who were cultivated for animal feed and farmlands.
3. Credits up to 100 were given in areas with environmental issues.

Action 11.2.1 was all about the continuance of the biological practices by already organic farmers.

Problems and challenges of EU policy on organic farming.

In a study of Tuomas Kuhmonen (2018) referring to representatives of agricultural production concluded that among 303 different suggested problems which could be summarized in five categories:

1. Social and environmental
2. Spatial
3. Politics
4. Finance
5. Production

Their connection is obvious and inseparable that's why he called them wicked problems. This means that their complexity exceeds tame problems, their solutions are not universally approved and they affect many different sectors. This study is trying to address them individually, name them and point out proposed solutions.

A major issue concerning organic agriculture is the undying question; can organic agriculture feed the world? There are numerous researches on that topic with controversial results. A recent study of David J. Connor (2018) suggests that in its current form, with the technological means humanity has, organic agriculture can only feed about half of world's population. With population estimations showing that population will keep rising organic agriculture doesn't seem a viable choice. However, the environmental damage conventional farming creates is leading to a world than no human can survive. What the purpose of the European policy right now is, is to promote biological practices and secure the well being of every citizen in the union. In order to achieve that there are obviously some issues that need to be taken care of.

To start with, organic farming in its nature is a far more demanding practice than conventional farming, as far as knowledge is concerned. Most farmers in the country don't have the "know how" of biological cultivation, and they only get knowledge through personal experience. Furthermore, there are some basics that anyone who desires to work with organic foods should know. For example, farmers don't have a complete idea on what to grow, what market misses and what consumers demand. This results to farmers randomly cultivating anything and lose their competitive advantage because they end up growing what market doesn't really need. Also, these products are much more fragile than what conventional farming would give so it is a necessity to select the best distribution channel available. The supply chain on organic farming should be on time with as less as possible travel period and perfect conditions. Apart from some seminars mostly promoted by individuals there is no proper

knowledge and training given to the farmers. Even inside EU funded programs with mandatory training like new farmer programs, the classes take place in the end of the program period, which means after three or four years of actively practicing. On this matter subsidies promote the cultivation of specific crops and “force” the farmers to abandon crops with less or no subsidies. Except the obvious outcome which is that some crops are no longer cultivated this policy leads to a handful of crops cultivated all across the country, increasing the antagonism and producing larger amounts than needed. So after this excess amount is produced, the government has to interfere and take measures, meaning production quota and price regulation so a fair income is secured for the farmers. Also, this policy benefits specific international corporations which are involved with these crops. In Greece, a crop which was not only narrowed down in organic agriculture, but however lead to abandonment, was tobacco. The country, forced to follow the EU agricultural policy and adapt to it created an unfriendly environment for tobacco farmers. The first step was tobacco regulations of 1992 but what gave the finishing blow to tobacco and many other cultivations was the separation of subsidies from the production. According to European Commission (2018), EU produces only about 2% of the world’s total production of tobacco.

Overall, the complexity of the policy seems to work like restriction for farmers and paying organizations as well as it is an issue that was criticized intensely in the last CAP (2015) with Phil Hogan, the Commissioner for agriculture and Rural environment until 2019, to commit to its simplification with not a great success. It is essential to point out a major restriction on turning to organic agriculture and this is no other than the turning period of conventional farming to organic. An example of that is the turning period of olive tree cultivations. For three years the farmers have to implement organic treatment to their fields without the olive being able to consider as organic. A waiting period is expected in order for all imports of the previous years to be eliminated however, the bureaucracy makes it even longer. Three years period with zero support on the expenses and not being able to benefit from the added value of his “organic” products the farmer’s choice on turning to biological agriculture becomes unbearable.

Furthermore, the environmental benefits of organic agriculture have not yet received the proper acknowledgement. UN is committed to seventeen Sustainable Development Goals (SDGs) with EU agricultural policies not promoting the necessary tools in order to achieve them. As far as organic agriculture is concerned especially the issues of water usage and pollution along with soil degradation should be the reasons why there must be more people implementing this environmentally friendly treatment. The excess amount of fertilizers and other chemicals used across the years caused great problems in wildlife as in humanity itself. EU should motivate more people towards organic production and there are ways it can do

it.



