

Structural changes of the agriculture in Korça region, aiming the sustainable development

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Abstract

Korça region is characterised by advantageous essential factors such as large areas of the fertile soil, a fresh climate, high possibilities for watering, excellent tradition of the distinguished farmers, intellectual resources etc.

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- *Agriculture – The economic sector that contributes over 24% of the GDP;*
- *50% of the employees work in this sector;*
- *52% of the population lives in rural areas.*

The aim of this paper is to analyze the current situation of the agriculture sector in Korça region. What are some of the structural changes of the agriculture after the privatization and the transformations of the social system. The structural changes for the agriculture in Korça region have occurred based on the analysis of the economic indicators.

The farmers, in fact, are the protagonist of a transition, i.e the transformation from a conventional agriculture and productive to a sustainable and eco-compatible agriculture. The necessary elements for the development of a sustainable agriculture are not only biological or technical, but also social, economic and political and they explain the adequate needs for establishing a sustainable society.

Keywords: *agriculture, economic indicators, eco-compatible agriculture, Korça region, structural changes.*

1. Introduction

Korça district is at the southern and eastern part of Albania. This district includes 6 municipalities Korça, Maliq, Pogradec, Bilisht, Kolonja, Pustec. There are 42067 farms in total, in average covering 1.22 ha each of them. The region has a continental climate with an average of rain falls 730 mm, that occurs mainly during the period April – October. The structure of the agriculture species, according to the INSTAT data for 2020 is as follows:

1-Cereals 20.471 ha, classified as follows:

Barley	11.744 ha
Corn	4.920 ha
Rye	644 ha
Triticale	2.349 ha
Buckwheat	814 ha
2-Vegetables	3.148 ha
3-Potatos	1.968 ha
4-Beans	2.382 ha
5-Tabaco	2 ha
6-Beet	837 ha
7-Medical Plants	207 ha
8-Plants for herbivores	16.890

Cultivated area with agriculture plants is about 50299 ha

Structure	Area /ha	%
Cereals	20471	40,7%
Vegetables	3148	6,3%
Potatoes	1968	3,9%
Beans	2382	4,7%
Tabaco	2	0,004%
Beets	837	1,7%
Plants for herbivores	16890	33,6%
Medical Plants	207	0,4%
Fruit trees	3275	6,5%
Grape plantations	1119	2,2%
Total	50299	100

What are some of the structural changes of the agriculture after the privatization and the transformations of the social system?

- A considerable decrease of the cultivated areas from 90,000 ha in '90 to 50,299 ha in 2020. This phenomenon is related with the abandonment of the hills and mountain areas ("new areas") with a low productivity.
- A considerable decrease of the barley plantations for bread production, caused by the international markets more competitive for this specie.
- A considerable increase of the herbivore plants, that are destined for the animals, same as cereals. Both of them cover 50% of the plantations.
- The structure of incomes is about 50% from the livestock.
- A significant decrease is observed for the plantations of sugar beet, almost zero, as now the plants are destined for herbivore animals, barley, because same as beet, are all used for the livestock. These changes are closely correlated with the closure of the processing industries such as that of sugar beet, cigarettes or the import of the barely.
- A significant increase is observed for the vegetables, trees and grape plantations.

The ability to follow the market trends and demands was the main reason that motivated the farmers of this district to start with the fruit trees, that caused not only the increase of the areas, but also their intensification and modernization.

- A society cannot be developed and integrated to the EU Community without a rural and modern development.

- Every investment that aims the agricultural development is an investment for the lower prices for consumers.

2. Methods and results

The structural changes for the agriculture in Korça region have occurred based on the analysis of the economic indicators. In a centralised economy, as that of '90 in the last century, the essential indicator of evaluation was the **productivity per unit**.

- The basic indicator taken into consideration under the globalisation circumstances, is the net income per unit.
- Other indicators taken into consideration are the competitiveness, the distance from the markets, employed force, infrastructure etc.
- This may lead to higher incomes for small farmers and a better livelihood for their families. Furthermore, better value chain organization can improve the farm performance (Imami et al, 2013)

Smallholders have limited access to market conditioned also on gaps standards and volumes, the limited access to services and finances as well as the high quality inputs (Imami, 2018).

