AGRARIAN DEVELOPMENT, ORGANIC FARMING AND PROBLEMS IN ENVIRONMENTAL PROTECTION¹

Zoran Simonović,² Milan Mihajlović³

Abstract

The authors discuss the development of the agricultural, ecological agriculture and environmental problems. They point out that the development of agricultural environmental programs are an integral part of the EU accession process, which is defined within the IPT and as such is mandatory for all EU member states. In the times that followed contemporary agriculture in Serbia must comply fully with all regulations on the protection of the environment, as well as to harmonize all programs and bringing them into compliance with the National Environmental Protection Programmed. When viewed from the ecological point of view, the performance of agricultural production can have positive and negative impact on the maintenance and protection of land as environmental factors. In this paper, the authors describe the application of environment-friendly farming and give the main features of supply of organic agricultural products in Serbia. At the end, the authors point out that in Serbia there are no specifically defined policies for the conservation of ecosystems, to prevent the destruction of natural habitats and species loss prevention and reduction of the value of natural landscapes, which are related to agricultural production.

Keywords: *agricultural development, organic agriculture, organic agriculture.*

¹ Paper is part of the research project III 46006 Sustainable agriculture and rural development in order to achieve the strategic objectives of the Republic of Serbia within the Danube region, financed by the Ministry of Education and Science of the Republic of Serbia. ² Zoran Simonovic, M.A., research associate, Institute of Agricultural Economics, Volgina street 15, 11060 Belgrade, phone: +381 11 2972 858, E-mail: zoki@medianis.net

³ Milan Mihajlović, M.A., Modern Business School Belgrade, Narodnih heroja 30 Street, 11070 Belgrade, e-mail: <u>milan.mihajlović@mbs.edu.rs</u>

Introduction

Agricultural Development in Serbia in recent years has undergone a profound and comprehensive crisis at all levels. The causes of the crisis are many and one of them is inadequate and agricultural policy. Our agricultural policy throughout the past decade has gone through many dilemmas, challenges and temptations of wandering. This situation is very much influenced by the state of our ecological agriculture and the problems related to environmental protection.

Under modern conditions agricultural output was mostly at the expense of the environment. Traditional agriculture (natural farms and the farmers how to use plants and animals), but he left a legacy of a time disturbed nature and the environment (erosion, barren land, etc.). Modern agriculture, which on technical - technological developments could cause even more serious damages. It must not be allowed to climb the development of agricultural production and threaten the environment and lead to ecological problems with unforeseeable consequences.

In the race to produce more food, modern farming and food processing industries produce low quality products that can be sold at lower prices. In this way the food industry through their work contributes to the destruction of the environment and regression. Production so healthy food just means the application of environmentally sound technologies. The main task of modern agriculture and the food industry is not only to produce more food at lower prices but to their work contribute to the protection and enhancement of the environment. Production so healthy food just means the application of environmentally sound technologies. Under current conditions, agricultural policy should takes into account the development of ecological agriculture.

Agricultural resources and protection of the natural environment

In times to come, modern agriculture must comply fully with all regulations on the protection of the environment, as well as to harmonize all programs and bringing them into compliance with the National Environmental Protection Programmed.⁴ Some of the main problems of

⁴ http://www.ekoplan.gov.rs/src/upload-centar/dokumenti/razno/npzzs.pdf, 99-100.

the negative impacts of agricultural production on the environment include:

- soil pollution due to uncontrolled use of pesticides and fertilizers, and the use of contaminated water for irrigation;
- problems of chemical and bacteriological water pollution;
- processes of erosion (in the central and mountainous regions dominated water erosion, while in Vojvodina dominant wind erosion⁵);
- air quality (uncontrolled burning of waste dumps and agricultural areas);
- Low level of environmental awareness of farmers about the need to protect the environment and the use of so-called "good agricultural practices"
- Sustainable agriculture and environment-friendly.⁶

Commonly, the agro-environmental payments applied in the so-called National Agro-Environmental Programmed (NAEP). Clearly defined and logical hierarchy of goals, to be achieved through the implementation of a wide range of specific sub-measures in this manner, organize and promote farmers as national, regional and local programs.

