

ORGANIC PRODUCTION IN THE FUNCTION OF HEALTHY AND SAFE FOOD

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ABSTRACT

The increase in the population on the Earth has led to higher demand and consumption of food. The need for food has prompted mankind to increase food production. Due to lack of arable land, people had to access new technologies which caused an increased use of pesticides and chemical supplements in modern agriculture. The use of various additives in agricultural production has led to adverse effect of agriculture on the environment and human health. Over the last century, various pesticides have been in use, many of which have later been banned from use due to adverse health effect. In recent years there has been an awareness development for healthy and safe food. Increased awareness of safe food has led to the organic farming as a means of ensuring safe food. This paper presents organic farming as a generator of safe food in terms of environmental protection and human health.

INTRODUCTION

The impact of current consumer society, and the rapidly increasing population on the planet Earth, leading to the development of agriculture in order to increase productivity and yield. Uncontrolled and unnecessary use of various hazardous chemicals has reduced soil quality and fertility to a minimum, and agricultural products have become contaminated with harmful substances. Modern agriculture is based on quantity and profit, disregarding the quality and safety of food and potential health risks of humans and animals caused by excessive use of pesticides. Concentration at the economic aspects and financial benefits derived from agricultural production, people neglected the environment whose degradation directly and indirectly affects human health. The solution to problems must be sought in the development of a sustainable society that respects the environmental and health principles. One way of overcoming the problem is the organic production.

According to the Law on Organic Production ("Sl. Glasnik RS" No. 30/2010) organic production is defined as "production of agricultural and other products based on applying organic production methods in all stages of production, which excludes the use of genetically modified organisms and products consisting of or derived from genetically modified organisms and the use of ionizing radiation, in accordance with this Law and regulations adopted thereunder". Organic farming excludes the use of pesticides, synthetic chemical insecticides, herbicides, growth regulators, hormones, antibiotics, artificial fertilizers and genetically modified organisms (GMOs). Growing food by organic farming respects ecological principles that include the application of agro-technical measures that are consistent with the environment and not damaging to human health. Food production based on natural principles is the basis of food production in the years to come. Farmers need to

consider the total health safety of food in order to avoid its adverse effect on human and animal health.

The development and popularization of organic production occurs in response to the increasing negative effects on human health and the environment, which are associated with conventional farming. New scientific knowledge about the harmful effects of pesticides and possible radioactive components in mineral fertilizers put organic production at the center of attention, as a way of obtaining healthy food with no adverse health effects.

The organic production is based on few basic principles:

- The Principle of Health – Organic agriculture should sustain and increase the quality of soil, plants, animals, humans and the planet as a whole.
- The Principle of Ecology – Organic agriculture should be based on living ecological systems and cycles, to support them and help their conservation.
- The Principle of Justice – Organic agriculture should be based on fair relations with the environment, nature and life.
- The Principle of Nurturing and Care – Organic agriculture should be managed in a precautionary and responsible manner to preserve the health and well-being of present and future generations and the ecosystem.

Organic farming can be seen from several perspectives which prove the fact that the organic way of getting food is in full compliance with all the modern principles of sustainable development. The reasons justifying the organic production can be classified into four groups:

- Health
- Environmental,
- Economic,
- Political.

Eliminating the use of products that adversely affect human health, organic farming is characterized as a responsible business that cares for the health and the environment. Organic farming produces safe healthy food that does not contain harmful substances. The use of the chemicals in conventional agriculture, such as pesticides, insecticides, herbicides, hormones, antibiotics and GMOs leads to human health threats, especially vulnerable groups such as children and the elderly. The use of harmful substances is forbidden in organic farming, so there is no risk to human health, which places the organic production in safe procedures for obtaining food. Analysis of organic foods has shown that the food obtained in that manner has much more vitamins and minerals. Studies have shown that organic food contains on average 63% more potassium (K), 73% more iron (Fe) and 125% more calcium (Ca) than the products obtained by conventional agriculture. Dry matter in the products obtained by organic production is increased by up to 30% comparing to products of conventional agriculture. Organic production is fully in line with the principles of sustainable development and it doesn't have any negative environmental impacts in any stage of production. Moreover, organic production is a natural way to restore soil and protect biodiversity of the area in which the organic production is applied.

