

Improving organic apple growing in Kosovo and Albania – a challenge

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Abstract

The study was conducted during the period 2008 – 2009 with the aim to analyse and characterise the fruit growing sector in Kosovo and Albania. In terms of methodology, a survey was conducted in two rounds, the first being a quantitative questionnaire and the second a qualitative face-to-face interview with selected farmers in each country.

The results show that there are differences between Albanian and Kosovar farmers in terms of experience with organic production, average farm size, percentage of exclusively organic growing farms etc. Due to recent conversion, all Albanian and Kosovar farmers do not use appropriate cultivars for organic growing. They are not familiarised with resistant cultivars which are grown in European countries with tradition in organic fruit growing (e.g. 'Topaz'). In general, the pest and disease pressure is comparable with other countries but Albanian and Kosovar farmers lack the knowledge for prevention techniques.

Another important difference is the lack of motivation for farmers in Kosovo and Albania 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 Kosovo and 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 Kosovo, Albania and other countries.

Keywords: apple, organic, Kosovo, Albania, fruit

Introduction

Both Kosovo and Albania are small countries, covering 10.877 km² and 28.000 km² respectively, located in the Balkan Peninsula. The climate of Kosovo is continental, with Mediterranean influence in west, with warm summers and cold winters. In the western part of the Kosovo the climate is more moisture (annual rainfall: about 780 mm) and warmer (196-225 frost-free days). Located more in the south, the climate of Albania is Mediterranean and continental, with warm summers and cold winters. Both countries have a strong agricultural sector and are mostly rural.

In Kosovo and Albania, there is a strong political willingness to support organic agriculture, and apple growing is a sector of great relevance.

At this stage, Kosovar and Albanian farmers are not able to give an answer to the following questions: Which local cultivars should I use for organic fruit growing in my area? How

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would a certain cultivar behave under certain techniques? How should I adapt the organic growing techniques to a certain cultivar? How can I substitute the chemical fertilisers and pesticides?

The aims of the study were to: (i) describe and disseminate old sustainable traditional and new organic orchard methods and current problems in organic fruit growing and select; (ii) describe and recommend apple cultivars for organic farming; (iii) identify potentials for farm research. Such analysis will help in developing 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 in both countries, two rounds of questionnaires were conducted. The first one was conducted during the period April – September 2008, interviewing 12 Kosovar and 10 Albanian organic fruit growers about their production methods, experiences with cultivars, pests and diseases and challenges in their production systems.

The second round of interviews consisted in face-to face interviews with five selected farms 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'/'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 number of organic fruit growers and those in conversion interviewed is limited due to their small population (Table 1).

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

Indicators	Kosovo	Albania
Total number of farms interviewed	12	10
Total area of agricultural land	13.90 ha	52 ha
Average area of agricultural land/farm	1.1 ha	5.2 ha
Minimum	0.10 ha	1.1 ha
Maximum	4.0 ha	3.2 ha
Average no of years farmers are growing fruits organically	1.5	3
Minimum (years)	0	2
Maximum (years)	3	5
Percentage of exclusively organic growing farms	0	94 %
Total area of organic orchards	0	16 ha
Average area of organic orchards/farm	0	1.5 ha
Average altitude above sea level	479.3 m	130 m
Minimum	370 m	46 m
Maximum	590 m	700 m
Average precipitation per year	688.3 mm	706 mm
Minimum	600.0 mm	600 mm
Maximum	800.0 mm	800 mm

Apple production relative to other fruit trees, except olive production and grapevine for Albania, is the most important, for both countries. Although the agri-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. The choice of the cultivars is based on the market preferences and there has been no prior orientation towards resistant cultivars. The top cultivars cultivated under organic conditions are almost the same in both countries, namely 'Golden Delicious' and 'Idared' for Kosovo and 'Red Delicious' and 'Golden Delicious' for Albania. However, due to economic importance and tradition, there is a wider range of cultivars cultivated in Kosovo (20) than 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 combinations rootstock-scion. Local cultivars, like 'Hoçishtare' and 'Behari' are very minor in Albania and not existing in Kosovo (Table 2).

Table 2: Cultivars, area of cultivation and rootstocks used

Cultivar	No. farmers		Total area (ha)		Rootstock used for this cultivar	
	KO	AL	KO	AL	KO	AL
'Idared'	9	2	2.97	2.0	-	M106
'Gala'	-	3	-	2.1	-	M9
'Jonagold'	5	-	1.0	-	M9, M26	-
'Golden Delicious'	10	4	2.8	3.4	M9, M106, M26	M9, M106
'Boskoop'	2	-	1.9	-	M106	-
'Gloster'	1	-	0.1	-	M26	-
'Granny Smith'	6	-	0.8	-	M106, M9	-
'Melrose'	3	-	0.3	-	M106, M26	-
'Pink Lady'	3	2	0.3	0.5	M106	M9
'Mutsu'	3	-	0.3	-	M106	-
'Royal Gala'	1	-	0.3	-	M9	-
'Spartan'	2	-	0.03	-	M9	-
'Discovery'	1	-	0.3	-	M9	-
'Jonica'	2	-	0.1	-	M9	-
'Bromley'	2	-	0.2	-	M9	-
'Red Devil'	2	-	0.1	-	M9	-
'Jonathan'	2	2	0.1	1.5	M9, M26	M106
'Red Delicious'	2	6	1.9	6.5	M9, M26	M106
'Katy'	1	-	0.9	-	M9	-
'Falstaf'	1	-	0.2	-	M9	-
'Canadian Renette'	2	-	0.1	-	M9	-
'Hoçishtare'	-	1	-	0.3	-	M106
'Behari'	-	1	-	0.2	-	M106

In terms of pest and disease management, there is quite a similar pressure of pest and diseases. Such pressure has increased since conversion for apple scab (*Venturia inaequalis*), aphidae, codling moth (*Cydia pomonella*) and field mouse (*Microtus arvalis*). It has also increased for powdery mildew (*Podosphaera leucotricha*) and fire blight (*Erwinia amylovora*) in Kosovo and apple blossom weevil (*Anthonomus pomorum*), codling moth (*Cydia pomonella*) and storage diseases in Albania.

