

CHALLENGES AND OPPORTUNITIES OF ORGANIC FARMING

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Abstract: Harmful effects of agricultural and industrial production have intensified in the past decades and we are late to solve them by the optimal solution date. But as soon as possible, it must be taken so as not to do irreparable damage. A possible solution is organic agriculture. The purpose of this article is the comprehensive presentation and analysis of its role in the last decade in the world and in our country. The sources are taken by the organizations of organic agriculture and their analyses and data. Sustainability was examined in these resources, too. Our results indicate that organic agriculture has the reason for existence in global agriculture but there are a lot of obstacles whose dismantling is the mission for the future of humanity. The spread of organic farming is necessary to strengthen a number of factors but in any case it must be achieved in the domestic conditions that the prices of organic products are affordable for wider audience.

Keywords: organic farming, organic production, markets, sustainability, environmental protection.

Introduction

Duality is observed in the world's agricultural production, and this duality has been reflected for long time. First, agriculture in the developed countries is struggling with overproduction. While fewer and fewer people choose agriculture as a profession, thereby the average age of workers frequently increases in the agricultural sector. It can cause big problems in the long run because labour force deficit can be expected in decades in agriculture. Necessary food will not be produced because of these factors. Despite the advanced technological background these countries can produce multiple of the needs. The poorer half of the world's countries may be characterized by malnutrition and hunger. They are unable to cater for their citizens' potable water and are not able to supply them with basic food. On the Earth, about 925 million people are chronically underfed. This is 8% of humanity. There are a lot of people who suffered from it and died or going to die in short time from a disease in which to die with good medical care and appropriate nutrition is almost impossible. The solution is to increase food production in excess of population growth in these poor countries. In particular, appropriate agricultural production technologies are exported widely to resolve issues of irrigation, proper seeds to use, reducing crop losses, pest management and fertilizer solution as well as the mechanization of spreading (Tóth, 2010; The state of the world, 2013).

Another problem is land use and erosion. It can be foreseeable with simple mathematical thinking that if we continuously perish from one side of the balance sheet and we do not replace the other side, the result is imbalance. And this imbalance will sooner or later lead to big problems. In fact, fewer and fewer minerals and nutritious will go to the crop from the soil, which makes food less valuable from a nutritional point of

view. In response to the many problems, lines emerged which wanted to change and cure existing issues. Perhaps the most important of the responses incurred is biodynamic agriculture invented by Rudolf Steiner (Steiner, 1924), which responded the problems and offered comprehensive solutions for healing. The line and other organic lines began to spread in the world.

Theoretical background

Damage of the natural elements and their harmful factors

The zonal analysis of the environmental problems is spread in geography. The various ecosystems and human society can be examined this way. However, the two systems operate with different background affected by each other. The human desire for power and money, and other factors result in the fact that the functioning of society puts the ecological system and man himself in danger (Kerényi, 2003).

At each level analysis shows that the state of our environment is gradually decreasing and humanity exploit natural resources to a greater extent. These processes are strengthened by the increasing population. Urbanization and consumption are increasing. These processes can cause continuous and significant pressure on the environment, the health of ecosystems and the use of natural resources (Tóth, 2010).

The composition of the atmosphere would be relatively stable without human intervention. Smaller amounts of gas or liquid particles go to the atmosphere as the result of human intervention. If they appear in small amounts it can be cleared, degraded, or deposited. If, however, larger quantities go into the atmosphere, it would cause a variety of problems. One of the major effects is the greenhouse effect. The essence is that plants absorb carbon dioxide of the atmosphere in the cycle of carbon while the carbon bounded is released in a huge amount due to human activity, thus it can increase the concentration of CO₂ in the air. At the beginning humanity recovers energy from coal followed by petroleum and natural gas. After that we start to switch to alternative energy sources but CO₂ emissions are huge. The effect of this increase is that the atmosphere absorbs an increasing part of the reflected rays from the Earth's surface and starts with a warm-up process. In fact, this process is already taking place today. Due to the warming up the Arctic ice cap melts, which means that agricultural production can be started in areas which were snow-covered yesterday. Unfortunately, however, these areas are much less fertile, and they cannot make up for the capacity of the lost Canadian and US grain-producing regions (Sántha, 1993).

