

EDIBLE PLANTS SOLD ON MARGINAL RURAL MARKETS IN FERGANA VALLEY, SOUTHERN KYRGYZSTAN

M. VLKOVA¹, V. VERNER^{1*}, A. KANDAKOV¹, Z. POLESNY¹, N. KARABAEV², L. PAWERA¹, I. NADVORNIKOVA¹ and J. BANOUT¹

¹ *Czech University of Life Sciences Prague, Faculty of Tropical AgriSciences, Czech Republic*

² *Kyrgyz National Agrarian University after K. I. Skryabin, Agronomy Faculty, Bishkek, Kyrgyzstan*

Abstract

VLKOVA, M., V. VERNER, A. KANDAKOV, Z. POLESNY, N. KARABAEV, L. PAWERA, I. NADVORNIKOVA and J. BANOUT, 2015. Edible plants sold on marginal rural markets in Fergana Valley, southern Kyrgyzstan. *Bulg. J. Agric. Sci.*, 21: 243–250

Since the beginning of 1990s, after the dissolution of Soviet Union, many rural regions across Central Europe and Central Asia have returned to traditional market chains of food distribution. This is evident particularly in countries such as Kyrgyzstan where local production of crops were focused on production of cash-crops for export during the communism, e.g. cotton, tomatoes or melons. Nowadays, farming systems have changed into more subsistence ones, while the surpluses of edible plants are traded locally. Our survey was carried out during July 2012 in Kulundu village that is situated at the edge of Fergana Valley, about one hour by car from Isfana town. The role of rural markets was analysed as well as local food crop species together with their categories of use. We documented twenty local species sold on rural markets, which served particularly as a food supplements or garnitures for local cuisine. Furthermore, positive impact of food-crops commercialization on living standard of the vendors was also observed. Authors argued that local markets play an important role in poverty alleviation of vendors as well as food security of local population as food supplies have been fickle after Soviet Union dissolution. They played significant social role through enable people to meet regularly and purchase food supplements for daily life and generate additional cash for vendors. It is necessary to mention that traditional rural markets in target area we analysed were of minor importance at province level. However, they were prosperous and their cultural as well as socioeconomic role is undisputed.

Key words: market survey; ethnobotany; food security; living standard; Fergana Valley; Kyrgyzstan

Introduction

Marketplaces are considered as places of intensive interaction between people of different socioeconomic groups, and, of course, of vendors and consumers. Furthermore, they represent rich sources of information on locally sold food, food habits, and wild, semi-domesticated or fully-domesticated food plant species (Alexiades and Sheldon, 1996). For this reasons, marketplaces have being recognized by researches as readily accessible and

cost-effective places for fieldwork, providing qualitative and quantitative data concerning cultural, social and economic aspects of a plant's usage (Bye and Linares, 1983; Martin, 1992; Cunningham, 2001; Nguyen, 2006). Moreover, market studies have shown the historical changes in food supply, e.g. through introduction of new plants from other regions or socio-economic changes in demand. Such information is of high importance and has to be recorded in order to document historical dynamics in food preferences (Van der Berg, 1984; Nguyen, 2006). Cor-

*E-mail: vernerv@ftz.czu.cz

respondingly, studies of cultivated plants from markets places reveals interesting information on the interactions and relationships between people and plants in certain region. According to You-kai et al. (2004), the documentation of traditional ethnobotanical knowledge within vendors on market places is crucial for conservation of local plant species. However, recent ethnobotanical research on agro-biodiversity of market places remains underestimated in this context and according to our best knowledge the only published surveys have been made in Bolivia (Macia et al., 2005), Brazil (de Albuquerque et al., 2007), China (You-kai et al., 2004; Lee et al., 2008), Greece (Hanlidou et al., 2004), Mexico (Bye and Linares, 1983; Nicholson and Arzeni, 1993) or South Africa (Williams et al., 2000; Williams et al., 2005). Particularly studies on local markets, market flows, and the value of the plant material traded remains rather scarce.