Εικόνα 6 SDGs IED, 2019

In Greece according to Pohl (2009) the subsidies given to organic farmers per hectare are among the highest supports across EU. Along with that, there are no limitations or guidance regarding what crop to cultivate, where to grow it and what geographical region is best for it and what special characteristics should the crop have. As it is to be expected Greek farmers are massively adopting organic farming in every chance they get but not for the correct reasons. Morality and environmental concerns come second in the race for profit. As mentioned from Aggelopoulos and his team (2009) farmers' goal is the high subsidies and nothing else concerning the practice. So what happen in many cases is, farmers who enter the organic promotion programs but never really cultivate them. They just sow the seed and never set foot in the field again not even for harvesting. In addition to this, there are others who even when they receive organic subsidies they keep using fertilizers and agrichemicals on the basis that they would never be caught from certifiers.

As mentioned every organic product has to be guaranteed by a certifier, who is recognized by EU and fully responsible for the authorization of organic products, and it has to be carrying the certification label along with it. However, the issue here is the process of certification and on forward. Residues have to be checked in a short period o time however due to the distance of remote areas this is rarely happening. So it ends up analyzing residues after whatever implementation has already washed out. Inspections are mandatory, at least one per year depending on the certifier, however only a small part of the producers are randomly inspected. This is a major issue as the label is of high importance for the consumers as it has more value for them than the price of the product (Krystalis *et. Al.*, 2006).

However even when farmers do everything according to the standards, pass inspections and have great organic products, they end up selling them as conventional.

One of the reasons this is happening as Tsakiridou and her team (2008) mentioned, is because organic industry in the country is a niche market. This means that for a farmer alone it is really difficult to enter the market. This is due to the high number of small scale farmers as ELSTAT mentioned in 2011. In many cases as cereal, subsidies make up for the loss of the selling as conventional so its much more easier to provide the products to an already familiar market. Entrepreneurship and market understandings are what farmers miss. There are many tries for building groups or teams of farmers with the same goals and higher marketing power. However, they haven't achieved high success.

In many cases the fields which are chosen for organic farming are not the proper ones. For example the selection is being made with different criteria than it should be. Farmers in disadvantaged areas turn to organic farming just because they cannot be competitive in conventional farming due to the geographical restrictions. However this means that the same restrictions apply for organic farming too. So the decision is being made by trying to minimize the costs of using fertilizers or agri-chemicals make little or none production, receive subsidies of organic farming and maybe end up with some profit. The same goes for fields which are in remote areas and the proper treatment is apparently higher especially current years where oil prices reach all time high levels. Also, examples as barley, receive subsidies without taking into account the cultivation method. So in other words, farmers could obtain both subsidies, for the cultivation and and for the organic treatment without even the need of presenting evidence that it was organic barley and what they did with it. This policy leads to high number of wrongdoings and has minimum effect on the actual goal, which is to promote organic farming and its competitiveness. Following that, in crops like most cereals, olives and anything that needs a secondary process, there is no interest in labeling the products. Now labeling is only critical for crops that don't need any processing like veggies and grapes because it works as a marketing attraction. In addition to this even though it is well known that organic agriculture needs different kind of weed and disease management little attention is given in selecting the proper seeds. All across Europe there are numerous trials for finding the most suitable seeds for every condition and Louis Bolk Institute in Netherlands took a step further. It basically uses ideotypes which are list of traits that are desired by farmers themselves. However, according to Greek Ministry of Rural development and Food, most farmers in the country are using their own seed. This means that most of them don't realize the problems they will have to face and don't really know what are the traits, pros and cons of their seed. This is a matter that should get more attention by the government in order to achieve better results.

Referring to results, it is essential to point out that cultivating organic products in Europe doesn't mean that farmers have to antagonize their products only inside the union's market. Massive levels of imports are taking place, with the European Commission reporting that in 2019 over 3.23 million tones brought in EU regarding organic agri-food products (due to Covid 19 outbreak 2020 levels are not representative). Of course a part of these numbers are tropical fruits or products that are unable to cultivate due to the geographical characteristics of the continent. On the other hand this also means that there are goods that can be produced inside EU, however the cost efficiency of them is not in a position to compete in the global

market. EU support at its current status cannot provide enough help to the farmers so they can get a place in the market and be competitive with other countries around the world where the cultivation process is cheaper. Labor cost inside the union cannot even be compared with the payroll countries like India or China have. In many cases large companies benefit from cultivating or buying organic products from these countries and trade them across EU. As a result organic cultivators in the union find themselves against one more obstacle they need to overcome in order for them to be competitive. The current energy and fuel crisis is expected to increase this gap, while the costs are increasing and EU seems unable to react properly.