Increasing level of carbon dioxide does not start at the stage of burning but also at the stage of exploitation. On the one hand, exploitation can make emission possible; on the other hand, we can convert the earth's surface and nearby areas by surface mining. So it is really a central issue. Fossil fuels provide 88% of all energy in the world. This means that the effects arising from the issue are still dominant. 61% of this is produced by national oil companies, which are typically supported by national governments. So it is difficult to change. The oil industry is the world's largest industry representing \$ 2.3 trillion capital and 14.2% of the world trade. In addition, this is the most capital intensive industry in the word. The value of investment is \$ 3.2 million by an employee in contrast, to information technology where this value is \$ 100,000 and chemical industry, where the figure is \$ 200,000, for example. However, these companies are considered the most successful ones and they are among the most influential and successful

companies. The fossil fuel infrastructure occupies an area of the size of Belgium. If we want to replace fossil fuels by biofuel, we need an area of the US and India. 7-10 kcal calories of energy are required to produce one calorie of food energy. It means that this rate cannot even reach the level of energy efficiency of fuels (The state of the world, 2013).

The next atmospheric phenomenon is ozone depletion which is related to social activities. The spread of ozone is not decisive but it is particular important in terms of the protection of life. Indeed, it protects against harmful ultraviolet radiation from the sun. On the one hand, the ozone layer is thinning in the stratosphere; on the other hand, the ground-level ozone concentrations increase in the industrialized areas. Since ozone is a highly unstable molecule it can easily decompose. A continuous cycle creates the ozone layer that ensures the stability of ozone quantity. This can be easily confused by some elements. According to experience halogenated hydrocarbons can easily damage it. Various compounds of chlorine, fluorine, bromine, carbon, and hydrogen can damage ozone. Due to the formation of the ozone hole several states have signed the Vienna Convention in 1985 and the Montreal Protocol in 1987. Freon and HCFC emissions fell sharply in the 90's and now they are disappearing. Nevertheless, the phenomenon of the ozone hole is an existing problem as the area is 24-26 square km today and it is amplified in September and October during the polar night and later it subsides (Kerényi, 2003; Környezetvédelmi és Vízügyi Minisztérium; Országos Meteorológiai Szolgálat, 2003; Ozonwatch, 2017).

The following effects are acid rain and its effects. The most typical form is sulfur rain. This was caused by the high concentration of sulfur dioxide. On the one hand, this is normal occurrence and formation; on the other hand, human activity plays a role in it. The major emitters are industrial plants and internal combustion engines without catalyst. For this reason, the most affected regions are countries with major sectors industrialized where strong industrial activity is still going and environmental aspects are left ignored.,e.g. China, Eastern Europe, the former Soviet Union territories (Sántha, 1993, Mészáros-Schweitzer, 2002). Unfortunately, the phenomenon of smog becomes frequent again in mainly Chinese industrial areas where you can daily see its harmful effects on man and the environment. On the one hand, there is an industry emitting smoke and polluting; on the other hand, specific weather conditions are required. The Chinese economy has substantially increased coal consumption and energy use and has become the world's largest emitter of sulfur dioxide. Its coal consumption is increased by 70% and its energy use is increased by 75% in 2000-2005 (Pomázi, 2008).

The freshwater resources are 2.8 % of Earth's water supply and they are in the soil and less than 1% are in lakes, rivers (Bogárdi, 1975). The water needs of humanity have more significantly increased than those of the general population. This is due to the industrial and agricultural use. There would not be water shortage in absolute terms but the use is not proportional to the population as agricultural areas used for water supply in a greater proportion as there is regional water scarcity. Due to frequent droughts in the recent decades, this area is even more pronounced. Water supply has been such a problem in e.g. Britain, Poland and Russia. The soil and the ground water was thrown down by the industrial, agricultural and municipal pollution and it can be said that less and less clean water for human consumption (Kerényi, 2003; Pomázi, 2008; Sántha, 1993). In some areas water supply has been displayed in a reason for war. It is expected that 30-70% more people will reach the same amount of water within 10 years' time. Water shortages can cause war conflicts.