Generally, recent ethnobotanical studies usually gather the information on traditional ethnobotanical knowledge, such as vernacular names, plant parts used, modes of use, preparation and cultivation requirements, of given food plants species with commercial potential at local agricultural markets. Market surveys, however, could overlook agro-biodiversity as plant species entering commercial trade on markets represent a 'short-list' of a far greater diversity of species used in rural areas (Cunningham, 2001). Nevertheless, these surveys can identify plant species, which are important for local people and may offer the understanding of their present cultural and economic importance (Williams et al., 2005).

The situation of rural agricultural markets in Kyrgyzstan corresponds with recent political and socioeconomic situation in the Central Asian region. Dissolution of Soviet Union has brought many changes to the structure of agricultural production, food supplies and rural households' incomes for purchasing expensive, usually imported, food. Kyrgyzstan suffers from limited infrastructure, which affects transportation costs and hinders potential opportunities for export diversification (Kurmanalieva, 2008). Vast rural areas, particularly in southern part of the country, are now running more subsistence oriented farming systems and the very few products are intended for markets. Nevertheless, rural households still consider local markets as important place from both economic and cultural point of view. Therefore, our research aims (i) to describe the historical and recent development of rural markets in Kulundu administrative division, (ii) to document which main types of food were sold on local markets and what were the main categories of use, and, (iii) how the commercialization of these products influenced a living standard of the vendors.

Materials and Methods

Study site description

The market survey was conducted in the northern part of district Leylek, Kulundu village, south-western Kyrgyzstan (Figure 1). Kulundu belongs to Fergana Valley, which covers the two the most important agricultural region of Kyrgyzstan oriented on crop, while on the north and west borders with Tajikistan. This study area is located about one hour by car from Isfana town that is the administrative centre of Leylek district.

Data collection

Data were collected in July 2012 on two selected markets: Kulundu, in the village centre, and International, which is located at the eastern part of the village, on the frontier with Tajikistan. Firstly, we observed chosen markets to get the overview about the offered products, trading practices and profile of the buyers. Data on crop sold on the market and socioeconomic impact on sellers were collected through semi-structured questionnaires. For preparation of the questionnaire we use already published studies (Bye and Linares, 1983; Mati and de Boer, 2011). Local key informants provided us with the historical background and recent situation of study area. Within this study a responsibility towards the surveyed group was maintained.

First, we explained the premise for the study and asked the vendors in surveyed markets whether they would be willing to participate on our research. Data were collected from 16 respondents (5 male and 11 female, aged 23–56 years), which represented almost every fourth vendor present at the market during the time of our data collection. The interviews were conducted in a broad range of settings, including information on vendors, sold crops, places of cultivation, and modes of use and price range of individual crops in order to get general overview of the study site. In many cases we started our interviews to be informal or open, and many insights were obtained during casual conversations. With time, the interviewees got more open up and understand the context of the questions. Asking questions became easier, as we did conducting more structured interviews, where the direction of the conversation is controlled to some extent by the interviewer (Bernard, 2006). Some questions regarding to stocks and total daily turnovers were quite sensitive for our respondents and thus those data were not included in our survey.

The questionnaires itself were prepared in English, and subsequently translated to Russian. Nevertheless, all of the respondents were Kyrgyz nationality and Kyrgyz speaking, that is why all interviews were conducted in Kyrgyz in or-