Pressure has decreased for other pests and diseases like apple rust mite (*Aculus schlechtendali*) in Albania and woolly apple aphid (*Eriosoma lanigerum*) in Kosovo. Pressure of red spider mite (*Panonychus ulmi*), summer fruit tortrix (*Adoxophyes orana*), saw fly (*Hoplocampa testudinea*) and apple blossom weevil (*Anthonomus pomorum*) stagnated (Table 3).

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

Pressure of disease or pest	Number of farmers who agreed				Difference (Number of cases "increased" - "decreased")
	Decreased	no change	Increased	causes a problem	
Apple scab (<i>Venturia inaequalis</i>)	2	3	2	6	0
Powdery mildew (<i>Podosphaera leucotricha</i>)	2	0	3	6	1
Aphidae	0	5	1	4	1
Codling moth (<i>Cydia pomonella</i>)	0	3	1	2	1
Fire blight (<i>Erwinia amylovora</i>)	1	1	2	4	1
Woolly apple aphid (<i>Eriosoma lanigerum</i>)	1	1	0	2	-1
Field mouse (<i>Microtus arvalis</i>)	1	2	1	3	0
Red spider mite (<i>Panonychus ulmi</i>)	0	0	0	1	0
Summer fruit tortrix (<i>Adoxophyes orana</i>)	0	1	0	0	0
Saw fly (<i>Hoplocampa testudinea</i>)	0	1	0	0	0
Apple blossom weevil (<i>Anthonomus pomorum</i>)	0	1	0	0	0
Storage diseases	0	0	1	0	1

Table 4: Development of the pressure of diseases and pests since the conversion in Albania

Pressure of disease or pest	Number of farmers who agreed				Difference (Number of cases "increased" - "decreased")
	decreased	no change	increased	causes a problem	
Voles (<i>Arvicola terrestris</i>)	2	2	6	5	4
Sooty blotch/flyspeck (<i>Gloeodes pomigena</i> , <i>Schizothyrium pomi...</i>)	1	7	2	3	1
Woolly apple aphid (<i>Eriosoma lanigerum</i>)	1	8	1	3	0
Aphidae	0	1	9	8	9
Storage diseases	1	2	7	5	6
Apple blossom weevil (<i>Anthonomus pomorum</i>)	0	2	8	8	8
Apple saw fly (<i>Hoplocampa testudinea</i>)	0	9	1	3	1
Codling moth (<i>Cydia pomonella</i>)	0	0	10	10	10
Apple scab (<i>Venturia inaequalis</i>)	0	1	9	8	8
Fire blight (<i>Erwinia amylovora</i>)	2	1	7	5	5
Red spider mite (<i>Panonychus ulmi</i>)	2	4	4	2	2
Apple rust mite (<i>Aculus schlechtendali</i>)	5	2	3	2	-2
Powdery mildew (<i>Podosphaera leucotricha</i>)	1	6	3	2	2

Due to recent history of organic fruit growing but also the general lack of technical skills of Kosovar and Albanian farmers compared to European ones, require much more knowledge gained through education and research (Table 4). The fruit growers, in both countries, require 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.

There is very little experience among the Albanian farmers with the mixing of fruit species or of apple cultivars in one orchard, apart from few cases of pear and grapevine, but quite a good experience among Kosovar growers, especially with plums (Table 6). There is little experience in both countries with the mixture of cultivars, species and animal husbandry (Table 5).

Table 5: Need for scientific research

Scientific research required in the field of	Number of farmers who agreed	
	KO	AL
Cultivars	6	8
Soil management in the row	2	6
Plant protection	12	8
Planting material and tree nursery	6	7
Mixture of fruit species	1	1
Combination of animals and fruit growing	1	-
Soil management between rows	1	-
Fruit quality	8	6
Pruning	4	3
Irrigation	1	1
Support during the conversion	10	9
Mixture of cultivars	1	2
Education systems	5	6
Thinning	5	6
Soil cover and management	4	4

Table 6: Experience with mixture of cultivars

Mixture of cultivars and species	Number of farmers who agreed	
	KO	AL
Experience with mixture in general	8	7
Apple, pear, plum etc. cultivars mixed	8	1
Apple cultivars mixed	4	6

From the in-depth interviews we were better able to analyse the organic fruit growing sector in both countries and characterize the organic fruit growers. In this regard, we found that the main motivation of the farmers to convert was the market access and price premiums. Such 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).

Lack of qualifications and skills was common in both countries but more accentuated in Albania because during the communist regime the actual farmers were employed as workers in the cooperative; they did not managed 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 biopesticides 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 in both countries 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. This is causing some frustrations to the farmers as they are not getting a price premium for the sale of the organic apples. 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 consumer, even the most educated ones which are hardly found in both Kosovo and 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 in both countries. They apply some mulching with hay. There is a great lack of knowledge in terms of soil management because there is no tradition passed from old generations. They are also showing resistance in implementing organic soil management practices.

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 variety of other soil amendments available to satisfy the needs of poor soils, which are very common in Albania and Kosovo. 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.

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

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