Serbia still does NAEP, but some agro-environmental measures implemented in the framework of measures to encourage the development of agriculture and the Ministry of Agriculture, Forestry and Water Management in the period from 2005 to 2007. and was included in the recently prepared a draft National Rural Development Programmed (NPRR) for the period 2010-2013. year.⁷

However, so far in the field of agro-ecological paying very little has been done. Some forms of agro-environmental payments are available from the national budget to support organic farming,⁸ the preservation of

⁵ Wind erosion occurs wind activity, respectively, because of their ability to shape the surface of the Earth.

⁶ Стратегија пољопривреде и руралног развоја за период од 2010 до 2020, 30.

⁷ Група аутора, (2011): "Развој националног агроеколошког програма за Србију", ICUN Gland, Швајцарска и Београд Србија у сарадњи са Avalon-ом, I IEEP-ом, Naturom Balkanikom, Београд, 12.

⁸ Уредба о коришћењу подстицајних средстава за подршку развоју органске производње за 2010. годину, Службени гласник Републике Србије бр. 33/10.

indigenous breeds of domestic animals,⁹ the process of introducing good agricultural practices. These measures can be used as a stimulus for further development of existing support schemes in EU programs (support to biodiversity, landscape diversity and other agro-ecological activities).

Agricultural development and ecological agriculture

When viewed from the ecological point of view, the performance of agricultural production can have positive and negative impact on the maintenance and protection of land as environmental factors. The positive impact would be reflected in the provision of necessary nutrients the soil, maintaining and improving the structure of the soil, preventing erosion is suitable for growing crops and the application of appropriate treatments. Negative consequences that may arise due to the intensification of agricultural production would lead to the fact that agriculture is increasingly manifested as one of the important factors of destruction and pollution of the environment.¹⁰

Agricultural production in the past fifty years, significantly modernized. That was caused by the following factors: rural people move to cities, increased mechanization, improved transportation, improve seed quality, protection of species, breeding new species of domestic animals, international trade and competition in the manufacture of food products. As a result of this progress, there is over-exploitation and degradation of natural resources, primarily agricultural land, water and air. The continued use of pesticides and herbicides has led to increased resistance of parasites. This automatically led to the need for more frequent use of them. Frequent use, on the other hand, caused additional problems due to the increasing cost and the additional pollution of soil and water.¹¹

We can conclude that agriculture in its efficiency can be very vulnerable stronger deterioration of the environment and rural communities. Such as air pollution, poor production of organic matter in the process of

⁹ Уредба за очување и одрживо коришћење генетичких ресурса домаћих животиња за 2010. годину, Службени гласник Републике Србије бр. 15/10.

¹⁰ Средојевић З. (2002): "Економски проблеми еколошке пољопривреде", Пољопривредни факултет, Београд, 78.

¹¹ Симоновић 3. (2006): "О агроеколошким проблемима агробизниса", Економика пољопривреде, Београд, 453-454.

photosynthesis, this means the conversion of solar energy. Water pollution by nitrates and nitrites which may be due not only to a weakening of the production of organic matter in the water and food but also their exclusion. Through water for irrigation may be unfit for human consumption due to process contaminants. And fish can be inconvenient hygiene, if they come from contaminated water.¹²

Negative effects of modern agricultural techniques and technologies to the maintenance and protection of the environment is growing. In the last three decades, the problem is in the world devotes special attention. The goal is to create agricultural production dominated economic principles put in the best possible compliance with environmental requirements. The concept of alternative agriculture would in principle be represented essentially correcting manufacturing processes that are used in industrial production organized with the goal of preventing the destruction and pollution of the environment. Such a pure agricultural production system that avoids or substantially excludes applied synthetic fertilizers, pesticides, growth regulators and livestock feed additives. Organic agriculture would depend on crop rotation, crop residues, manure, legumes, green fertilizers and biological control of pests, diseases and weeds, etc.