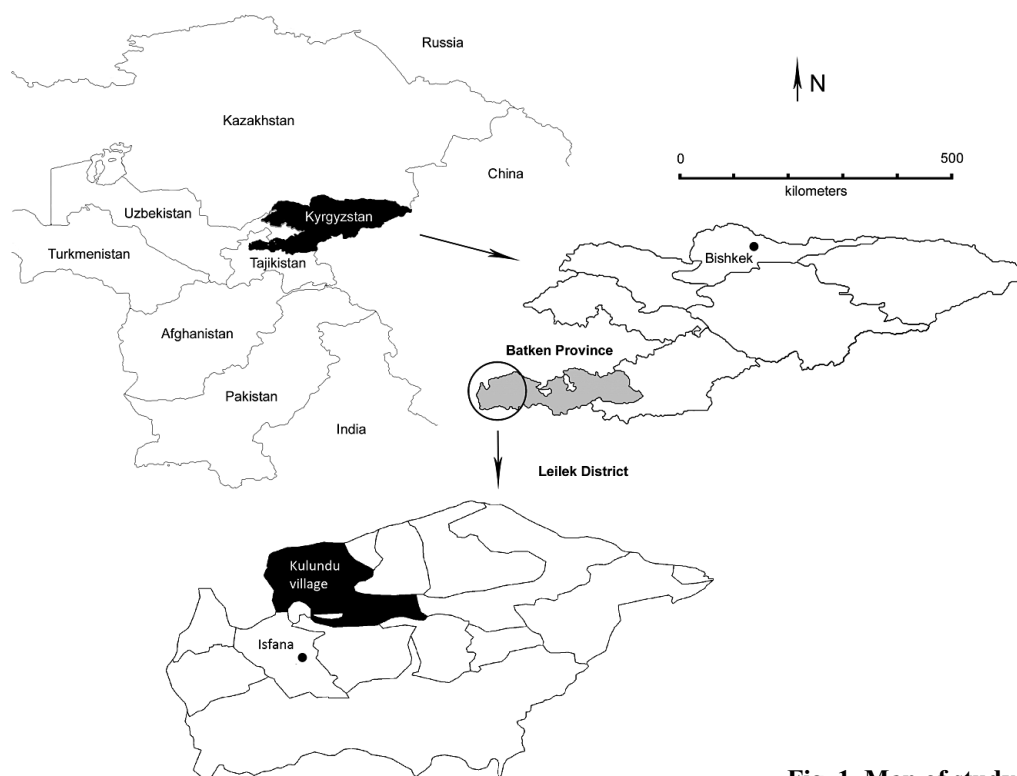


Fig. 1. Map of study site

der to ensure locally relevant answers and subsequently recorded in Russian to questionnaire. As Kyrgyz terminology, predominantly local botanical nomenclature and food names, was similar to Russian, the imprecision in translation are considered negligible. Interviews were carried out by authors in cooperation with scientific translator affiliated to KNAU. Informants' responses to additional and informal questions including ethnobotanical, socioeconomic data and observed data were recorded in a field notebook immediately. In order to provide evidence for the identification of scientific name, all plant species mentioned by respondents were documented according to guidelines of (Thomas et al., 2007). Photos were taken to document species and all agricultural products sold on market to which the research is concerned.

Data analysis

In presented results all efforts has been taken to hide the identity of respondents, no names or reference to names have been used. Illustrated reference monograph was used to assist plant identification (Hanelt et al., 2001). In order to classify the categories of plant use of sold products, data related to plant species were sorted according to Economic Botany Data Standard (Cook and Prendergast, 1995). Impact of selling food products at local markets on the living standard of

the households was identified as in similar studies e.g. (Mati and de Boer, 2011). MS Excel was used as database and for calculation of statistical indicators, such as means and standard deviations.

Results

Markets specification

The market in Kulundu village was included in the balance of Kulundu consumer cooperative for 20 trade places, with territory of 1520 m². The market was founded in 1954, at the same time when the village was founded during the Soviet period. However, its importance increased after the dissolution of Soviet Union when almost all food supplies have stopped. Number of potential customers of the market was 1,830 (number of households of Kulundu village in the time of our survey). Near-border market in Internatsyonal village was included in the balance of Kulundu consumer cooperative for 50 trade places, with territory of 3500 m². The market was founded in 1956, at the same time when the village was founded during the Soviet period. Its history during Soviet times is rather similar to that in Kulundu. Both markets offered crop-based and animal-based food products, as well as natural-made construction material or tools.

