

# Organic farming in Bela krajina and some future perspectives

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## Abstract

Since 1998 legal foundations of organic farming in Slovenia have been regulated. Although the supply of organic crops and products has been enlarged, it is not sufficient due to the rising demand. The article presents activities in organic farming, their distribution and productivity. The studied organic farms are situated in Bela Krajina (the southern part of southeastern Slovenia), which lies along the border with Croatia and is also the least polluted landscape in Slovenia. Organic farmers from this area are faced with low income per family member, the lack of manpower, the labour shortage and over-distance market locations. To improve mentioned situation the arrangement of inheritance question, the increased creative enthusiasm for processing and marketing as well as the expansion of local tourism with traditional organic food and products made by organic materials, namely organic textiles and biocomposed products, must be taken into account.

Key words: organic farming, questionnaire for organic farmers, Slovenia, autochthon varieties and breeds, integration of tourism

## Introduction

The attitude towards organic farming, organic food and non-food products made by organic materials has been changed in last decade among Slovenian consumers (Bavec M., 2004; MAFF, 2010). As the domestic supply is insufficient and seasonable, the majority of organic crops and products are imported. The international transport causes further pollution of environment, what is contradictory to organic farming guidelines. The quality of transported organic products, especially fresh fruit, vegetables and meat, does not equal the quality of local supplied organic products. The purpose of investigation is to present the weaknesses, advantages, opportunities and possibilities for further development of organic farming in Slovenia in case of Bela Krajina. The aim of research is to define some future perspectives that will contribute to greater market supply of organic food and organic non-food products, consequently Slovenian consumers could be self-sufficient in indigenous organic products.

## Material and methods

The development, scope and productivity of individual activities of organic farming in Slovenia were presented by using online statistical indicators and by analysis of questionnaire of 51 owners of organic farms in Bela krajina. The farms were visited in person, by prior telephone arrangement, in the first half of December 2009. Respondents completed the questionnaire with 29 questions enthusiastically, exemplary and independently; further explanations or assistance with the questions from providers of questionnaire were not given. The questionnaire included information about farm size and farm structure, about production specialization and the use of organic farming technologies as well as about the possibilities of supplementary activities and the way of marketing. Answers were grouped and explained by means of descriptive statistics.

## Results and discussion

After 1998 in Slovenia the legal aspect of organic farming was arranged by adopting a number of regulations on organic production and by appointing control organizations (Kocjan Ačko, 2000; Bavec et al., 2009). With Slovenia's entry into the European Union in 2004, all regulations comply with EEC Regulations 2092/91 and 1804/99. In 2007 the EU adopted new legislation which was enacted on 1 January 2009. Canceled earlier regulation was replaced by Council Regulation (EC) 834/2007, namely Organic production and labelling of foodstuffs, while specific areas of organic farming have been regulated by Community Regulations (EC) 889/2008 and 1235/2008 (Mikkelsen and Schlueter, 2009). Because innovations in regulations have been changing a lot constant renewal and updating of experts knowledge is necessary. At the end of 2009 there was 2096 organic farms included in organic farming inspection, only 1853 of them have obtained organic certification (MAFF, 2010; Statistical Office of ..., 2009). The percentage of organic farms is 2.7%, compared to all farms' number. The area cultivated by organic farming sized 30000 ha, which represent 6.1% of all agriculture land. More than 90% of organic cultivated land represents grassland therefore it is understandable that organic production with 10% can not be self-sufficient in producing organic vegetables, crops and fruits for Slovenian market. The average size of organic farms is 15 ha, which is about 2.5 times more than the size of the average Slovenian farm (6.4 ha). As organic farming in Slovenia is most common in areas where the conditions for intensive agriculture are less favourable, the conversion into organic farms seemed to be unsophisticated. There are notable differences among areas in Slovenia due to the geographical location, soil fertility and climatic, economic and social conditions. In all regions, except in Pomurje where at least organic farms are presented, dominates grassland (Statistical Office, 2009). Grassland is the main importance for organic animal breeding. Processing and marketing of organic meat and milk due to lack of domestic processing facilities (dairies, slaughterhouse, portable cooling devices) are more difficult than the processing and marketing of cereals, vegetables and fruits. The majority of organic milk is sold as the conventional milk. In Bela Krajina, which is one of the unpolluted natural areas in Slovenia, organic farming with dominant grassland is the main production activity.