EU policy at its current state can't control the changing rates of the markets. Problems like Covid-19 and energy costs need a faster reaction in order to be controlled. However, reformation of the policy takes years to properly develop and it gives the impression that the union is unable to react. The recent example of CAP's reformation gives a clue of the inelasticity it had to overcome. The original plan was to implement a strategic plan for the years 2021 to 2027, however due to Covid-19 outbreak and Brexit ,the plan was postponed even though that most issues was resolved. Losing one of the core members reveals uncertainty regarding the future success of this group policy. So now the new CAP is expected to be implemented in 2023 with a lot of skepticism along with how much the pandemic was taken into account and the whole project seem like it will wait for the storm to pass. That is the most recent example of how small farmers are left alone to face the challenges of the current era which are resulting in either constantly invest and try to develop and adapt or leave agriculture industry altogether. Following this, there are formed large scales farmers with many farmers suspect this was the original plan, because fewer but larger farms are far less difficult to manage. However it can be argued that there are both advantages and disadvantages for the industry itself. On one hand, larger scale farmers have the ability and the economic power to enter the organic market but on the other hand the total number of farmers is decreasing. As mentioned the Hellenic agriculture occupies mostly older individuals with about 70% of the farming population being over 40 years old. This means that when they drop out of the industry for any of the mentioned reasons, the total agriculture labor while be driven in dangerously low numbers.

The decrease in the number of farmers is inevitable for more reasons than this. The technological growth will create the need for farmers with high expertise but on a far less number of workers. Control and support rural areas is one of the core values of EU policy but so far the whole attempt doesn't provide the desirable results, and the expectation are that more and more people will relocate to urban cities in the years to come. There is no denial that attempts to stop urbanization have been made, however rural areas are left without personnel.

Research status on organic agriculture seems to go well inside the union, however mostly funded by state governmental authorities and in most cases large companies. Member states like France and Germany are funding their own researches however even them are trying to access corporate funding. It is good for science to advance under any circumstances however the money allocation generate the question of why the research is taking place and who is benefited from it. What it is implied here is that corporate funding research in most of the cases it is part of an investment plan which at some point will have to make returns on money spent. None desires a capital loss so the actual science comes second in this comparison. So for example specific crop types

are promoted, with GM seeds being acceptable in organic farming and only certain businesses benefit from them. The union's funding on organic research comes from a small percentage of capital headed towards different projects. So limited capital of programs like the Water management project 2006-2010 or Horizon 2020, are not enough for a major breakthrough. It is inevitable that a part of EU or even the global agriculture has to be consisted of organic production, this is why this approach raises many concerns about the actual future of agriculture.

Future of EU organic policy and suggestions.

For starters it is vital to guarantee the sustainability of the current numbers of OP across Europe and attempt to increase them. For that to happen EU has to assist its farmer's competitiveness so both parties are benefited. That is a multifactorial problem which needs to be routed. Reducing the expenses of the production procedure can be achieved by supporting the energy cost of it. Especially during the pandemic period, gas price reached all-time highs leaving farmers helpless. What can be done, is what Greek government tried to do in pre economic crisis years. That is the partially allowance on gas used for agricultural procedures. Another way to achieve that is by co-financing the energy costs. Also, there is a promotion funding for European agricultural products which accounts for 182.9 million in 2021. This funding is addressed to all sectors of agriculture including organic products. The obvious lack of simplicity and the bureaucracies which describe the union and are already mentioned is leaving vital resources untouched or at least not used at their whole. What should be done here is the foundation of a new department totally addressed to OA fully in dependable to assist and promote the organic products. World seems to be adapting environmentally friendly processes, with electric cars and renewable energy resources being widely promoted however OA is not getting any additional attention than it used to. That is a great opportunity to bring the benefits of this process to the surface increase the global clientele and the number of producers as well. Embracing this ecologically friendly process is essential for the world's sustainability.

Furthermore CAP's turning on SDGs is essential for human society survival and OA has a major role in it. Organic farming contributes to every aspect of SDGs and it inevitable a sector which will play a great part on their achievement. For that there is a need for more farmers to adopt biological practices. This will happen by promoting OP to more consumers so there is more space in the market for the farmers or additional funding programs towards the adaptation of OA. Today, Pillar I doesn't require serious environmental actions in order to receive payments so Pillar II supports these practices. However as mentioned the capital is not sufficient to support financially healthy, sustainable and competitive organic cultivators.