Products observed

Overall, the study identified twenty crop species that were sold in the surveyed markets and which were used for nutritional purposes. The most important products were mainly vegetable, particularly tomatoes (*Solanum lycopersicum* L.), carrots (*Daucus carota* L.), onion (*Allium cepa* L.), and potatoes (*Solanum tuberosum* L.); while from cereals wheat (*Triticum aestivum* L.) The vegetable took dominant places because of its' wide use in traditional kitchen, relatively modesty growing and possibility to be grown in home gardens in small amount, sufficient for family demand. Given the price of sold products, as the cheapest were identified various vegetables such as tomatoes, carrots, and onion, followed by cucumbers (*Cucumis sativus* L.), and cabbage (*Brassica oleracea* L.), while among the fruit dominated apricots (*Prunus armeniaca* L.) and apples (*Malus × domestica* Borkh.) The low price of fruit was maintained due to wide areas of orchards. In contrast, the most expensive species were cherries (*Prunus avium* L.), raspberries (*Rubus idaeus* L.), grapes (*Vitis vinifera* L.) and garlic (*Allium sativum* L.)

In total, 20 vernacular names associated with 20 plant species belonging to 16 genera and 10 families were identified. The most representative families were Rosaceae (20%) and Solanaceae (20%), followed by Liliaceae, Cucurbitaceae, Brassicaceae and Apiaceae, each represented by 10%. Most crops were grown in home gardens, as well as on the cropped fields and orchards. The most important products included tomatoes, carrots, onion, potatoes and wheat. Majority of dessert fruits were used for making jams and compotes, in addition, some species, particularly apricots, were dried under direct sun, or were used for juice production. Majority of crops were harvested between May and October.

The only exceptions were apples and grapes, the late growing species that yielded in the fall (refer to Table 1). Additionally, high price volatility was observed especially among crops, such as tomato, carrot and onion. Generally, documented products had a wide range of use. Particularly vegetable was used as salad, side dish or even as a main course (Table 1). According to the respondents, the most traditional species used in local cuisine were apples, carrot, garlic, onion, tomatoes and cucumber. Typical salad consumed daily with majority of dishes was made from tomato, cucumber and onion, while apple was used to support digestion after main course. The most traditional Kyrgyz meal, *plov*, represents a mixture of rice, mutton meat, carrot, garlic and onion.

Commercialization and its impact on living standard of households

Vendors on investigated markets were predominantly women (68.7%) of Kyrgyz origin with the average age of

37 years (CV = 23 years), had a basic education with place of residence in Kulundu village (87.5%). Additionally, more than half of our respondents (63%) claimed that selling of agricultural products on local markets was one of the main sources of household income of interviewed vendors. Furthermore, our study documented three possible ways of selling products among our respondents: (i) first group of respondents, farmers, sold only their own products, (ii) farmers-vendors bought products from the neighbours and sold them further on the markets together with their own production, (iii) vendors used to buy products in supermarkets and sold them on local markets. Generally, typical respondent was selling 4.63 (SD = 2.00; CV = 43.15) products, usually in the main season starting from April or May to upcoming winter, i.e. September or November. Nevertheless, some farmers sold their production during the peak season only, i.e. in the summer or harvest time only. The most commonly sold species were tomatoes, onion and carrot. No difference was observed among those farmers who were selling cultivated production and those who purchased the agriculture products for future sales on targeted markets in terms of the most frequently sold crop species. Vendors, however, offered wider range of species in comparison to farmers (Table 2).

Discussion

Agro-biodiversity in market places

Present ethnobotanical research on agro-biodiversity of market places remains underestimated in this context. Based on this assumption, our research contributes the findings of other published surveys on similar issue from Greece (Handidou et al., 2004), Bolivia (Macia et al., 2005) or China (Lee et al., 2008), and should be considered as one of the first attempts to document the agro-biodiversity on rural markets in Central Asian countries. Our survey identified twenty crop species regularly sold on local markets in Kulundu Valley. Our survey confirms the conclusions made by (Zanca, 2003), who found that with the new political regime in Kyrgyzstan the agriculture production was diversified and new species have been introduced into existing agricultural species, particularly tomatoes (*Solanum tuberosum* L.), cabbage (*Brassica oleracea* L.), potatoes (*Solanum tuberosum* L.), berries, peppers (*Capsicum* ssp.), dill (*Anethum graveolens* L.), parsley (*Petroselinum crispum* L.) and other vegetables. Additionally, according to (Fitzherbert, 2006), wheat production increased dramatically after the collapse of the Soviet Union, until then, it was imported from other countries. Accordingly, we found that the wheat was one of the most common crop sold on local markets. This trend could be explained by the fact that wheat is an important commodity for the produc-