| Catchment area | Population 1999 (million) | Forecast by 2025 (million) | Change % |
|-----------------|---------------------------|----------------------------|----------|
| Aral Lake | 56 | 74 | 32 |
| Ganges | 1137 | 1631 | 43 |
| Jordan | 34 | 58 | 71 |
| Nile | 307 | 512 | 67 |
| Tigre Euphrates | 104 | 156 | 50 |

Table 1 Population in the main catchment areas in 1999 and forecast by 2025

Source: Postel, 2000

The land is one of the most important resource for human race because the earth gives the base of food production. In addition, it also supplies us with industrial raw materials and trees. The top layer land is fertile and it is habitat and food source for the flora and fauna. The size of Agricultural cultivation is approx. 3 billion for hectares, of which less than half favored good, and the remainder can be made suitable for cultivation with substantial investment. Agricultural activities can be continued in only 10% of the total area of 13 billion hectares of the Earth (Sántha, 1993).

More than 1 billion people suffer from hungry and 2 billion people suffer from nutritional deficiency in the world. In accordance with global trends wheat, maize and rice based food came to the fore and became to ignore local, indigenous crops that are rich in nutrients. These are resistant to heat, drought and disease. As a result, there are more than 1.5 billion people obese, overweighted, and are vulnerable to diabetes, and cardiovascular diseases. Another fact it that people wastes considerable food almost everywhere in the world. Thirdly, agriculture is responsible for one third of greenhouse gas emissions, there is a significant impact on major environmental issues (The state of the world, 2013). In 1924 Rudolf Steiner (Steiner, 1924) held courses for farmers living in the vicinity in which he laid the bases of biodynamic agriculture. Since then, this line has been prevalent in many countries, practical experiences were implemented. Initially it appeared to be a small line that had his own small groups of enthusiasts but now some countries have already achieved significant turnover in markets. It has become relevant in maintaining health, and protecting the environment.

Organic farming was still considered as an incorrect tool to feed the world couple of decades ago. Today, due to increased environmental problems, agricultural ecological methods considered it a good way in the world of declining fossil fuels, increasing hunger and poverty. More researches also point out that food production can help to provide a solution to climate change, unemployment, water pollution and environmental problems (The state of the world, 2013). Organic farming has become much more popular in Hungary around the turn of the millennium. It seemed that the declining line of domestic agriculture could provide an opportunity to raise. Lots of writings dealt with the subject. There have been predictions, extolling and realistic approaches and criticism in these works. The domestic agricultural production with small capitalization was looking for break-out directions. Organic farming seemed to be a way for farmers to resolve issues of low profitability. The study seeks to answer the question of how the predictions of the outbreak and have been implemented in the 2000s, and what issues need to be changed to a greater extent of this direction.

The advantages of organic farming

Organic farming has many advantages for writing shortly. Certain organic ingredients prove to be more descriptive. Many nutritional ingredients contain more than non-organic products. For example, based on the studies of Kraft et al. (2003) of organic

milk has reached a higher level of omega-3 fatty acids than conventional companion due to organic forages. As the production methods use organic fertilizers in accordance with the regulations, the benefits can be formed on the nutrient composition. Furthermore, some studies have established that certain flavonoids and polyphenols in organic fruit and vegetable products are richer than conventionally produced counterparts (Győréne Kis et al., 2006, Weibel et al., 2004). Moreover, in apple experiments it was found that phosphorus and plant fibers also have high antioxidant regards resulting in the organic apple (Weibel et al., 2000). The organic product is synthetic-free, guaranteeing that organic products are no pesticide residues. The compliance with regulations minimize their occurrence probability (Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91). Organic farming methods using genetic engineering-free, which means that the application is not compatible with the principles of genetic engineering so such interference is prohibited at any stage of production (Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91).

The steps and provisions required follow the principles during the system of rules of organic farming and conversion processes. After the specified time we can talk about organic production and farmers can only seed organic and baseless seed in drilling processes (Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91).

How much can the following requirements be kept to guarantee that production is organic and how can the rules be deluded? This means that the product is really organic because the farms are to be controlled. As at any stage of production random checks can occur, so there is substantial likelihood that the organic product is really organic. The annual comprehensive examination is mandatory, which verifies that each step meets the requirements. The compliance with these regulations is compulsory for the processing plant and trading companies, as well (Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91). The legal background is detailed and extensive monitoring organizations supervised by the state institutions reduce the possibilities of misuse due to the Commission Regulation (EC) No 889/2008 of 5 September 2008 laying down detailed rules for the implementation of Council Regulation (EC) No 834/2007 on organic production and labelling of organic products with regard to organic production, labelling and control).