It appears that the solution to every problem is, more money however it's not the case here. Additional funding spending with the same principles won't benefit the European market. Today's payments on acreage should be changed back to the amount of production. That way farmers would work more efficiently towards producing more and better products following the regulations and be rewarded for it. In order to avoid unfair allocation of capital disadvantaged areas should receive additional funding because as it expected they can't possible produce the same amount of goods others areas can. Also, its member state could create cultivation zones and promote different crops according to the characteristics of every area. Especially for Greece which is a

country which was numerous diversified zones it is expected to produce many advantages for the country.

First of all, it will support organic cultivations that are not publicly adapted or they are not currently receiving the attention they should have. This is a chance for dealing with the biodiversity concerns. Some crops widely cultivated, is one of the reasons why, the area of organic cultivations in Greece is disproportionate with the total production. Meaning that, not all farmers care for the production. The diversification also will prevent overproduction which was one of the first problems CAP had to deal with. In addition to that, in the attempt of sustain and support rural areas, this policy will give the opportunity to not only keep rural population intact but also increase it by the need of workforce and the necessary capital to cover it.

According to Pe'er and his team (2019), nowadays, EU names 40% of direct payments and support for disadvantaged areas as "climate friendly". However it is not able to link them with gas emissions or climate adaptation. The goal of reducing greenhouse emissions has to be supported by actual evidence that these practices have actually influenced them. By using some of these so-called ecologically friendly payments towards OA it would have certain outcome for both environment and the strength of organic farming as a sector. For example that kind of money could be used for sufficient support towards farmers but in a whole different approach. By binding farmers to use at least a small percentage of their land for organic practices this capital could be used as a compensation for their smaller production.

Certification procedure has its flaws as well. An average individual who used to be a conventional farmer and now wants to turn to biological doesn't have the power, the money and the patience to wait for a three year period without any help from the union. What should be happening is the partially payments of the proposed capital he would receive after that period. This would give a helping hand to the cultivator for this period and one less obstacle to overcome by turning to OA.

As it was referred earlier OA is a far more demanding practice than conventional farming. That is the reason why every producer should have the necessary knowledge and experience to be able to correspond to its' needs. This goal can only be achieved by organized schools and seminars which will give the farmer a wider view on this practice and EU regulation he will have to work accordingly. On more step towards education would be the teaching of basic computer handling. The average aged farmer doesn't possess the ability to use free certified information that he could access into the internet.

Generational renewal of the farming population and more specifically organic cultivators' population, is a major challenge to guarantee the existence of agriculture. Nowadays, less and less young people decide to occupy with agriculture due to the load of work it has as a sector, the lack of sufficient rewards and socio-cultural impact it will have to their lives. New entrant schemes and programs supporting rural areas are not enough for a young person to decide to become a farmer. The economic crisis created a stream of young Greeks towards agriculture, however starting with anything more to support yourself than the partially payments of new farmers' programs create a stressful and uncertain environment for the young farmer. This is why it is easier for an individual who comes from family of farmers to work in agriculture and any new entrant to adopt conventional practices because it is easier as a method of production and also it guarantees is some degree the production and the market availability.

What could be done in this situation is the introduction of a special condition program for new farmers, fully guided towards eco-friendly practices and especially focused on OA. The goal of this would be the support of these entrants in a financial and educational level in order to assist them in the first critical years of their cultivations. Furthermore, the current status of new entrants' scheme predicts the active farmer policy. This basically leaves the new farmers without any support for almost two years after the installation. This kind of obstacles should be removed in order to accomplice the rise of young individuals turning to agriculture. As Kontogeorgos and his team mentioned (2014), young farmers tend to care more about the development and evolution of their business than just securing the necessary income, needed to survive. Young people come with fresh ideas and young entrepreneurship should receive more attention. Pandemic is a setback however symposiums regarding organic farming needs to be organized by each member state, so these cultivators could discuss their ideas and trade knowledge with other farmers. Also fund raising and other investors could be identified during these events so no additional union's capital needs to be generated.

The European agricultural policy permits its member state to interfere with their agricultural production. The historic evolution of Hellenic agriculture left a treasure of local but unpopular internationally products. Most of them are formed by primary ingredients at their purest form. This means that they are or they come from organic products. Being part of such a strong union and having the freedom to support its local and traditional organic products needs to be taken advantage of. Support on the production of those goods is a good step but what is really necessary is the global advertisement so this legacy doesn't fade away along with the last era of producers.