Table 1
Species characteristics of agriculture commodities sold on markets Kulundu and Internatsyonal (rank in alphabetical order)

English name	Scientific name	Vernacular name	Family	Source area (orchard - O, garden - G)	Plant part used	Use category	Local use	Availability during the year (in months)	Price per selling unit (min-max) in USD	Citation (n)
Apricot	<i>Prunus armeniaca</i> L.	Abrikos	Rosaceae	O	fruit	dessert fruits	jam, compote	V-VII	0.11-1.70	2
Apple	<i>Malus × domestica</i> Borkh.	Yabloko	Rosaceae	O	fruit	dessert fruits	jam, juice	VI-VII	0.21-0.42	1
Bean	<i>Phaseolus vulgaris</i> L.	Noviya	Fabaceae	O, G	seed	pulses	salad, side dish	VI-X	0.42-1.70	3
Cabbage	<i>Brassica oleracea</i> L.	Kapusta	Brassicaceae	G	all	green vegetables	meal dishes, vegetable dishes, soups, side dish	IV-VII	0.11-0.85	3
Capsicum	<i>Capsicum annuum</i> L.	Perec	Solanaceae	G	fruit	vegetables	side dish	V-XI	0.21-1.27	3
Carrot	<i>Daucus carota</i> L.	Markov'	Apiaceae	G, F	fruit	root vegetables	salad, all meal, soup, juice	V-XI	0.21-0.85	10
Cucumber	<i>Cucumis sativus</i> L.	Ogurec	Cucurbitaceae	G	fruit	vegetables	salad	V-X	0.21-0.85	2
Cherry	<i>Prunus avium</i> L.	Cheresh-nya	Rosaceae	G, F	fruit	dessert fruits	jam, compote, juice	V-VII	1.06-1.70	3
Dill	<i>Anethum graveolens</i> L.	Ukrop	Apiaceae	G	all	condiment	condiment	V-IX	0.21	1
Eggplant	<i>Solanum melongena</i> L.	Baklazhan	Solanaceae	G	fruit	vegetables	salad, side dish			
Garlic	<i>Allium sativum</i> L.	Sarymsak	Liliaceae	G	all	condiment, vegetables	condiment, salad, soup	V-XI	0.42-1.70	3
Gourd	<i>Cucubrita pepo</i> L.	Ashkabak	Cucurbitaceae	G	fruit	vegetables	diet meal	VII-X	0.64-1.06	2
Grapes	<i>Vitisvinifera</i> L.	Vinograd	Vitaceae	G	fruit	dessert fruits	jam, compote, dried			
Maize	<i>Zea mays</i> L.	Dzhugoru	Poaceae	G, F	seed	cereals	flour, bread, ingredient	V-XI	0.21-1.06	4
Onion	<i>Allium cepa</i> L.	Piyaz, Luk	Liliaceae	G, F	all	vegetables	all meals, salad, soup	V-XI	0.11-1.48	8
Potato	<i>Solanum tuberosum</i> L.	Kartofel	Solanaceae	G, F	fruit	tuber vegetables	side dish, mashed p., soup	VI-X	0.21-0.53	5
Radish	<i>Raphanus sativus</i> L.	Rediska	Brassicaceae	G	fruit	root vegetables	salad			
Raspberry	<i>Rubus idaeus</i> L.	Malina	Rosaceae	G, F	fruit	dessert fruits	jam, juice	V-IX	1.27-1.70	2
Tomato	<i>Solanum lycopersicum</i> L.	Tomat	Solanaceae	G, F	fruit	vegetables	all meals, salad, juice, soup	V-XI	0.11-2.12	13
Wheat	<i>Triticum aestivum</i> L.	Pshenica	Poaceae	G, F	seed	cereals	bread			

Table 2
Characterisation of interviewed vendors

	Farmer ¹	Farmer-Vendor ²	Vendor ³
n	11	3	2
n of species sold	2–6	4	5–1
Average (n) of species sold	4.2	4.0	10.5
Most commonly sold species	tomato carrot onion maize	tomato onion potatoes	tomato carrot onion pepper