The welfare of animals is kept according to organic regulations that can be higher than to the traditional animals. For example, there is no mutilation during keeping, no use of synthetic enhancers, larger living area and keeping in the fresh air and consumption of milk are typical avoiding the use of infant formulas. In case of illnesses, mainly natural medicine can be used for treating the sick. More observation and experiment confirm that birds are favorable for organic farming in the region around it. Chamberlain et al. (1999) studied that up to 25% more birds occur from certified organic fields than from conventional fields. Lokemon et al. (1997) and Wilson et al. (1997) studied skylarks who also prefer to choose organic fields for their nesting site. In addition, many insects and worms are presented in the areas of organic farming (Mäder et al., 2002; Pfiffner et al.; 1996, Szásziné, 2007).

Biodiversity that is prevalent in several studies found that one volume of several species occurs on the organic farms (Fuller et al., 2005, Hole, 2005). The authors

concluded that the tested organic territories have 5-85% more species than the control areas have. Schader et al. (2011) tests have been determined for dairy farms having 20% higher of the average number of species in the organic territories than in traditional areas. The differences can be traced back to the following. Organic farms are in greater amounts in nature reserves. The lower the intensity of the nitrogen production, the more extensive production is. There is lack of chemicals and fertilizers used instead of feeding hay silage feed.

The soil erodes much less in organic production so that it can be constructed better than conventional soil cultivation (Mader et al., 2002). This is essential in the case of the prolonged use of soil in any event to improve the soil because of less energy and costs that should be paid. The threat of nitrogen leaching into the water is less in organic farming method because there are no pesticide residues present in natural waters protects (Haas et al., 2001, Liess et al., 2001). In addition, it spears ground water and due to the better soil structure, it leads to a sudden downpour of precipitation, which means that for inland waters, flood risk is lower (Nieberg et al., 2002).

A Swiss study assessed that the total energy use in organic farming is as much as 50% lower than in the integrated production (Mader et al., 2002). and by skipping a number of pesticides and fertilizers, it uses less energy than conventional production (Mader et al., 2002, Haas et al., 2001). By having less climatic gas emissions (NO₂, CO₂, CH₄ etc.) organic farming carries a number of environmental benefits. Soil is the largest carbon-emitting agent in the production process (Hörtenhuber et al., 2010). In the production process (for example in the case of dairy or bakery products), agricultural activities have the biggest CO₂ emissions, so in the case of dairy products carbon dioxide emissions are 10-21% less, in the case of bakery products 25% and in the case of vegetable production 10-35% than with traditional means of preparation, respectively. Alföldi et al. (1999) and Nemecek et al. (2002) also found these benefits. The emission of ammonia levels reached also contributes to the protection of the atmosphere in the small farming (Haas et al., 2001, Geier et al., 1998). Emissions of greenhouse gases range is moderate, as it has been demonstrated in several national research (Petersen et al., 2005; Robertson et al., 2000; Hörtenhuber et al., 2010).

Organic farming is medically beneficial. In Germany in 1999 approximately EUR 12 million, extra expenses were reported in cases of acute pesticide (Jacob, 1999). It increases employment because the work process is more manual labor-intensive.

The economic judgement of organic farming

The economic model of organic farming is very similar to those of the regular schemes. In addition to input-output, the positive and negative externalities appear. However, the following ones affect the system: renewable resources, waste and by-products. The main difference in operation is located on the input side as it seeks to minimize the use of industrial materials and involves more renewable resources. It seeks to increase positive externalities while the negative ones are reduced (Radics et al., 2006).

