

DEVELOPMENT OF ORGANIC APPLE GROWING IN ALBANIA

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Summary

In 2008 and 2009, a survey was conducted with a quantitative questionnaire and a qualitative face-to-face interview with selected farmers to analyse the present potential and challenges of organic apple production in Albania.

There are some differences between European and Albanian farmers regarding experience with organic production, average farm size, percentage of exclusively organic growing farms etc. Due to recent conversion, all Albanian farmers do not use appropriate cultivars for organic growing. They are not familiarised with resistant cultivars grown in other European countries. In general, the pest and disease pressure is comparable with other countries, but Albanian farmers lack the knowledge for prevention techniques and they do not have access to many important plant protecting agents useable for organic fruit growers.

Another important characteristic is the lack of motivation for farmers to convert to organic apple production because of low support from the government, scarce education and request of consumers. To improve organic apple production in Albania we need pilot orchards for research and demonstration of appropriate rootstocks and cultivars, soil management techniques and plant protection trials.

To motivate and train organic fruit growers, especially before and during conversion we should provide information material and establish a network of organic fruit growers and researchers between Albania and other countries.

Key words: *apple, organic, Albania, fruit*

Introduction

Albania is a small country, covering 28.000 km², located in south of the Balkan Peninsula. The climate of Albania is Mediterranean and continental, with warm summers and cold winters. The country has a strong agricultural sector and is mostly rural. Apple growing is a sector of great relevance and relative to other fruit species.

Although the ecological conditions for fruit production are relatively good and labour is available, the sector faces several impediments for further development. There has been a lack of investments due to the limited financial capacity of agricultural households, especially for the choice of the cultivars and rootstocks, which are the main factors for successful production of fruits. Organic production could be a new challenge for fruit farmers for ecological and economical reasons; there is a strong political willingness to support environmental friendly agricultural methods (Kullaj, 2007). However no research for organic apple production has been done so far. Having in mind that in organic production chemical fertilizers are prohibited, it is important to find techniques for improving soil fertility and sustaining a good nutrient supply level in the orchards (Nagy and Holb, 2006).

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The aims of the study were to find out what is necessary to improve the organic apple growing sector by detecting and describing current problems in organic fruit growing, selecting, describing and recommending useful methods to improve the system as well as identifying needs to develop a sustainable apple production sector in Kosovo and Albania and increase its competitiveness in this region.

Material and Methods

In order to have an overview of the current situation and to find out already practiced useful techniques of farmers, two rounds of questionnaires were conducted. The first one was conducted with a questionnaire during the period April – September 2008, interviewing 10 Albanian fruit growers, who are already working on their farms organically or who are very interested in this production method. Questions were about their production methods, experiences with cultivars, pests and diseases and challenges in their production systems.

The second round conducted in 2009 consisted in face-to face interviews with five selected farmers spending about 2 hours per farm. The questions aimed at discussing in detail individual challenges (e.g. techniques in pest or quality management, cultivars etc.) and experiences with old and new techniques in the field of pests and diseases, soil management, cultivars and rootstocks. Another part of the interview was about the expectations and experiences of yield, fruit quality, market and prices. Furthermore, the willingness of the farmer to start 'Research on Farm' or to establish a 'Model Farm' was discussed and defined more precisely to clarify possibilities for further projects in this field. Data from both rounds were elaborated using descriptive statistics.

Results and Discussion

The average area of cultivated land of the interviewed farmers is relatively small to European average. Only already registered organic farmers were interviewed (Table 1).

Table 1: General situation of organic fruit farms in Albania during 2008

Indicators	Albania
Total number of farmers interviewed	10
Total area of agricultural land	52.0 ha
Average area of agricultural land/farm	5.2 ha
Minimum	1.1 ha
Maximum	3.2 ha
Average no of years farmers are growing fruits organically	3.0
Minimum (years)	2
Maximum (years)	5
Total area of organic orchards	16 ha
Average area of organic orchards/farm	1.5 ha
Average altitude above sea level	130 m
Minimum	46 m
Maximum	700 m
Average precipitation per year	706 mm
Minimum	600 mm
Maximum	800 mm

The choice of the cultivars is based on the market preferences and there has been no prior orientation towards resistant cultivars so far. The top cultivar cultivated under organic conditions is ‘Golden Delicious’ for Albania. However, due to economic importance and tradition, there is a wider range of cultivars cultivated in Albania (8). On the contrary, the rootstocks used are the same in both countries (M9, MM106 and M26) although in some cases not in the same combination rootstock-scion. Local cultivars, like ‘Hoçishtare’ and ‘Behari’ are very minor in Albania (Table 2).