Briefly defined alternative and organic farming are included plus the agronomy of Applied Ecology, plus actively preserved environment. Does the acceptance of organic farming can be depends largely on the application or withdrawal of artificial elements used in the current agricultural production. The advantage of organic agriculture is reflected in the fact that its production is based on material circulation. Roundabout matter should be closed as much as possible.¹³

We are free to point out that our country is in some aspects of food production ahead. Our existing legislation does not allow the use of genetically modified foods. For example, when we are not allowed to import or irradiation of food irradiated food. Irradiation of food can cause mutations in the genetic basis of plant radiation by gamma rays from

¹² Симоновић 3. (2005): "Неки еколошки проблеми пољопривредне производње и руралног развоја", ИЕП, Међународни научни скуп Мултифункционалан пољопривреда и рурални развој, Београд 2005, 62.

¹³ Средојевић 3, исто, 105 – 106.

cobalt or neutrons from a reactor in order to obtain higher yields accelerate ripening of fruit, providing plant resistance, as well as preservation and conservation of agricultural products, as well as an effective pest control.

The use of gamma-ray radiation in the food boxes in use in the United States and may be used only for wheat, flour, potatoes, vegetables and fruits. European Union countries are not officially allowed irradiation of foodstuffs. Some member states still use this technology irradiation foodstuff. Irradiation of milk and dairy products are not allowed because it would affect the destruction of vitamins in these products.¹⁴

For ecological, organic or biological agriculture, mainly referring to the so-called. production of "health food", i.e. agricultural production without the use of fertilizers, pesticides, hormones and the like. Organic farming is agricultural production concept that is much more complex and whose essence is not only in the omission of agricultural chemicals, but in the overall economy with which it is possible to achieve.

Environmentally sound agricultural production covers all agricultural production technologies which are not harmful to the environment, and social and economic considerations are acceptable for cultivation of plants and animals. Allows operation and help of powerful laws of nature to increase productivity and resistance of plants and animals. Organic production aims to establish a mixed farm, which consists of several basic parts: arable land, pastures, orchards, vegetable gardens, vineyards and livestock. In this way, a balance and harmony of the whole, and also stability and resistance to external influences (natural, economic, etc.).

Organic farming is actually a kind of farming in which instead of inorganic, non-living materials (fertilizers and pesticides) use what nature produces vivid (manure and plant extracts). Environmentally sound agricultural production is mainly related to agricultural production and rational skillfully uses pesticides, fertilizers, etc. It cannot be called organic farming, but it may be the first step toward reorienting. Organic farming seeks to completely prevent the entry of agricultural chemicals in agricultural and ecological systems, and do not use them.

¹⁴ Ђекић С.(2005): "Аграрни менаџмент", Економски факултет, Ниш, 238.

Organic agriculture in recent years experienced an increasing flourishing around the world. Ecological, social and economic crisis that has fallen conventional farming, creating a growing need in the market for environmentally friendly products. In the final this situation leads to an increasing growth of biological production.

The current ecological agriculture in many countries has been clearly defined laws, which are joined by a Serbian, adopting a package of laws and regulations in the field of agriculture. Food products in organic farming are controlled and carry a special character, which gives consumers the safety and inspire confidence in the product and composition.

However, despite the adoption of new regulations on the Serbian food market still reins element of the product bearing the label "healthy food" or some other indication that the wrong way to the customer that this is a product that is manufactured according to the standards of organic production. This is a sure sign that prevails among our citizens aware of the use of organic food. Manufacturers in turn abusing this situation for their financial gain because it is known that organic agriculture products to market more expensive by 20% to 80% of the products of conventional agriculture.¹⁵

We hope that this will change the status of implementation of the Law on organic production¹⁶ which came into force on 1st January 2011. year. This law is regulated in detail the production of agricultural products obtained by organic production methods, objectives and principles of organic production, organic production methods, inspection and certification of organic production, processing, labeling, storage, transport, trade, import and export of organic products, supervision of Authorized affairs and other issues of importance to organic production.