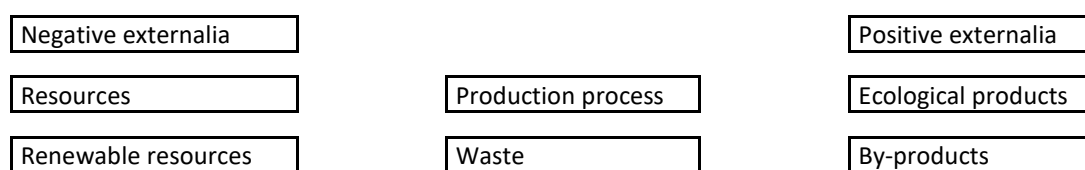


Figure 1 The steps of the process of organic production

Source: Radics, 2006

The benefits of organic farming are outlined above but also organic farmers seek to take advantage of the benefits offered by agro-technological development, for example, the technological development of land culture, plant breeding, the use of decision support systems, logistics improvements, allowed protection against pests, irrigation systems development (Niggli, 2012). As it has already been said on the input side level that organic farming uses fewer chemicals and fertilizers and lower costs can be calculated, but the seed costs may be higher due to special regulations. It can be said that the input side is with definitely lower costs and we can count on the factors where there is discrepancy due to the management mode.

The investigation of the production side is more complex. Due to the fact that organic farmers do not use chemicals and fertilizers, they take risks. Lower yield can be counted under the same conditions. Nieberg et al. (2002) experience that the grain yields is 30-40% lower while dairy products with 0-20% rate of decline can be reported. How can organic farmers compensate for the loss of income resulting from lower remuneration? This is the only possibility to achieve a higher premium in the sales market. How much extra margin can organic farmers reach in the European markets? It depends on the product. We can state the most uniform extent in the case of dairy products, where it reached a level between 8 and 36% from 1994 to 1997. The lowest value was in Switzerland, and the highest was found in Denmark. We can see more deviation, for example, in Italy which is more than 100% but 20-25% on the average. The lowest values were reached in Norway. It is also not a small deviation that can be observed in the case of wheat. It reached 50-200% premium compared to conventional vs. organic players. Germany and Austria had the highest values while in Italy it was the lowest around 15%. In the latter case we can see pasta (mass product) material as it formed a lower value (Nieberg et al., 2002).

A sure thing is that unique products in the oversaturated markets have less competition than the mass-produced ones. This novelty is one of the reasons for the rapid growth of the turnover of organic products from certain markets. However, let us remember that if the novelty decreases, the advantages of concentration and development of higher technical manifest themselves due to the increase of tightening requirements. One point of the Common Agricultural Policy is to support agricultural production. In particular, support for organic production is an important process. As agricultural raw material production is extremely capital intensive, the return time is high due to the length of the production cycle and the major risks in production are high, as well. The production and market conditions are necessary to be regulated at high degree (Santha, 2006). In addition, it is vital that organic farmers can take advantage of the technical and other process improvement tools and opportunities for vertical and horizontal coordination but it does not expect to receive an extra payment scheme with the specific aim of recording and maintaining existing structures since it would point in the opposite direction of development, which may not be the objective of organic production. Although conventional production is supported in many countries like

Britain and France, support can only be provided during the transition period. 100 per hectare amount is to assist in the process of first two years of the transition, but in Finland and some other countries this amount is EUR 470 while in Switzerland it can reach EUR 800 per hectare (Nieberg et al., 2002).

The rate of support as a percentage of the profit is 15-26% in the tested western European countries. The average rate per hectare reached € 123-490. Without this support many cases would have been loss-makers during the transition to the plants (Nieberg et al., 2002).

One of the characteristics of agricultural production is high fixed costs. This should be covered by the revenue that is volume produced multiplying the price. Only then it is possible to achieve high rates and we launch quality products on a limited market. In the 1990's and the 2000s it was also a characteristic of the market of organic products that market demand was observed, as a result of which there the possibility of a higher price level was reached. However, if supply were considerably increased, it would change and the prices would fall, which is beneficial to the consumer but disadvantageous to the farmer. The Western markets treated expansion very carefully in line with demand by taking care not to increase supply more than the increase of demand. However, the producers are able to keep their prices due to the higher degree of processing and quality. It should also be noted that domestic production is 30-100% lower than the optimal yields, which appears in the case of organic farming because there is a premium which can be paid by only few customers (Santha, 2006).