Great momentum in the improvement and implementation of organic agriculture in the world has led it become the most developed branch of economic growth. Dissemination of method and philosophy of obtaining food from organic farming increases rural development, increases export leading to higher economic growth, optimizing the use of natural resources. The development of organic farming in the world is based on the increasing demand for certified organic food. Europe and the U.S. have a continuous shortage of goods because the

production does not meet the overall demand. Over 120 countries practices organic farming worldwide. Only 6% of the world countries have more than 10% share of the total agricultural land for organic farming, while in Europe, that percentage is lower. The European Union plans to increase organic production by 20% by the year 2020. The total value of organic farming worldwide in 2008. was \$45 billion.

Organic farming in Serbia is developing in the last 20 years, and the most intensive growth was registered in the last five or six years. Demand for organic products in Serbia is greater than supply, which is why the most common products on the market are from import. According to estimates, Serbia has below 1% of total arable land under organic crops which is estimated at more than four million hectares. Organic food production is 13 times lower than the European average, which indicates that the attitude towards organic production has to change. There is an interest of potential investors for investment in the sector of organic production, but Serbia has under-developed retail network, and failure to recognize the inaccurate labeling of organic products. As noted, Serbia is not investing enough in the development of organic farming. Based on information received by the Ministry of Agriculture from the authorized certification organization until February 2009. Serbia presented the following facts for the development of organic farming:

- Total number of organic producers is 224 (only 37 manufactures have contracts with authorized organizations for certification),
- Total area covered by organic production is 596 ha, of which:
 - o 330 ha is certified by authorized organization for organic production, 89 ha is used for growing specific crops and 240 ha fall under meadows, pastures and forests,
 - o 265 ha is in the process of conversion
- Total production of certified organic vegetable in 2008 is about 629.551 kg (39.500 kg of cereals, 15.500 kg of fodder and forage crops, 7.600 kg of industrial crops, 526 kg of culinary herbs, 425 kg of medicinal herbs, 430 kg of vegetables and 95.500 kg of fruit).

In the last few years, Serbia is making great efforts to reach European and international standards in area of organic production. In December 2010. Serbia applied for inclusion in the list of countries whose organic products can be sold in EU. Ministry of agriculture has issued eight licenses in 2011 for certifying organic products. However, these certificates are valid only for the domestic market, while exported goods need to have certificates issued in companies that meet the requirements and standards prescribed in the EU. This process makes it difficult for local farmers who wish to export to obtain certificates since it brings additional financial burden. Even foreign companies and representative offices located in Serbia can not issue a certificate for export to EU, only their parent companies can do that. Weaknesses of Serbian organic production are small market and low utilization possibility in EU market. Farmer population in Serbia is, mostly, under-educated, and this applies especially to the sector of organic production. Environmental protection and human health are among the essential conditions that any country joining the EU should comply. EU members agree that the environmental protection of the environment, human health and healthy food are the EUs health priorities for the future. Compliance with these priorities and the adoption of acts that support that view will be the rule for all the countries planning to join the EU.

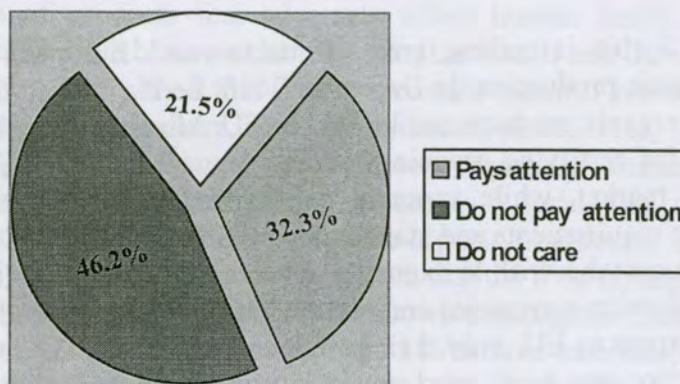
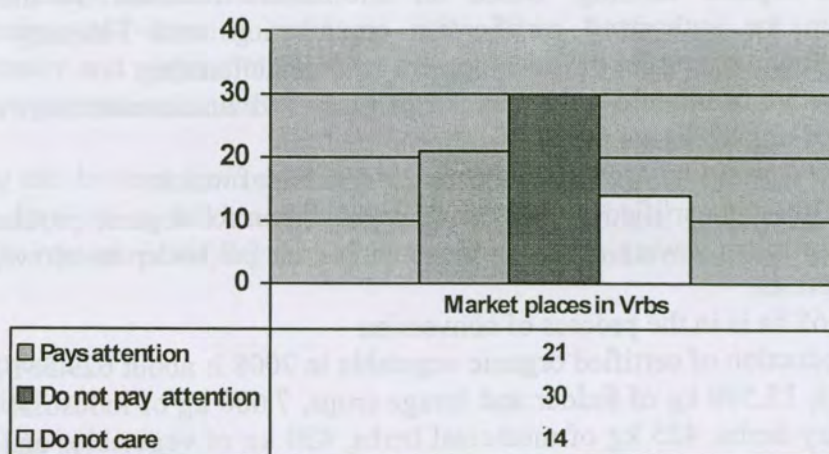
MATERIAL AND METHOD