### Bela krajina

Bela krajina is the southern part of south-eastern Slovenia, which lies along the border with Croatia. In the north it borders on Gorjanci, in the east and south is restricted by river Kolpa, which represents the state border with Croatia, on the west Bela krajina borders on Kočevsko-Roško hills and Poljanska mountain (Gerškšič, 2004). The area covers 580 km<sup>2</sup>, which presents approximately 2.5% of the total national territory. Bela krajina is represented by municipalities, namely Črnomelj, Metlika, and Semič with total population by 26920 with corresponding index of population growth under 96 (Statistical Office of ..., 2009a). In times of economic crisis employment opportunities are minor, therefore the retardation of Bela krajina is noticed, compared to Dolenjska as a well-developed industrial northern part of south-eastern Slovenia (Gerškšič, 2004). Due to karst terrain (rocked soil surface) area of qualitative arable land ranges less than one fifth of approximately 11000 ha grassland and arable fields. Almost half of the Bela krajina area is covered by forests, meadows and pastures present 6000 ha; land abandonment is increasing with 10-percent annually (Gerškšič, 2004). Agri-environmental program (MAFF, 2010) is the only possibility of preserving the agricultural landscape before changing it into the wooded area. In the late nineties, when the first conversion of Bela krajina farmers was registered, Organic Farmers Association of Dolenjska, Bela krajina and Posavje was established. Excursions and education at home and abroad enabled them to learn about technologies of organic farming and marketing from more experienced countries. In 2010 there were more than 80 farms, all from Bela Krajina, included in the inspection of organic farming (Judnič, 2010).

### The result of questionnaire for organic farmers in Bela krajina

The results showed that the first farmers began with organic farming in years 1998-1999 (11 farms); in following periods 8 farms (2000-2001) and 5 farms (2002-2003) joined them. In 2004-2005 there were 14 newly included farms, to which higher government subsidies were offered (APOF, 2006). A decision for organic farming in first six years was based on choice for healthier food and unpolluted environment, while in further six years it based on possibility for getting subsidies and because of unfavourable cultivation conditions. Over past four years a decrease of newly registered organic farms was noticed due to emigration of educated young people of Bela krajina, moving to more developed part of the country. During time for obtaining the certificate of organic farm, a third of all respondents (31%) had no difficulties to cope with

organic farming standards as they had cultivated organically in the past. Since nearly half of farmer owners aged over 50 years, it resulted that one third (29%) had difficulties because of deficiently kept records. A smaller percentage of farmers had problems with the unregulated discharge of domestic animals (18%), outdated and unregulated midden and stables (14%); the minor difficulties were presented by inadequate crop rotation and purchasing conventionally produced feed (5 to 8%). According the geographical and growing conditions, the 19 questionnaire farms are classified as karst farms, 14 as lowland farms, 11 as mountain farms, 4 high-mountain farms and 3 as hilly-mountain farms. We calculated that respondents dispose with 789 ha of agricultural land in relatively unfavourable natural conditions (on average 15.8ha per farm). Dominated by grassland and pastures (580ha), agriculture is less developed and covers only 185 hectares (on average 3.7ha per farm) due to the karst terrain. In organic farming inspection there is also 17 ha of orchards (0.3 ha per farm), 4.5 ha of vineyards (0.1 ha per farm), 2 ha of gardens (0.04 ha per farm; altogether they own 399 ha of forest. On 185 ha of fields the most commonly used is four-year crop rotation, the most common sown crops are corn (on 27 farms), barley (on 25 farms), oats (on 15 farms) and wheat (on 14 farms). There are too little legumes included in the crop rotation, especially perennial roughages legumes and grass-clover mixtures, which can contribute to producing a larger amount of quality feed for winter. Farmers should be encouraged for sowing annual and perennial forage crops, namely lucerne, red clover, crimson clover, Persian and Egyptian clover, Italian ryegrass and catch crops ("Ovsiga = oats + rye", "Ječmiga = barley + vetch", Landsberger mixture), which have been already sown in the past (Kocjan Ačko and Šantavec, 2009). The importance of including legumes in crop rotation is their impact on improvement of the structure and soil fertility, legumes also represent a supply of protein feed from indigenous fields. As fertilizer the farmyard manure is used more often (in 94%), compared to fertilizing with manure and slurry (32%) or composted waste (10%). Only few farmers buy fertilizers and preparations for weed control, pathogens and pests, which are listed in the publication "Preparations and guidelines for organic farming" (Bavec et al., 2009), as the price of mentioned preparations is too high. More than half of interviewed farmers produce herbal products for pest protection by themselves. Three of them are producing and using bio-dynamics preparations. Farmers are increasingly aware the importance for better adjustment of the autochthon varieties of crops and breeds of domestic animals, unfortunately, there are only few preserved. A strong ethnographic and tourist importance is in a production of autochthon flax, which runs on three farms near Adlešiči (area about 0.3 ha). From flax steams the fibbers for fabrics are produced by traditional method, meanwhile seeds, necessary for sowing, human food (Bela Krajina cake sprinkled with flax seeds, flax oil) or drugs, are produced (Judnič, 2010). Expanding production, craft and industrial processing of stems and fibres could be successfully implemented only by setting up pilot technologically well-equipped facilities for traditional and modern textile products (organic textile) and biocomposed products; the consumer demand for such products has been increased lately (Wulfhorst et al., 2006). Buckwheat with total production of a few dozen tons and with average yield of 0.8 t/ha, is used as a porridge or flour for cooking the traditional dishes, namely "Ajdova potica - Buckwheat cake", "Ajdovi žganci z ocvirki - Buckwheat porridge with cracklings". Production of buckwheat should be extended not only because of its direct use in human food chain also because of its high nectar production and its impact on organic beekeeping. Extraction of buckwheat honey (ajdovca) is possible only if there is enough available buckwheat fields (Kreft, 1995). The whole area is characterized by meadow orchards, which have unique cultural and natural heritage (Gačnik, 2010). Old trees have been encouraged to have greater fertility with so-called a revival cut. Fruit processing into apple juice, vinegar, brandy, cider and dried fruit contribute to the tourist offer, which could be associated with products from herbs and honey. Due to difficult access, fragmentation and karst terrain it is better for farmers to decide for livestock production. At the end of 2009 there was 1523 heads of sheep, 347 head of cattle, 59 horses, 53 pigs, 22 donkeys and 1304 heads of poultry with the average load of 1.34 livestock units per hectare. Impoverished grassland type Mezobrometum and Xerobrometum with low quality feed does not allow increasing the load per hectares. The main production activity in Bela krajina is livestock production, dominated by sheep breeding as in the past (Kompan, 2010). In recent years the Slovenian autochthon breed "Pramenka", sheep of Bela krajina, is again integrated. Excellent disease resistance and adaptability to poor and humble conditions are reasons for integration of