An analysis of the economic indicators for various agriculture species

No.	Species	Gross income (ALL)	Total of expenses (ALL)	Net Income (ALL)	In % to the basic specie
1	Wheat	80000	40800	39200	100
2	Corn	99000	53630	45370	115.7
3	Potatoes	562500	220500	342000	872
4	Bean	240000	74800	161600	412
5	Big Bean	625000	108500	516500	1317
6	Lucerne Plant	142500	46200	96300	246
7	Apple	1120000	234000	886000	2260
8	Plums	250000	47000	203000	518
9	Grape	412500	76000	336500	858
10	Onion	816000	161600	655000	1671

Current production systems have evolved largely adjusted to the new situation with very small and fragmented farms that have to deal with other major constraints such as poor physical infrastructure, lack of state support and a non-

competitive market situation. Farming system and market integration in southern Albania. Between territorial resource management issues and informal value chain challenges, (Bombaj et al, 2016).

3. Discussions

The traditional agriculture is already under renovation. The farmers, in fact, are the protagonist of a transition, i.e the transformation from a **conventional agriculture** and productive to a **sustainable and eco-compatible agriculture** (in accordance with the environment). In several decades the agriculture main goal was to increase the production level. This challenge of course is overcoming already thanks to the so-called “green revolution”. Based on the development in the genetic, chemical, bio-chemical and mechanic research is achieved an increase in food productivity, but at the same there is a strong impact on all the elements that compose the ecosystem. In this perspective, the agriculture plants are only one of the parts of the production process chain, that does not take into consideration a rational usage of the natural resources and the protection of the environment. Today is not possible to be reasoned based on such parameters. The agriculture eco-compatible is important for the present and the future. Of course, there is a list of problems that should be resolved including the protection to a large extend the model of the sustainable farm, which is based on a new concept of production.

The agricultural and rural development policy is of multi-dimensional importance for Albania. It needs to prepare a viable farming sector that is able to withstand competitive pressures in the single market after joining the EU and that can promote rural development and converge with EU standards related to food security and natural resources management (Zhlhlima, 2018).

The large increase in the modern agriculture, in many cases, is accompanied by the degradation of the environment (soil erosion, pollution caused by the pesticides, salting); social problems (the elimination of the family farms, centralisation of the land, resources and harvests, the increase of the agrobusiness that controls the production of the farm, changes in the migration and reports of population urban/ rural and by the excessive usage of the natural resources. Lastly, the agriculture is under the increasing pressure of the limitations that come from the increase of the petroleum. Smallholders have limited access to market conditioned also on gaps standards and volumes, the limited access to services and finances as well as the high-quality inputs (Imami, 2018).

The research on the sustainable agriculture should combine the elements of the agricultural knowledge, the traditional ones as well as the moderns. The combination of the production factors and the conventional versions with an

ecological technology, shall bring a sustainable agricultural production sufficient for the human needs. In the industrialised countries that would require important correction on the agriculture structure. In developing countries that would require structural changes, especially in correcting the unequal share of the resources.

In order to have a sustainable agricultural production, the strategy should be based on several factors including the species and cultivars, rotations, the distance of plants, the nourishing elements and the watering of land, temperatures, harmful insects, harvests and other agronomic practices and should also take into consideration the need for saving the energy and the resources, protecting the qualities of the environment and the public health as well as a fair social and economic development.

Nevertheless, these proposed changes can be in contradiction with the modern model of the agriculture development. It can be affirmed that the increase of mechanisation decreases the production costs or that it is necessary in certain sectors, where the work force is not available and that the change of the production creates problems for mechanization.

Another concern is that the sustainable technologies are not able to respond to the predicted increase of population of about two billion people. Each of these critics might be valid if we refer to the internal aspects of the social and economic scheme.

But they become less valid if we acknowledge that the sustainable agri systems bring deep changes. They create a sustainable production and protect the qualities of the environment and public health. It should be underlined that the current and future big problems, regarding the bad nutrition and poorness, are mostly effect of the models of food distribution than agriculture limitations or the technologies used for food production.

The large production after 1980, by introduction the advanced technologies, included to a significant extent the implementation of the bio-technology. The cells and tissues of the plants can be used to produce resistant versions against the dryness and diseases. The transplantation of the embryonies makes possible to have improved species in zootechny. So, the technologies of the genetic enginery and of the “in vitro” plants can provide rapidly satisfactory materials for the main parts of the world, including poor soils.