The method used to obtain data included the testing of customers in two markets in Vrbas ("Big market" and "Small market") by the survey. Respondents were random buyers of

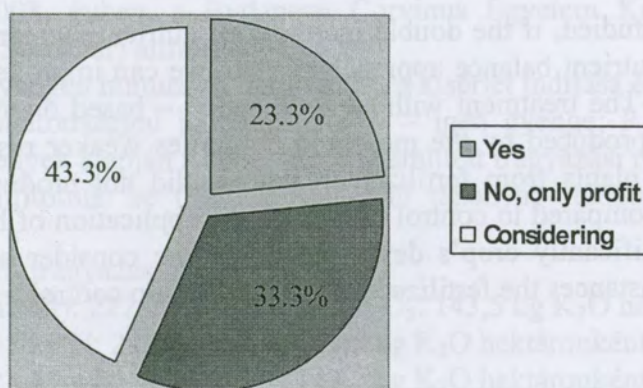
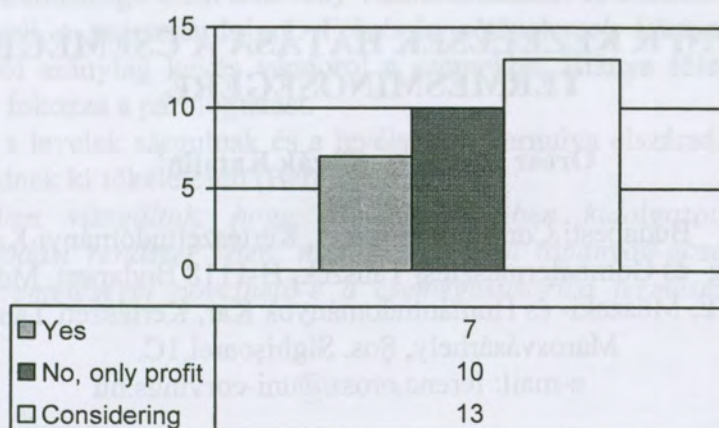
agricultural products. The survey was filled by 65 customers from various gender and age distribution. The aim of the survey was on-site review on population commitment to buy organic food. In addition to consumer surveys, the survey of farmers in village Ravno Selo was conducted. Farmers included in survey all had modern agricultural machinery necessary to produce safe food, and had between 60 and 100 ha of arable land in their possession.

RESULTS AND DISCUSSION

Based on the responses from the survey, the following results were obtained. Of the 65 surveyed consumers in Vrbas markets, 21 (32.3%) pays attention to whether a product is organic, 30 (46.2%) do not pay attention whether the food is produced organically, and 14 (21.5%) respondents said that they do not care.



When asked "Would you be willing to produce organic food", 7 (23.3%) out of 30 interviewed farmers from village Ravno Selo answered they would participate in organic production if they had knowledge and the condition for such production, 10 (33.3%) responded they are interested only in profit, while 13 (43.3%) said they are considering switching to organic food production.



CONCLUSION

- The education of citizens, potential consumers of healthy organic food, as well as the education of independent agricultural producers is needed. A comprehensive support to producers of organic food is also needed, financial and production benefits and help in marketing approach. Incentives from competent authorities are needed in all aspects of production and sales so the organic products are cheaper and more affordable to consumers.