Notes:

¹ Farmer is intended as a farmer (producer) who sells own products at market

² Farmer-Vendor is intended as a farmer who sells both his/her own production and purchases products from other farmers (e.g. in the village or in the neighbourhood)

³ Vendor is intended as a merchant or middleman who sells only purchased products at market

tion of bread and has a special importance in religious habits of local people. Furthermore, our results are in agreement with (Kalb and Mavlyanova, 2005), who stated that the most common vegetables in study area were tomatoes (*Solanum tuberosum* L.), carrot (*Daucus carota* L.), onion (*Allium cepa* L.), cabbage (*Brassica oleracea* L.) and cucumber (*Cucumis sativus* L.). Accordingly Zanca (2003) mentioned that potatoes and tomatoes are now very widely used, particularly in salads, soups, stews or as fried side dish to other meals. This statement was confirmed by both results, from our questionnaires, and our own observations. The mostly used nutritious commodities were wheat, rice and potatoes. According to (Zanca, 2003), potatoes were not considered as a 'good' source of food, due to poor storing ability. Nevertheless, we documented that for Kyrgyz people potatoes were of the same value as rice or wheat. Jarvis, Hodgkin (2000) found that there was a high competitiveness in the market, as most of the respondents sold the same crop species.

Agro-biodiversity conservation is generally used for description of a process by which farmers maintain the traditional crop varieties that they have developed and which they continue to manage and improve. As a result of this competition, the price and sales of crops sold in the market falls. In Kyrgyzstan, farmers generally grow well all major temperate fruit. In correspondence with (Kuo et al., 2006), we observed that most households grow some of the fruit trees and berry bushes, and their production is very important for the household economy, particularly apples (*Malus domestica* Borkh.) and apricots (*Prunus armeniaca* L.). Accordingly to our findings, (Kalb and Mavlyanova, 2005) documented that the main fruits grown are apples and apricots, which were used either fresh or dried. In addition, we have found that all fruits were widely used for making compotes and jams. Sellers however did not often mention these crops in question-

naires, due to the fact that these species were grown either only for their own consumption or, in contrast, all of them were exported to bigger cities and sold at urban markets.

Impact of selling agricultural crops on living standard of households

As previously stated, majority of our respondents were women. This could be explained through the following two assumptions. Firstly, men are usually engaged in farm activities, while selling the products is considered as a female activity, in a Kyrgyz perspective. Second reason is that men are working predominantly outside of the villages and thus, only female are able to sell agricultural products. Generally, women take care of household and at the same time they have a very limited access to financial resources. With this respects, selling products on local market also is therefore understood as a significant contribution to other living standard criteria, and social security. Based on further discussion with our respondents regarding to their cash security, water fees, food from market and expenses connected to the education of their children, were identified as the most important expenditures that were covered by cash income from selling crop products. Such finding confirms the results of (Bloch et al., 1996) stating that agricultural products harvested from small plots represent usually the main source of family income. Question is whether additional income would be also transferred in to increase profitability and quality of agricultural production. Nevertheless, lack of agricultural inputs is evident in target area. This issue was confirmed also by (Fitzherbert, 2006) who underlined the lack of cash in the rural economy, expensive and poorly available fertilizer, herbicides and seed of rather poor quality. Furthermore, we documented that all vendors were of Kirgiz origin which is in contrast to (Baker, 2011), who argues that the majority of

the population in the area of the Fergana Valley holds a very significant portion of three countries overall population concerning 27% of Uzbekistan, 31% of Tajikistan and 51% of the Kyrgyz Republic. However, our study was carried out in very end of Kyrgyzstan, Leilek district, far from other part of the Fergana Valley near cities Osh or Jalalabad, where Uzbek and Tajik minorities are more involved in selling agricultural products. Accordingly, local administration office confirms that over 90% of local population was of Kirgiz origin.