State of development of the sector of organic agriculture in Serbia

State of development of the sector of organic agriculture can be traced through three periods.

¹⁵ Средојевић З. исто, 130.

¹⁶ Службени гласник РС", бр. 30/10.

The first period begins with the development of the former SFRY in 1991. The formation and activity of non-governmental organizations "Terra's" from Subotica. Along with that starts the process of educating consumers about the benefits of a diet that includes organic agricultural products which caused the initial demand for this product category. Despite the difficult economic conditions of operations in the period 1991 - 2000 years (international sanctions, hyperinflation, war events, etc.). Viability of organic agriculture sector has proven to be very strong so it is difficult to survive in such conditions represented a real success.

The second period of development begins to 2000. and lasts until 2010. year. Serbia's return to the international community as a full-scale, organic farming sector has been recognized as an interesting development, not only in Serbia but also in neighboring countries. Thus, in the framework of the EU assistance programs called Stability Pact for South Eastern Europe funded project entitled "Implementation and development of organic agriculture in Southeast Europe", where he participated in Serbian. The project, in the period 2001 - 2006 years, funded a large number of activities, from training of farmers, consumers, advisers, inspectors in the formation of experimental plots on which the modern methods of production demonstrated in organic agriculture.

The third period of development, characterized by a resolution of the institutional framework for the development, and starts since 2010. year. The adoption of the Law on organic production which is compliant with EU regulations have been met the initial requirements for a more efficient and effective development of this field. In addition, only a year before he founded the National Association for organic production under the name Serbia Organica¹⁷ as the first organization that brings together the entire sector of organic agriculture in the territory of the Republic of Serbia. Ministry of Agriculture, Water and Forestry established four centers for the development of organic agriculture and farming in Selenca for field and vegetable crops, fruit of Valjevo, Svilajnac of Animal Husbandry and Leskovac for the collection of products from nature. Subsidies that farmers received in 2010. amounted to 10 million, which is definitely not enough, but the sum is a clear signal that the manufacturing sector and the importance attached by the state. Crop and vegetable production is supported in the amount of 25,000 dinars per hectare, 15,000 dinars was

¹⁷ http://serbiaorganica.org

the amount of subsidy per head of cattle, 5,000 dinars for small livestock, 500 dinars for small livestock and 2,000 dinars per hive of bees.¹⁸

Basic features of the supply of organic agricultural products in Serbia are relatively modest in relation to the total area of the total agricultural land, i.e. only 8500 acres and a modest number of crops that crops are produced. In addition it is necessary to be enumerated, and the total area of about 230,000 hectares of forest within which systematically collecting medicinal herbs, berries and mushrooms. Correlate the data on total agricultural area and in the broadest sense of the Organic Agriculture in Serbia, we get the information of only 0.04% of the area of organic agriculture in relation to the total agricultural area which puts us, generally speaking, the group of countries with the lowest percentage in this regard.

(2009).	4 . 1. 1		<i>T</i> T • • •	$T \rightarrow 1 \langle 1 \rangle$
Product category	Agricultural crops	Organic	Transition	Total (ha)
	(crop)	production	period (ha)	
		(hectares)		
Growing crops	apples	650	550	1200
	raspberries	360	20	380
	strawberries	80	10	90
	plums	420	170	590
	cherries	100	50	150
	Other			2560
Subtotal				4970
The one-plant	corn	20	210	230
	wheat	40	130	170
	soybean	10	400	410
	Vegetables and			427
	Others			
Subtotal				1240
grasslands		50	2240	2290

Table 1. Surface in the system of organic farming in Serbia by culture(2009).

Source: Organic Agriculture in Serbia, 2011, crp. 8.

The main manufacturing zones are southern and western part of Serbia, as well as the entire territory of Vojvodina. Growing crops are dominant with about 60% of the total organic farmland, with 15% engaged in the

¹⁸ www.mojafarma.rs/index

production of perennial crops and 25% in the form of pasture. A general characteristic of the agricultural production in Serbia, which is reflected in the fragmentation of holdings and a large number of farmers, is also present in the organic agriculture sector. Sometime around 3000 manufacturer engaged in the production of this type of 2009th the expert estimates the total value of the products leaving the farm in the range between 20 - 25 million Euros.