"Pramenka" into organic farming at this area; "Pramenka" is breded at 13 interviewed farms. Importance of sheep husbandry is greater as it prevents land abandonment. Moreover, according to researches about rural areas made by Angerer (2005), reintroducing of sheep breeding has maintained rural population, especially in the mountainous areas. Great adaptability and undemanding sheep breeding allow the bond between farming and tourism, such as hiking and other types of relaxation in nature. Despite the apparent optimism

of farmers from Bela krajina, the major concerns are current situation in agriculture and low purchase price as well as the increasing employment and hence decreased purchasing power. Farmers are convinced that selling organic crops and products at higher price is difficult, in comparison to other better-developed parts of the country. As farmers are individually too small providers of organic crops and products for large shopping centres there are almost no selling bond between them. Ljubljana, with a high concentration of consumers, is only occasional target market, because the costs, caused by transportation and consumption of working time due to long distance to Ljubljana, are greater. Supplementary activities (particularly mechanical services and tourism) represent additional earnings for 19 farms as meanwhile organic products are easier to be sold. Regional agricultural experts are increasingly aware of the importance of maintaining the rural areas therefore they promote a self-employment of young people on farms and tourist activities. Respondents attach great importance to ecological awareness of young people; an increased number of Bela Krajina primary schools are detected in the project "Eco-school as a way of life" (Eco-school as ..., 2010).

### Conclusions

Organic farming in the Bela Krajina can be described as a specific, but organic farmers are faced with typical problems in the field of organic farming; therefore indicated guidelines could be applied elsewhere. The interviewed farmers from Bela krajina deal with agricultural to a lesser extend, most common sown field crops are corn and barley. There is a lack of legumes included into crop rotation. Legumes increase soil fertility and provide satisfactory protein meal during winter time. Furthermore the increased yield due to *Rhizobium* bacteria that fix nitrogen could ensure also a higher quality of meat. Most agriculture land covers meadows and pastures, suggesting the greater development of organic livestock production and processing of food by animal origin. For processing (slaughterhouse) and marketing of organic meat a new or renewed local facilities must be built. In addition to organic food, organic farmers can market organic textiles and biocomposed products of flax, which is their traditional textile plant. Organic flax grown without synthetic chemical agents is the basis for fabrics and materials that do not harm human health and pollute environment in process of degradation. More attention should be paid to the traditional processing of sheep wool from "Pramenka sheep" and wool mixture with other sheep breeds, such as "Solčava sheep", which is also breed by organic farmers in Bela krajina. In order to realize new challenges (one of them could be successful sales of wool products as the most attractive and useful products for tourist) the development of processing facilities as well as expertise knowledge in organic processing and marketing should be enlarged. It has been noticed that among farmers there are no practical cooperation and also no direct transfer of knowledge; without processing of crops into products organic farming could not survive. The progress and development of organic farming could be limited by discouragement and negative thinking. If the development of organic farming is in accordance with organic guidelines, Bela krajina could present an important role as a supplying area of organic crops and organic products for Slovenian consumers. According to the future development plan of the EU, the opportunity of Bela krajina for cross-border cooperation with Croatia should be taken into consideration.

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