In the constant battle against bureaucracy countries and farmers should work together. However, as Pohou showed in her research (2019) about the satisfaction of the services provided by OPEKEPE that's not the case. The Hellenic payment and control agency for guidance and guarantee community aid as its title shows should work alongside and for the benefit of the farmers however the study showed that there is a gap between the services that producers expected from it and satisfaction of the services they received. Altogether, the research showed that the level of services was above average but however this leaves space for improvement. Better staffed organizations are necessary for the restoration of trust between farmers and governments. More and well trained staff should restore and promote the level of synergy in all levels of production.

To promote this matter a little bit further, towards the new CAP of 2021-2027 there is great pressure of the union towards the member states regarding the achievement of the common goals set by EU. This means that each country is responsible and will be checked for the proper implementation of the policy (Doukas, 2019). As a results to that more and regular inspections by government employees is expected so from on hand the farmers need to be aware of the regulations they have to implement and the inspectors need to be well trained to identify possible irregularities. Farmers' payments are connected to that and fines against the member states are expected if the goals aren't met properly.

Furthermore, the excessive import level inside the union has to be regulated. Organic farmers cannot compete the production costs of countries outside the union. Increased tariffs on imports would somewhat increase the fair comparison of EU and

not EU organic products. However, the best for the union itself would be to satisfy all its needs by European farmers and only if the amounts needed are not met allow importation from third parties.

Science evolution in agricultural processes seem to be turning to integrated management and being able to produce the necessary amount of goods without any additional external interference looks like a long target. Reducing, chemicals inputs maybe is okay for now however the environmental pollution keeps rising. In global spectacle research organizations like IFOAM exists and is supported by UN. EU should have its own research body and take steps to achieve sustainable organic agriculture by promoting and funding the research needed to accomplish it. As mentioned many member states are funding their own researches but that's not the case for counties like Greece which they can't afford it. The power of the union shines in these situation and it has to enable funding for the common wellness. Part of that research is the genetically modified seeds. GM seeds are now allowed in the organic production and as logical it is to gather concerns about survival of indigenous varieties they could create opportunities for zero input agriculture. For that to happen, firstly, every possible threat has to be eliminated and secondly, proper research should be taking place in order to evolve the proper seeds. Also, cultivations with high biomass production within the frame of organic production can help secure the amount of animal food needed so there will be less input cultivations and more space for eco-friendly production.

Last but not list, all these issues are connected to the flexibility and the reaction speed of the union and that is why simplification of CAP is a one way street. The world standards are constantly changing and reformations taking place every six or seven years don't cover the exposure to threats in the market nor solving the problems which need to be faced. The recent history, with Brexit and the pandemic outbreak, shows that EU agricultural policy has to have the tools and the freedom to react every situation as fast as possible.

Conclusions

Heading towards after Covid-19 era, everything is reassessing and it is now clear that the future characterized of uncertainty. The current signs indicate that the planet conditions are changing rapidly affecting everything on it. Global temperature, water and air pollution keep rising and creating new condition to adapt to. Realizing that nothing is for granted, it is time that the environmental approach gets into the spotlight.

Organic Agriculture is an environmentally friendly process at its purest forms. It minimizes the inputs of agro-chemicals such as fertilizers and pesticides leaving the management to other eco-friendly handling. The multiple benefits of biological agriculture directly affect water, soil and air pollution and indirectly the human health and environmental sustainability. Day by day more and more people start looking for organic products and this vibe should be enhanced. OA seems to be a choice of many benefits and as more people approach it the greater the effect will be.

In order for OA to take its rightfully place in the agricultural industry, governments should assist it in all levels. The European union is a community of countries with the highest level of environmental actions on the planet. Billions of dollars are spent in an effort to aid world's sustainability at all sectors. As far as agriculture is concerned CAP is the main tool of the union's support in the industry and it significant that one of the two pillars that concludes it, is about the eco-friendly processes. Part of that pillar (pillar II) is organic agriculture and everything it concerns it.

Greece being member of the union has its saying about the agri-environmental policy and follows its guidance and regulations. Organic agriculture in Greece starting to get the necessary attention it needed, mainly due to respectful funding it receives.

Union's effort is recognizable and respected however there are problems that need to be taken care of. The issue is that when talking about food production and organic approach, the problems are multifunctional and every interference is affecting many different aspects of the food chain.

What this dissertation tried to do is highlight these issues and try to offer some alternative solutions.

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