Based on several years' studies it was found that on the average the profit of organic farms is +/- 20% compared to conventional farms. Unfortunately, to make an overall statement is difficult because the results are highly variable. For example, in Germany and Denmark it was a positive difference from the typical, small profit per hectare results have been achieved compared to conventional farms in Finland or Great Britain. The two test results show differences between countries because profit per hectare and per labor unit in the family benefit varied considerably from country to country. In the latter case, either equal or higher values appeared in the case of organic production while we have seen different results in the case of profit per hectare from country to country. Looking at the product produced we can see differences. Arable cultivation of organic one is better for the most countries while in the case of dairy farms we have seen differences between countries (Nieberg et al., 2002).

The following things are mentioned in the researches.

- ◆ It is not the soil and climate that significantly affected economic outcomes. The yield indices (the soil and climate potential of influencing the description) were better only on marginally successful farm sites.
- ◆ Successful organic farms have larger fields. The number and the area of dairy cows reached significantly higher values than the less successful economies.
- ◆ Successful farmers seem to be better agro-engineers. Both the dairy and arable production, yields achieved higher volume.
- ◆ Successful organic farmers reached higher yields using half the amount of concentration, lower service costs and veterinary medicine (Nieberg et al., 2002).

The average size of land was shown economical taking into account the cost income conditions of domestic production. The amount of premium of product increased with the rate of the processing. The beneficiary of the bonus is not the producer but the

processor and distributor. The size of organic farms compared to domestic conditions is high (Takács, 2006).

A gap is observed in the distribution chain between supply and demand, that is, they do not always manage to connect. The following issues were explored in this regard.

- ◆ high operating costs,
- ◆ lack of supply and demand for interconnection,
- ◆ supply of low reliability
- ◆ non-cooperation of the supply chain members,
- ◆ different values and motivations of the actors in the chain,
- ◆ lack of information flow.

Until these issues are resolved, consumers' need will not be available information not always able to satisfy needs, and thus the income of the farmers can achieve worse results. It is therefore necessary that organic farming would be in different integrations and on the one hand, remain viable; on the other hand, they are able to fully satisfy customer needs (Meredith and Willer, 2016).

The ramp-up of organic farming plans and actual achievement

The world's organic food retail sales in 2009 amounted to 40 billion euros (54.9 billion dollars), whose value increased to \$ 80 billion in 2014. (FiBL, 2017) The highest value markets in North America expects \$ 38.5 billion despite the fact that the regional share is only 7% of the world's organic territory. The United States is the largest exporter of organic products in the world.

The proportion of the world's organic cultivation areas is 0.99% of the total. Almost a quarter of the world's total organic cultivation area, 50.9 million hectares in 2015 (FiBL, 2017), is found in Europe (12.7 million hectares in 2015). This is around 5% of the total area under agricultural cultivation in Europe. Returning to the world's data the world's largest organic cultivation areas are in Australia (22.69 million hectares), Argentina (3.07 million hectares), the US (2.03 million hectares) and Spain (1.97 million hectares). Typically in Australia these areas are larger due to free-flowing livestock not because of the crop. Australia also was a country with the highest increase of organic land with 4.35 million hectares in 2015. 220 thousand producers managed the area under organic cultivation in 2009 while their number increased dramatically in 2015 (2.4 million producers). In particular, a significant number of small producers of India, Uganda and Mexico caused these high values. It can be concluded that farmers of developing countries have the opportunity to take steps to the expansion of organic markets of the more developed countries, and they actually do it. The transition to organic farming is perhaps the only survival option for many growers in these countries. Since the early 1990s, organic farming developed rapidly in most European countries. Between 2008 and 2009, Europe's organic cultivation area of 1 million hectares has been added primarily in Turkey, Spain, Italy and France. In recent years the rate of growth in the new Member States exceeded the growth of EU-15. Most organic farms in Italy was then found (Boldvainé Böde, 2011). From 2014 to 2015, growth in Europe was 0.011 million hectares, which may indicate a close to the saturation point and / or the deterrent effect of economic crisis.

43 thousand organic farms with 1107 thousand hectares operated in Italy in 2009, which grew to 1.4 million hectares and to 52.6 thousand producers in 2015 (FiBL, 2017).