Table 2: Cultivars, area of cultivation and rootstocks used

Cultivar	No. farmers	Total area (ha)	Rootstock used for this cultivar
‘Behari’	1	0.2	M106
‘Gala’	3	2.1	M9
‘Golden Delicious’	4	3.4	M9,M106
‘Hoçishtare’	1	0.3	M106
‘Idared’	2	2.0	M106
‘Jonathan’	2	1.5	M106
‘Pink Lady’	2	0.5	M9
‘Red Delicious’	6	6.5	M106

There is quite a high pressure of pest and diseases, in part also due to the short experience with organic production. Many farmers could observe an increase of codling moth (*Cydia pomonella*), aphidae, apple scab (*Venturia inaequalis*), apple blossom weevil (*Anthonomus pomorum*), field mouse (*Microtus arvalis*) and voles (*Arvicola terrestris*), fire blight (*Erwinia amylovora*) and storage diseases on their farms after conversion. On the other hand the pressure stagnated or decreased for apple rust mite (*Aculus schlechtendali*), woolly apple aphid (*Eriosoma lanigerum*), red spider mite (*Panonychus ulmi*), summer fruit tortrix (*Adoxophyes orana*) and apple sawfly (*Hoplocampa testudinea*) (Table 3).

Apple scab is one of the most harmful diseases in comparable countries, e.g. Lithuania (Lanauskas et al., 2009) or Hungary (Holb, 2005) and causes losses in yield and quality in both organic and conventional production (Bengtsson et al., 2006). Although farmers in Albania were using products allowed in organic production (e.g. copper and sulfur), the efficiency against apple scab was not always satisfying. From other countries with longer tradition in organic apple production we know, that an efficient scab regulation is depending on the product and especially on the appropriate time and formulation of the product (Kelderer, 2006; Kelderer et al., 2010).

Due to recent history of organic fruit growing and compared to other Western European countries there is a general lack of technical skills of Kosovar and Albanian farmers, so much more knowledge gained through education and research is required. The fruit growers, in both countries, lack support during the process of conversion in terms of pest and disease control, decision on cultivars, planting material and training systems, fruit thinning, pruning and soil management (Table 4).

From the in-depth interviews we were better able to analyze the organic fruit growing sector in Albania and characterize the organic fruit growers. We found that the main motivation of the farmers to convert was the market access and price premiums. A lack of belief in organic philosophy among most of the growers creates frustration due to the limitations posed by the standards in terms of use of plant protection products or

synthetic fertilizers. In the case of a major attack from a pest or disease instead of fighting with them to find a solution they blame the association for the allowed products recommended by them and may return to conventional production. This is also confirmed by a previous study (Kullaj, 2007).

Table 3: Development of the pressure of diseases and pests since the conversion in Albania

Pressure of disease or pest	causes	Number of cases "increased"
	a problem	- "decreased"
	Number of farmers who agreed	
Fire blight (<i>Erwinia amylovora</i>)	5	5
Apple scab (<i>Venturia inaequalis</i>)	8	8
Powdery mildew (<i>Podosphaera leucotricha</i>)	8	8
Storage diseases	5	6
Red spider mite (<i>Panonychus ulmi</i>)	2	2
Codling moth (<i>Cydia pomonella</i>)	10	10
Apple rust mite (<i>Aculus schlechtendali</i>)	2	-2
Aphidae (<i>Dysaphis plantaginea</i>)	8	9
Woolly apple aphid (<i>Eriosoma lanigerum</i>)	3	0
Apple saw fly (<i>Hoplocampa testudinea</i>)	3	1
Apple blossom weevil (<i>Anthonomus pomorum</i>)	8	8
Voiles, field mouse (<i>Microtus arvalis</i> , <i>A. terrestris</i>)	5	4

