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# ORGANIC CROP PRODUCTION AND ENVIRONMENT IN NORTH MACEDONIA

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## **ABSTRACT**

Organic plant agriculture production is a complex system of farm regulations, preparation, production and management of food production, which covered high level of relations of environment and agriculture. This production enables protection of environment by using best available environmentally friendly substances and process in all phases of production, certification, storage, transport, trading and consumption. Organic crop production is more sustainable alternative than conventional production. In the same time food production is faced with the numerous of challenges, how to provide food for population growth. It is estimated that by 2050, demand for food will be increase by 60 to 90 %, adequately to growing population. Can organic production to be profitable? This is also a big challenge, and the question is how to make a balance between the cost and environmental benefits and carbon and other ecological footprints. Organic plant farming has developed rapidly in the last two decades, through increase of land areas, organic operators, organic production and sale. This production significantly prevents damages from pesticides, artificial fertilizers and other harmful chemicals and contributes to the protection and the improvement of environment. There is a lot benefits from organic plant production for human health and environment.

The first significantly steps in organic production in North Macedonia started in 1997 by production of organic teas. But significantly organic crop production started after 2004 when was adopted the first Law on organic production. In 2005 was adopted first program for support organic production that enabled 50 certified organic farmers to receive financial support for costs of control, certification and laboratory analyses. Since then has started slowly, but gradually increasing of organic production. Today from total cultivated agriculture land which is about 560.000 hectares, organic production is organized on 1, 5% of this land. From the total state agriculture financial support from various programs that is about 170.000 Euros, support for organic production is about 2%. Only 1, 5% of total agriculture crop production, (mostly cereals) is organic. In the future in N. Macedonia there is a need of improvement of of all aspects of system of agriculture to increase organic production significantly. The main aims of this paper are to analyze the relation between agriculture crop organic productions and environment in North Macedonia and to give some recommendations. Also within research for this paper, it is made a SWOT analyze.

Key words: organic, agriculture, environment, farmers, regulation.

The demand for food has been increasing permanently and nowadays the situation in the field of agriculture and food is very dramatic. More than 1 billion world population faces with shortage of food and starvation.

The situation with food and shortage of food is gets even more worse with the current situation in Ukraine. That country is one of biggest producers and exporters of wheat and other species of cereals.

The lack of all types of food, and in the framework of this, of crucial crops, such as wheat and cereals, vegetables fruit etc. additionally is deteriorating by rising the prices of food very often on a weekly bases.

How to provided the food for rising world population , especially in the non developed and poor, countries ?

How to improve productivity of food production?

How to mitigate negative effects of climate change ( now obviously is not possible to completely eliminate)?

How to stop reduces of surfaces( area) for agriculture production and in the frame work of this areas or crop production?

Is it possible taking account mentioned above to develop and promote organic crop production?

These questions are serious obstacles for development of organic crop production.

These, today are very actual and there is a need of complex and permanent activities on the global, regional, state and local level by all stakeholders, international organizations, regional organization and regional authorities, state and local authorities, science farmers, different type of association all business sector etc.

Besides all obstacles the answer is **YES** the organic production and development of crop agriculture has to be continued. The numerous of growing environmental threats, where agriculture takes serious part, and using chemical preparations, pesticides, fertilizers etc.

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Can organic production be profitable? This is also a big challenge, and the question is how to make a balance between the cost and environmental benefits and carbon and other ecological footprints and taking into account that environmental taxes obviously will be rise, taking into account advantages of expected of increasing the organic crop products and rising of public awareness of the importance of quality of food and This is also a big challenge, and the question is how to make a balance between the cost and environmental benefits and carbon and other ecological footprints. agriculture products for the human health and the environment.

Organic plant agriculture production is a complex system of farm regulations, preparation, production and management of food production, which covered high level of relations of environment and agriculture. This production enables protection of environment by using best available environmentally friendly substances and process in all phases of production, certification, storage, transport, trading and consumption. Organic crop production is more sustainable alternative than conventional production. In the same time food production is faced with the numerous of challenges, how to provide food for population growth. It is estimated that by 2050, demand for food will be increase by 60 to 90 %, adequately to growing population.

Organic plant farming has developed rapidly in the last two decades, through increase of land areas, organic operators, organic production and sale. This production significantly prevents damages from pesticides, artificial fertilizers and other harmful chemicals and contributes to the protection and the improvement of environment. There is a lot benefits from organic plant production for human health and environment.

Unsustainable agricultural is one of the biggest driver of environmental degradation, biodiversity loss and contribute to global warming and climate change, contamination of soil, water, air and all other environmental media. There is a lot benefits from organic plant production for human health and environment, protect and mitigate threats from climate change and global warming, protect air, soil water, human health, reduces soil erosion, free from pesticides and chemicals, free from GMO, tastes better, seasonable and fresher, more nutrient dense, much more sustainable, support animal welfare, benefits from ethical side etc.