After Spain this country has the second largest organic product surface. It is a serious vegetable and grain producer but also a major player in fruit and olives and an absolute leader in tomato. Italy exported around 10-11000 tonnes of organic vegetables to Germany in 2010-2011. In 2010, an additional 6,000 ha of vegetables 3900 ha of Orange 46 600 ha of grain area (of which 24,000 ha of durum wheat) was in transition. 30.6 thousand organic farms cultivate 1.7 million hectares in Spain, making it the largest surface area of organic cultivation in Europe. Spain together with Italy is the largest supplier of organic products in the market of Central and Eastern Europe. There are also plenty of sites registered under the transition (Willer, 2012).

The model of Járási (2006) measured and indicated in advance that we can count how much increase can be expected in the market of organic products. Compared to projections the facts increase fell shorter than expected. Growth in many cases was due to the increase of areas involved in extensive livestock. This is not the same as sales growth, so the increase of food turnover is less than these figures. What trends can be observed in our country?

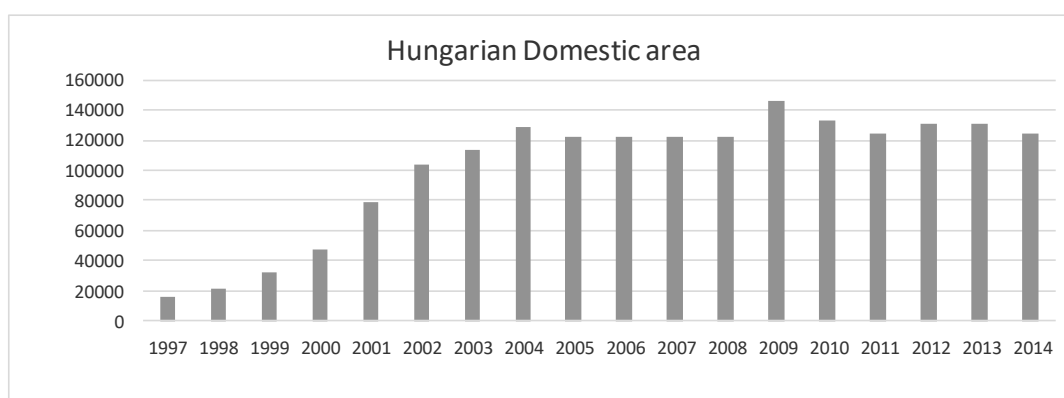


Figure 2 The evolution of the domestic organic areas between 1997 and 2014.

Source: *Biokontroll Hungária and Ökogarancia*

Looking at the domestic situation we can see that the initial high growth momentum has stalled and stagnated since 2004, it set on a level from which it cannot move permanently. What is the reason for this? First, domestic production continues to develop export raw materials, in which there is intense competition among producers of raw materials on the main markets. Approximately 10% of producers are biodynamic which have opportunities and the remaining 90% is exposed to considerable competition. So it is difficult to grow on the markets. Another factor that contributes to growth failure is the loss of income to the people who are also trying to compensate by reducing food consumption. The third reason is the rate of change in domestic purchasing power, in which high growth is not observed.

| (Kg/person/year) | | | | | | | | | | |
|------------------|-------------------|------|------------|-------------|--|----------|--------|------------|-------|-------|
| Appellation | Bread and cereals | Meat | Egg, piece | Milk, litre | Canned milk, powdered milk, cheese, cottage cheese | Oil, fat | Potato | Vegetables | Fruit | Sugar |
| 2003 | 98,9 | 59,5 | 174,0 | 63,0 | 5,2 | 19,8 | 37,7 | 57,3 | 51,5 | 15,9 |
| 2006 | 90,0 | 57,9 | 167,0 | 58,6 | 5,8 | 18,5 | 33,5 | 53,9 | 44,6 | 13,8 |
| 2009 | 83,0 | 53,2 | 148,0 | 53,5 | 5,5 | 17,1 | 30,0 | 51,6 | 42,2 | 13,9 |
| 2010 | 83,3 | 53,7 | 148,0 | 52,9 | 5,5 | 16,9 | 29,1 | 47,8 | 37,1 | 13,5 |
| 2012 | 79,3 | 50,8 | 128,0 | 50,5 | n.a | 15,7 | 29,1 | 47,9 | 37,5 | 12,0 |
| 2015 | 63,6 | 57,6 | n.a. | 52,8 | n.a | n.a. | 30,0 | 44,4 | 44,4 | n.a. |

Table 2 Evolution of household food consumed volume (2003-2015)

Source: KSH author's own research

This can be seen from Table 2 that there is a significant decline also in the consumption of certain food. So there is no possibility to increase domestic organic consumption according to this decline.