Table 4: Need for scientific research

Scientific research required in the field of	Number of farmers who agreed
Cultivars	8
Soil management in the row	6
Plant protection	8
Planting material and tree nursery	7
Mixture of fruit species	1
Combination of animals and fruit growing	-
Soil management between rows	-
Fruit quality	6
Pruning	3
Irrigation	1
Support during the conversion	9
Mixture of cultivars	2
Education systems	6
Thinning	6
Soil cover and management	4

Lack of qualifications and skills was common among farmers because during the communist regime the actual farmers were employed as workers in the cooperative; they did not manage their own farm or orchard but just conducting few operations inside the cooperative. Thus, they cannot compensate the additional pressure from pest and

diseases and reduction of soil fertility during conversion with extended knowledge on techniques used in organic. Such gap in skills is being compensated at a certain extent through private and public extension service.

Although they are oriented toward export markets, they have little knowledge on international market requirement and organic standards.

Organic fruit producers are faced also with some particular limitations like the lack of access to bio-pesticides and fertilizers, because the market is very small to justify their importation by wholesalers of plant protection products. The same is true also for certified plant material and resistant cultivars. The organic associations are providing the organic fruit growers with pheromone traps and few organic products.

Yields in general are lower compared to conventional production in the other orchards of the same location. Farmers experienced that during the conversion also in Sweden (Ascard et al., 2010) and other countries (Kreuzwieser and Kelderer, 2004). This is causing some frustrations to the farmers as they are not getting a higher price for the sale of the organic apples, while in Croatia some organic products attract an extremely high premium price, more than 150 % than conventional ones (Ban et al., 2007) and twice for organic apples in Sweden (Ascard et al., 2010). Due to the lack of protection with conventional plant protection products, there seem to be problems also in terms of quality. Again, this does not help to get a price premium, since the consumers, even the most educated ones which are hardly found in Albania, are not ready to purchase apples of inferior quality although organic.

In terms of soil management we noticed that most of the farmers use organic manure as there is a considerable livestock production. They also apply some mulching with hay. There is a great lack of knowledge regarding new methods of organic soil management practices in comparison to Western European countries.

Support in the future is very much needed but seems that the private extension service will run short of public funding from donors. The fading out of such support might lead farmers go back to conventional due to the pressure from pests and diseases. In terms of support activities, there is an almost absolute lack of knowledge about resistant cultivars used in organic farming. Moreover, beside the use of organic fertilizers, farmers are not aware of the cultivar or other soil amendments available to satisfy the needs of poor soils, which are very common in Albania. This should be accompanied by intensive extension efforts regarding soil management. Basic and advance trainings are required for the control of pests and diseases under organic conditions. Albanian apple growers do not have sufficient knowledge to prevent the problems with the pests. Only recently they are becoming familiar with the use of pheromones, for instance, but in general they are not aware of other alternative solutions.

Farmers interviewed in the second round were very open to conduct research on their farms as they consider this as an opportunity to improve their production.

Conclusions

This research was a good opportunity to characterize the organic apple growing sector in Albania. Through this research we analysed the current problems of organic apple growers and identified their needs in terms of training and research.

The outcome of such activities has allowed us to identify some further steps to improve organic apple production:

- There are still very few experiences with organic apple growing; therefore, for demonstration purposes pilot orchards are needed. They should consist of scab resistant cultivars and testing of possibly interesting local fruit cultivars on appropriate rootstocks as well as for on farm researching of new techniques in organic fruit growing that should be tested and developed for their suitability to local conditions. These pilot farms can also function to show appropriate methods for other organic farmers (e.g. preventive methods in plant protection, soil management, thinning).
- Motivation and training of organic fruit growers, especially before and during conversion are needed. Information material for extension purposes should be provided and also a positive list of plant protecting agents and fertilizers allowed for organic fruit growing. A network of organic fruit growers, also to foreign countries should be established.
- Introduction of organic fruit growing in the university curricula and the international exchange of master or PhD students in this field is important to force knowledge and research on organic fruit growing. The distribution of already existing knowledge and the publication of new studies in organic fruit growing have to be extended.
- The consumers have to be educated by informing them on the risk of consuming fruits from conventional production (health problems from residues) and the advantages of products from organic farming in nutritional aspects.

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