Organic crop production combines best environmentally friendly methods, tools and practices and it is an overall complex system of farming management that combines a high level of protection of environment, natural resources, high level of human standards, production by using natural substances and processes and methods. It provides integrated environmentally friendly management.

## ORGANIC CROP PRODUCTION AND ENVIRONMENT IN THE EUROPEAN UNION

EUROPEAN UNION faces with the rapidly expansion of production of organic agriculture production using the best available techniques .

The EU is strongly dedicated to the development of organic crop production and has been permanently development a legal framework which is a base for further actions. We will mention some of these:

- Regulation on information to provide on the labeling of organic products,
- Regulation on the use of in -conversion and non organic plant reproductive materials,
- Regulation on certain detailed production rules for organic products, regulation on organic production rules for sprouted seeds,
- Regulation on the production and marketing of plant reproductive material,
- Regulation on the requirements for groups of operators for organic products, regulation for testing the organic production,
- Regulation for specific organic rules,
- Regulation of checking documentary for organic products,
- and many other legal regulation acts.

The importance of production of food and within it of agriculture production in North Macedonia is very high, considering that 12% of total national GDP, belong to the agriculture and food production. The total national GDP is about 10.5 billion Euros.

In N. Macedonia, crop agriculture participated with 76% of total agriculture production. From total agriculture crop production. vegetables is 42%, fruit 18%,cereals 15%, fodder plants 12% , industrial plants 8% and the rest of about 5% belongs to the other agriculture products.

The first National plan of organic agriculture production was adopted in 2013, covering the period 2013-2020. This plan was prepared with technical and financial support of FAO (Food Agriculture Organization).

The early beginning of organic production start in 1997, when one large pharmacy production factory produced organic tea.

In 1998 4 farmers made first steps in organic production.

In 2005, the first certified 50 farmers received subsidies from the central government for expenses for controlling process, certification and laboratory analyse.

201Table 1: Total Certificated Arable Agriculture Land for Organic Production in Hectares	
Year	Surface
2010	5.220
2011	6.580
2012	5.100
2013	6.300
2014	7.800
2015	9.500
2016	10.800
2017	12.000
2018	14.110
2019	19.000
2020	22.550

The number of farmers that produce agriculture crop organic products since 2005 has been growing slowly but permanently.

The table 2 shows a number of farmers that produce organic products in some years.

2005	50
2006	102
2007	150
2008	226
2011	780
2012	795
2015	1.100
2018	1.210
2019	1.400
2020	1.650

Table 1 shows that the surface of agriculture land intended for organic production has been growing since 2010 , when was started significantly organic crop production. The total surface of agriculture arable land is about 360.000 hectares. From this only 22.550 hectares belongs to the land where organic production is organized.

This has been slowly but permanently. growing. But in the future there is a need for stronger integrated activities for increasing the organic crop production.

This is more clear considering the facts that from total agriculture land only 6.25% belongs to the organic production.

The citation is even worse because only 3% of total agriculture products participate in a total agriculture production.

Half of organic crop production belongs to the cereals.

In 2004 was adopted the first Law on organic agriculture production.

The new Law on organic agriculture production. Was adopted in 2009, and it was amended in 2009,2011 and 2016.

It regulates, organic production in all phases of production, preparing, and distribution.

These phases covers also storing, processing, finish the processing( reprocessing) , transport, sales, import, export, labeling, certification, controlling, certifications and other phases.

According to the Law audit of all phase is competence of State agriculture inspectorate, Agency for food and veterinary and Agency for rural development.

### Strong sides

- Number of high agriculture high schools and 3 agriculture faculties.
- Institutes for organic production,
- expert capacities ,
- EU integration process,
- State subsidies,
- IPARD EU support.

### Weak sides

- insufficient presents of education about organic production,
- insufficient figures about the quality of soil,
- lack of education and training of farmers,
- Low level of public awareness,
- Low level of economic situation,
- Global crises of food.
- lack of consumers trust to the certification process

### Opportunities

- Increasing subsidies for organic production,
- increasing of use of EU funds,
- strengthening of promotion,
- Rising of public awareness
- increasing of number of authorized companies for certification,

### Threats

- Low level of farmer's interest,
- Lack of products,
- low interest of young people for agriculture,
- Lack of education,
- lack of authorized certifications operators( only two),
- Lack of experience and tradition

Instead of conclusion

In the future there is a need of much more stronger efforts in N. Macedonia to improve and increase organic crop production. There is a need of stronger state support and increasing subsidies. Also there is a need of activities to rise public awareness both , farmers and consumers.

Strengthen of involvement of science and involvement the new methods of education of organic prduction.