Organic production and market trends

As mentioned the US market spent the most on organic products, i.e. EUR 27.1 billion. In 2014, EUR 26.4 billion was spent on organic products in Europe. Germany leads with EUR 7.91 billion followed by France with EUR 4.8 billion and the United Kingdom and Italy with 2.3 and 2.14 billion euros, respectively.

If we examine which countries consume most organic products, the following outstanding values are found. One person spends EUR 221 on average on organic products in Switzerland with similar values in Luxembourg (EUR 164). The line is followed by several European countries, and on the largest market we can see that an American consumer spent the average of 85 euros on organic products a year. We can see the connection clearly between the respective purchasing power and the consumption of organic products. How could the 2008-2009 crisis concern the consumption of organic products? Unfortunately, statistics can be found very narrowly available for us to answer this question. According to available statistics for the period between 2006 and 2013, the following can be experienced. Only four countries are available with complete data for this period: Austria, France, Germany and Italy and the EU's GDP per capita, food and non-alcoholic drink consumption of organic and total.

First, it can be stated that in the case of per capita gross domestic product clearly there was a downturn in 2009, which managed to recover only in total EU-level in 2015. There was, of course, the rate of decline different from country to country. The stronger economy in a country, the faster recovery from the crisis, the weaker it is, the slower recovery has gone. For example Italy has not reached the 2008 level.

The consumption of organic products in all countries examined and the EU's overall level experienced a continuous rise. Whereas the same was observed for total consumption, it is worthwhile examining the organic / total consumption. We can also find that the proportion of consumption of organic products, both the test and in the case of total EU data showed a steady growth and in 2013 it reached 0.24%. Overall, statistics also support the expansion of organic products in the consumption.

| organic/total consumption | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Austria | 0.27% | 0.38% | 0.42% | 0.47% | 0.52% | 0.57% | 0.55% | 0.54% | 0.57% | 0.61% |
| France | 0.12% | 0.15% | 0.18% | 0.21% | 0.23% | 0.25% | 0.27% | 0.29% | 0.30% | 0.31% |
| Germany | 0.26% | 0.30% | 0.33% | 0.32% | 0.33% | 0.36% | 0.38% | 0.40% | 0.42% | 0.45% |
| Italy | 0.10% | 0.09% | 0.10% | 0.12% | 0.14% | 0.15% | 0.17% | 0.19% | 0.22% | 0.25% |
| EU | 0.14% | 0.16% | 0.17% | 0.18% | 0.20% | 0.21% | 0.23% | 0.24% | 0.27% | 0.28% |

Table 3 The consumption of organic products divided all food and non-alcoholic beverage consumption inside

Source: Eurostat and FiBL, IFOAM's calculations and author's own edition

Such an assessment has not been made in Hungary, so such statements can not be determined but it is likely that growth is not typical from 2009 onwards.

Conclusions

Based on the sources we can see that domestic organic production has been balanced and can not continue to grow. The reason for this is the domestic purchasing power of the weakness, the raw material producing nature of domestic organic, the decrease of food consumption per capita and the minimum level of processing of domestic households while the consumption of organic products continues to grow in Europe and in the world although not as much as they hoped in the early 2000's. Despite the size that the domestic organic farmers possess is favorable, as is typically performed in the organic production of large farms, export is still typical because domestic consumers can not buy. Several writers (Sántha, 2006, Járási, 2006) found that when the supply grow faster than demand, prices will decline, and you may find selling products at below cost. Although the support is present in most EU countries more organic farmers and producers would not be able to produce without additional support. The less favorable habitat endowment provision is one of the reasons. Organic farming would have a chance to break out of the weaker economic prospects for farmers with worse lands. However, they cannot be competitive without raising capital and development and the eastern competitors with cheaper labor force are able to overtake in Europe markets. It is impossible for organic producers to operate effectively in the case of producing raw material; it is absolutely necessary to improve the processing stage.

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