Due to the increase of the technologies, it its necessary to be adopted rules on the protection of public and related environmental and health problems that are a consequence of the presence organisms genetically modified. There is an eventual concern that these organisms might bring a “environmental erraticism” because of the biological regulation and this genetically manipulated organisms or other organisms that are part of the environment. Sometimes the bureaucracies of developing countries are slow or insufficient to guarantee safe measures and

this can be exploited by the big companies for selling their products, which can be prohibited in developed countries. However, the supporters of the biotechnology confirm that the plants they produce are resistant to the harmful organisms and also are able to be grown up in poor soils that lack the nourishing elements (therefore these plants have a low need for pesticides).

The necessary elements for the development of a sustainable agriculture are not only biological or technical, but also social, economic and political and they explain the adequate needs for establishing a sustainable society. It cannot be imagined to encourage the ecological changes to the agriculture sector without having the necessary changes to the other sectors of the society. The final requirement for an ecological agriculture is the human with the evolved conscience, who has a cooperative behaviour with the nature and who does not exploit it (nature).

The elements of sustainability

The fundamental principles of an eco-compatible agri-system are the following: saving the renewable resources, adaption of the plants in accordance with the environment and keeping a high and sustainable production.

Ecosystems of Korça district areas highly used by collecting missions organized in different periods, suggests less relative stable ecosystems and ecological niches should be still available for conservation in the future, (Gixhari et al 2015).

In order to have a long term and ecological sustainability, instead of a short-term production, the agricultural system should:

- use less of the energy and the resources
- use production methods that optimize the level of circulation and recycling of nutritional elements, that increase to a maximum the capacity to use the territory and to guarantee an efficient level of energy.
- encourage the local agricultural production, suitable with the natural and socio-economic environment;
- lessen the costs and the increase the efficiency and the economic power of small and medium farms, creating therefore a various agricultural system, potentially flexible.

More specifically the sustainability can be achieved through four agricultural sub-systems (Raeburn, 1984):

- Biological: plants, animals and the biological effects of the chemical and physical factors (clime, soil) and the administration activity (watering, processing) on the productivity of the plants and livestock.

- Work: the physical tasks of the farmer and the way of the combination of the work force, experience, machineries and energy.
- The economy of the farm: the costs of production and the prices of the plants, the produced and used quantities, the risk factors and all other variables that affect the profit of the farm.
- The social economy: the markets for the farm production, the rights on the usage of the farm, work, machineries, fuel, the production factors, the loans, taxes, research, technical assistance etc.

According to the American Association of Agronomy (ASA 1989) the sustainable eco-compatible agriculture is considered to:

- improve the quality of the environment and the natural resources it is depended on;
- provides food for human needs;
- is economically valuable;
- improves the quality of life for farmers and the entire society;
- In order to have introduce and implement the concept of the sustainable agriculture, first of all, it is necessary that the agricultural farm to be considered as an agri-eco-system.

4. References

- Bombaj, F., Barjolle, D., Touzard, J., Osmani M. (2016). Farming system and market integration in southern Albania. Between territorial resource management issues and informal value chain challenges. 149th EAAE Seminar 'Structural change in agrifood chains: new relations between farm sector, food industry and retail sector', Oct 2016, Rennes, France. fahal-02268360f
- Imami, D., Zhllima, E., Viaggi, D., & Bokelmann, W. (2013). Between weak markets and weak regulations: determinants of contracting in orchard farming in Albania. *Journal on Chain and Network Science*, 13(1), 37-46.
- Imami, D. (2018). Agriculture development trend in Albania. Agriculture development and smallholders in Albania. Albania's challenges of implementation of Agri-Environmental Policies in the framework of EU Accession, 22-31
- Gixhari B, Sevo R, Telha N, Çarka F. (2015). Geographic distribution of plant genetic resources diversity in Korça region. Second international conference of agriculture food and environment Vol.II. (358)
- INSTAT (statistics) (2020). Statistics databases. <http://www.instat.gov.al>
- Zhllima, E. (2018). Albanian agricultural policy development and compliance with EU Common Agriculture Policy. Albanian agricultural policy development and compliance with EU Common Agriculture Policy, 8-20.