Problems related to environmental protection

The main and primary goal of environmental protection is to protect it from the adverse effects of agricultural production. What I want to point out is that in Serbia there is no specifically defined policies for the conservation of ecosystems, preventing the destruction of natural habitats or the disappearance of species and preventing impairment of natural landscapes, which are related to agricultural production. Throughout this period, agriculture as a source of potential adverse effects on the environment, not specifically analyzed, nor legally, nor are factors involved in agricultural policy of protecting the natural environment. The formulated general policy of environmental protection, with no special emphasis on agriculture in rural areas does not provide sufficient protection, especially knowing that the EU policy in this area is extremely demanding.

Almost all the countries in transition have focused their economic policy measures to stabilize income and price cuts. Irrespective of the form of these measures have, whether it comes to guarantees, subsidies and the like., Ignores the fact that the reduction in the risk of price variation directly increase agricultural production with resultant negative effects in terms of environmental situation. Subsidies to agricultural inputs have two effects on the ecological position of national economies. On the one hand, subsidies inevitably lead to increased use of subsidized inputs, while the other side subsidies oriented agricultural production.¹⁹

¹⁹ Гајић М., Ловре К., Тркуља Ђ., Зекић С. (2003): "Еколошки ефекти пољопривредне политике земаља у транзицији", Институционалне реформе и транзиција агропривреде у Републици Србији", Економски факултет Београд, 221-222.

EU environmental policy is primarily a function of: 1) achieving long-term stable economic development and equitable distribution of natural resources through the development of new technologies that contribute to an increased use of resources, on the one hand and

2) reduce the destructive effects of industrial and human waste through reduction and cessation of production of the leading polluters on the other side.

In other words, the goal of environmental policy as a component of economic development policy is to define the positive and negative external effects to accurately emphasize the most important species from both types of effects and to propose a way that can reduce the negative and increase the positive external effects.²⁰

Agricultural production in addition to its primary function has the opportunity to contribute to environmental protection, restoration of natural resources and protection of biodiversity. Production that is based on these principles has enabled the creation of conditions for the formation of the basic version of the European model of multifunctional agriculture. The common agricultural and rural policy (CARPE) includes four elements:

- 1. with respect to the transition adjustment,
- 2. market stabilization
- 3. subsidy related to the environmental component as well as for the preservation of the landscape,
- 4. factors stimulating rural development.²¹

In the process of harmonization of our legislation with the EU policy framework established benchmarks of environmental protection systems which are designed following documents: National Strategy of Serbia's EU Feasibility Study and priorities of the European Partnership, Poverty Reduction Strategy, Management Strategy, Sustainable Development

²⁰ Цветановић С, Јововић Д. (2006): "Економска политика Европске Уније – нова европска економија", Економски факултет, Ниш, 190 – 191.

²¹ Тркуља Ђ, Ловре К, Гајић М. (2005): "Мултифункционалност пољопривреде Европске уније – суштинска реформа и реалне могућности нових чланица", Мултифункционална пољопривреда и рурални развој, Тематски зборник, Институт за економику пољопривреде, Београд, 109.

Strategy, Water resource base Serbia, Draft National Environmental protection Plan, the Government of the Republic of Serbia to implement the priorities of the European Partnership and others.

The legal framework for environmental protection, which is in accordance with EU Directives, began to be adopted in Serbia in 2004. year. Strategic efforts of our country are contained in the desire to join the European Union in a near future. For this reason, there is a requirement for monitoring and implementation of legislation in the field of environmental protection. The European Union has prepared a White Paper containing the method of preparing the countries of Eastern Europe for integration into the internal market. This book regulating guidelines in the area of legislation that member countries must harmonize.