Implication for further research and recommendation for stakeholders

Based on our survey, following implication for further research could be recommended. First of all, origin of the plants should be investigated; whether they are native or introduced, and in addition, local varieties should be documented and preserved. Secondly, the efficiency of the whole value-chain should be increased, particularly via inputs support and/or appropriate post-harvest processing. This could be solved via introduction/utilization of resistant crop varieties. As a potential result, wider spectrum of products sold, and, with a higher added value could be offered. In addition, being of the highest importance, it would be beneficial to carry out the more complex and particularly cross-boundary study in order to understand the whole system at Kyrgyz-Tajik border. Finally, the extension service may improve the vendor's access to information about the market opportunities.

Limitations of our study

Results of our study could be in a certain manner influenced by the fact that study was carried out during the summer months and thus, not all agricultural products were available at this time. Furthermore, language barrier has to be also considered as our interviews and filling up the questionnaires needed a translator who communicated with vendors in their native language. Last, but not least, specific cultural barriers that are specific for resource-poor rural region in transition country have to be also considered.

Conclusion

The study documented the current situation on the local markets located in Fergana Valley, in rural areas of south-western Kyrgyzstan, in Kulundu administrative division. It brought knowledge not only about the markets themselves, in terms of their historical development after the collapse of the Soviet Union till present importance, but also identified the fundamental crops which are sold on local markets, their method of cultivation and way from field to the market, production management, price range, and other particularities.

We determined the species crucial for this area, tomatoes (*Solanum lycopersicum* L.), potatoes (*Solanum tuberosum* L.), carrots (*Daucus carota* L.), onions (*Allium cepa* L.), wheat (*Triticum aestivum* L.), apples (*Malus × domestica* Borkh.) and apricots (*Prunus armeniaca* L.) Overall, we found that rural markets represent one of the main additional incomes for local people that are particularly utilized at household level. Surprisingly, women were more involved in selling crops on local markets in comparison to men. In addition, farmers sold not only their own but also the purchased products in order to meet the local demand.

Acknowledgements

Research was financially supported by the ODA project financed by Ministry of Agriculture of the Czech Republic number 36/Mze/B/08-10 and by Internal grant agency of Faculty of Tropical AgriSciences number 20145025. We deeply acknowledge the enthusiasm of local administration in Kulundu village, namely Salimbek Kalmatovich Umarov for helping us better understand the historical consequences of rural markets development and role in the target area, and Bekmat Uldashevich Masaidov and Adinaev Saparali for their assistance with the data collection.

References

- Alexiades, M. N. and J. W. Sheldon, 1996. Selected Guidelines for Ethnobotanical Research: A Field Manual. *New York Botanical Garden*, New York, 306 pp.
- Baker, N-J., 2011. Post-Soviet universities as development in practice: local experience and global lessons. *Development in Practice*, **21**: 1050–1061.
- Bernard, H. R., 2006. Research Methods in Anthropology: Qualitative and Quantitative Approaches. *Alta Mira Press*, Oxford, 824 pp.
- Bloch, P. C., J. M. Delehanty and M. J. Roth, 1996. Land and agrarian reform in the Kyrgyz Republic. *University of Wisconsin-Madison*, Madison, 134 pp.
- Bye, R. A. and E. Linares, 1983. The role of plants found in the Mexican markets and their importance in ethnobotanical studies. *Journal of Ethnobiology*, **3**: 1–13.
- Cook, F. E. M. and H. D. V. Prendergast, 1995. Economic Botany Data Collection Standard. *Royal Botanic Gardens*, Kew, 146 pp.
- Cunningham, A. B., 2001. Applied Ethnobotany: People, Wild Plant Use and Conservation. *Earthscan Publications Ltd*, London and New York, 300 pp.
- de Albuquerque, U. P., J. M. Monteiro, M. A. Ramos and E. L. de Amorim, 2007. Medicinal and magic plants from a public market in northeastern Brazil. *Journal of Ethnopharmacology*, **110**: 76-91.
- Fitzherbert, A., 2006. Country Pasture/ Forage Resource Profiles. *FAO*, Rome, 31 pp.