In accordance with new European Union standards drafted the Law on Environmental Protection was adopted in late 2004. The sitting of the National Assembly of the Republic of Serbia.²² The law provides for protection to include management of natural values, measures and requirements for environmental protection, environmental monitoring, information systems and public participation, economic instruments, liability for environmental pollution, monitoring, penalties. This Law in a comprehensive manner prescribed measures to protect air, water, land, biodiversity, forests and natural resources of pollution and degradation.

Significant progress in the development of legislation was made in 2009. and 2010. year. Adoption of modern legislation in the field of environment would be a continuous process of improvement that the environmental sector was and is one of the priorities of development. After 2003rd the environment sector was not a priority, the laws in this area were from 2001. until today (2010.) only three times on the agenda of the Assembly (so that there are examples of laws that were adopted in 2009., or 2010., and were prepared in 2002. was).

The phase for Serbia to join the EU should pay particular attention to environmental policy, which is implemented through ecological agriculture programs. Interest in the application of these programs in Serbia is very low. If Serbia wants to join the EU, it is necessary to adopt new and existing standards comply with current EU policy. It is also

²²Службени Гласник Републике Србије број 135/04.

necessary to define the basic directions in environmental policy, specifically related to agriculture.

So, therefore, the priority objectives to keep in the direction of:

- Defining the environmental policy of the negative effects of agricultural production
- Starting preparations for the introduction of the Nitrates Directive
- Enhancing cooperation with the Ministry of Environment and Physical Planning, the establishment of permanent working groups
- The introduction of Investment Support on farms to reduce pollution and adaptation to EU standards.
- Support the process of certification and support the development of organic farming and the introduction of good agricultural practices.
- Introduction of the register of producers of organic products.
- Provide a legal basis for the introduction of good agricultural practices and support the introduction of the budget.
- Development of strategic, legal, administrative and technical instruments for the control of genetically modified organisms (GMOs) and reducing the risks of GMOs to a minimum.
- Conducting an inventory sheet and previous support of genetic resources, the adoption of the National Programme for the conservation of genetic resources and providing support for the implementation of the program.

Conclusions

The problems we deal with in this paper, and the point which the resolution are as follows:

In the coming period of time waiting for Serbian agriculture obligation to harmonize its legislation fully with all regulations on the protection of the environment, as well as to harmonize all programs and bringing them into compliance with the National Environmental Protection Programmed.

Agricultural Development in Serbia should be directed towards the creation of agricultural production, which will be dominated by economic principles, which were brought into the best possible compliance with

environmental requirements. Serbia on the field waiting for a job in establishing new and in agreeing with the existing standards. The new standards should be in line with EU policy. At this stage it is necessary to define the basic directions of environmental policy and so what better way to minimize the negative effects of agricultural production. In some aspects of food production positive legislation of Serbia has made a positive step because it prohibits the use of genetically modified foods.

The interest in organic agriculture programs in Serbia is very low, except in areas that are protected by law because of its natural resources. We believe that increasing and expanding subsidies to those who are interested in these programs is the right way for the popularization of this production. Until now, the reality in the field of agro-environmental payments very little has been done. We believe that it is necessary to increase the payments for this purpose from the national budget. Policy implementation of these programs is in line with the policy that applies to the EU, because this is the development of agro-environmental programs an integral part of the EU accession process, which has been perceived very accurately within the Common Agricultural Policy of the European Union (CAP).

The goal of food production would have to be based on the production of environmentally oriented products. These products should be different from traditional products that they create smaller amounts of waste materials and caused lower consumption of raw materials and energy. To maintain environmentally sound products should be taken in all stages of the technological cycle of production of obtaining primary raw materials, through production of the product, its packaging distributing, selling used product delays.

Organic food production today is unpopular because it is reflected in the production cost of this type of food. Price of food produced by conventional farming is far lower than the price of healthy foods. Low profits in the production of healthy food are a barrier to higher production. For this reason, farmers are opting to produce food economically cost effective.

Our analysis shows that the problems of the organization of ecological production complex and are related to the problems of lack of interest in

this kind of production and the need to pursue a consistent agricultural policy should contribute to better success of this production.

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