- Hanelt, P., R. Büttner and R. Mansfeld**, 2001. Mansfeld's Encyclopedia of Agricultural and Horticultural Crops (Except Ornamentals). *Springer-Verlag*, Berlin, 3641 pp.
- Hanlidou, E., R. Karousou, V. Kleftoyanni and S. Kokkini**, 2004. The herbal market of Thessaloniki (N Greece) and its relation to the ethnobotanical tradition. *Journal of Ethnopharmacology*, **91**: 281–299.
- Jarvis, D. and T. Hodgkin**, 2000. Farmer decision-making and genetic diversity: linking multidisciplinary research to implementation on farm. In: S. B. Brush (Ed), *Genes in the Field: On-farm Conservation of Crop Diversity. International Plant Genetic Resources Institute*, Rome, pp. 261–274.
- Kalb, T. J. and R. F. Mavlyanova**, 2005. Vegetable Production in Central Asia: Status and Perspectives. *AVRDC-World Vegetable Center*, Tainan, 134 pp.
- Kuo, C. G., R. F. Mavlyanova and T. J. Kalb**, 2006. Increasing Market-Oriented Vegetable Production in Central Asian and the Caucasus through Collaborative Research and Development. *AVRDC-World Vegetable Center*, Tashkent, 251 pp.
- Kurmanalieva, E.**, 2008. Empirical analysis of Kyrgyz trade patterns. *Eurasian Journal of Business and Economics*, **1**: 83–97.
- Lee, S., C. Xiao and S. Pei**, 2008. Ethnobotanical survey of medicinal plants at periodic markets of Honghe Prefecture in Yunnan Province, SW China. *Journal of Ethnopharmacology*, **117**: 362–377.
- Macia, M. J., E. Garcia and P. J. Vidaurre**, 2005. An ethnobotanical survey of medicinal plants commercialized in the markets of La Paz and El Alto, Bolivia. *Journal of Ethnopharmacology*, **97**: 337–350.
- Martin, G. J.**, 1992. Searching for plants in peasant marketplaces. In: M. Plotkin and L. Famolare (Eds), *Sustainable Harvest and Marketing of Rain Forest Products. Island Press*, Panama City, pp. 212–223.
- Mati, E. and H. de Boer**, 2011. Ethnobotany and trade of medicinal plants in the Qaysari Market, Kurdish Autonomous Region, Iraq. *Journal of Ethnopharmacology*, **133**: 490–510.
- Nguyen, M. L. T.**, 2006. Insertions and deletions: evolution in the assemblage of Vietnamese food plants. *Ethnobotany Research & Applications*, **4**: 175–201.
- Nicholson, M. and C. Arzeni**, 1993. The market medicinal plants of Monterrey, Nuevo León, México. *Economic Botany*, **47**: 184–192.
- Thomas, E., I. Vandebroek and P. Van Damme**, 2007. What works in the field? A comparison of different interviewing methods in ethnobotany with special reference to the use of photographs. *Economic Botany*, **61**: 376–384.
- Van der Berg, M. E.**, 1984. Ver-o-Peso: The ethnobotany of an Amazonian market. In: G. T. Prance, and J. A. Kallunki (Eds), *Ethnobotany in the Neotropics Symposium. New York Botanical Garden*, New York. pp. 140–149.
- Williams, V., K. Balkwill and E. F. Witkowski**, 2000. Unraveling the commercial market for medicinal plants and plant parts on the Witwatersrand, South Africa. *Economic Botany*, **54**: 310–327.
- Williams, V., E. T. F. Witkowski and K. Balkwill**, 2005. Application of diversity indices to appraise plant availability in the traditional medicinal markets of Johannesburg, South Africa. *Biodiversity & Conservation*, **14**: 2971–3001.
- You-kai, X., T. Guo-Da, L. Hong-Mao, Y. Kang-La and D. Xiang-Sheng**, 2004. Wild vegetable resources and market survey in Xishuangbanna, Southwest China. *Economic Botany*, **58**: 647–667.
- Zanca, R.**, 2003. “Take! Take! Take!” Host-guest relations and all that food: Uzbek hospitality past and present. *Anthropology of East Europe Review*, **21**: 8–16.

Received July, 23, 2014; accepted for printing December, 2, 2014.