

City-adjusted farm strategies in B&H, MN and XK (WP1 - Deliverable 1.6)

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Contents

| | |
|--|----|
| City-adjusted farm strategies in B&H, MN and XK (WP1 - Deliverable 1.6)..... | 1 |
| DOCUMENT CONTROL SHEET | 3 |
| VERSIONING AND CONTRIBUTION HISTORY..... | 3 |
| Introduction WP 1 „Needs Analysis“: General description and objectives | 4 |
| City-adjustment strategies..... | 4 |
| Introduction | 4 |
| Expert working groups’ reports and survey among key stakeholder groups | 6 |
| Farm models and value chains in Bosnia and Herzegovina, Montenegro, and Kosovo | 14 |
| Short supply food chains..... | 16 |
| Alternative Food Networks..... | 19 |
| Social innovation, co-production, and participation | 23 |
| Service provision | 24 |
| Business models..... | 27 |
| Urban farming’s business models..... | 28 |
| Synthesis of farm models and food chains | 45 |
| Consumer preferences survey | 46 |
| References | 58 |

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Introduction WP 1 „Needs Analysis“: General description and objectives

WP 1 „Needs Analysis“ aims to deliver important information to design new curricula and lifelong learning (LLL) modules based on existing and new data from both, WB and EU. Additionally, it aims to provide an appropriate infrastructure for teachers' training on urban agriculture within Bosnia and Herzegovina, Montenegro, and Kosovo. In terms of education resources WP 1 defines skills and competences required to design teaching and learning environments supporting urban agriculture entrepreneurship. Thus, WP 1 is an essential requirement for BUGI's downstream WPs. Within WP 1 data collection embraces different levels in terms of materials and methods to define knowledge, skills, and competences needed for (new) entrepreneurship in urban agriculture. The surveys address practitioners and actors in urban agriculture (farmers, start-ups, but also actors in the food value chain) (Deliverables 1.3 and 1.4), different stakeholder groups, like NGOs, HEIs, public authorities, and SMEs including farmers (Deliverable 1.2), and consumers (Deliverable 1.5). The findings of the Deliverables 1.2-1.5 are going to be synthesized in Deliverable 1.6 „City-adjusted farm strategies in Bosnia and Herzegovina, Montenegro, and Kosovo“.

City-adjustment strategies

Introduction

This strategic document on city-adjustment strategies in Bosnia and Herzegovina, Montenegro, and Kosovo synthesizes previously delivered reports within this WP. It will combine the work of the three expert working groups: business and networking (1), agriculture and food processing (2), and urban planning, ecology, and energy efficiency (3). This document is named to be the cornerstone of new curricula and LLL programs.

UA has to adjust to the urban environments by using the existent opportunities, like proximity to consumers, by dealing with urban disadvantages and where possible turn the urban location into a marketing asset. Business models of farms located in urban and peri-urban areas have to be different from those located in rural areas. This report analyses and proposes different city-adjustment strategies and business models for UA in partner countries and explores their advantages and disadvantages. Farm business adjustments to the cities and their customer preferences are discussed.

This report sets the basis for curricula and LLL programs, but also aiming for more sustainable food systems in urban contexts of Western Balkan countries.

Constitution of expert working groups

For providing appropriate procedures in WP1 it is important to perform the upstream task to constitute three expert working groups. This three expert working groups are led by EU member states' partners (SWUAS/Germany, UniBo/Italy, and UL/Slovenia). Besides the lead of partners not being based in WB states embrace at least one representative of each WB partner country (Bosnia and Herzegovina, Montenegro, and Kosovo) (s. Table 1).

Table 1: Nomination of expert working groups' members

| Working Group | Lead | National representative in charge | | |
|--|----------------------------|--|----------------------|------------------------------------|
| | | Bosnia and Herzegovina | Montenegro | Kosovo |
| Business and networking | Bernd Pölling (SWUAS) | Aleksandra Nikolić (UNSA) Ahmed Dzibur (UNMO) | Vladan Božović (UDG) | Ibish Mazreku (UHZ) |
| Agriculture and food processing | Giuseppina Pennisi (UNIBO) | Zlatan Sarić (UNSA) Alma Rahimic (UNMO) | Vesna Maraš (UDG) | Nexhdet Shala (UHZ) |
| Urban planning, ecology, energy efficiency | Rozalija Cvejić (UL) | Amir Causevic (UNSA) Elma Temim (UNMO) | Vladan Božović (UDG) | Agim Rysha (UHZ) Sali Aliu (UP) |

The desktop research aims to provide state-of-the-art in the partner countries Bosnia and Herzegovina, Montenegro, and Kosovo. It includes all kinds of documents (reports, action plans, strategies, articles, etc.) available in any form ranging from printed documents to online documents. Primary data are gathered via personal in-depth interviews and via web-based surveys.

Definition "urban agriculture"

For the purpose of the BUGI project it is important to pre-define urban agriculture for WB conditions. It is confirmed by all project partners that within BUGI urban agriculture is defined as follows.

Urban agriculture (UA) produces, processes, and/or markets food and non-food goods as well as it offers services. Actors and businesses are defined as UA when meeting the two criteria of (1) geographical proximity and (2) organizational proximity to cities and city dwellers.

(1) Geographical proximity exists when the UA actors and businesses are situated within administrative city boundaries or their adjacent municipalities. Furthermore, under certain circumstances, entities from outside this area can also fulfil the geographical proximity requirement when having a well-established infrastructural connection to the city.

(2) Organizational proximity means that the UA actors and businesses are connected to the end consumers (food and non-food goods) or end users (services) either directly (no intermediaries) or by maximum one intermediary (e. g. processors, butchers, bakeries, restaurants, cafés, etc.). In this regard, distributors, which are just buying and selling goods without any product processing, are not considered to fulfil this criteria.

Expert working groups' reports and survey among key stakeholder groups

2.2.1 Expert working groups' reports

Within the three expert working groups, which have been constituted at the beginning of the BUGI project lifetime, partners from EU (Slovenia, Italy, and Germany) and the three Western Balkan states (Bosnia and Herzegovina, Kosovo, and Montenegro) investigated EU respectively national situation of the three major fields in urban agriculture:

- a) Business and networking;
- b) Agriculture and food processing; and
- c) Urban planning, ecology, energy efficiency.

For further details on the three expert working groups please have a look at the survey guide (Deliverable 1.1). The main questions to be answered by the three expert groups within the desktop research are:

a) Business and networking:

- What are existing business strategies and what is their share in market?

- What is strategic national plan for agro-business?
- What skill and competences are required to meet strategic plan?
- What is the “success factor” for successful business strategies?
- What is the main obstacle for businesses-“failure factor”?
- What is the level of networking between different stakeholders?
- What type of networking exists/is used?
- What skills skill and competences are required to improve networking between stakeholders?

b) Agriculture and food processing:

- What skills/competences are needed/valued in agriculture/ food processing?
- What is strategic national plan for agriculture and food processing?
- What skill and competences are required to meet strategic plans?
- What is considered as “strategic crop” and valued food processing product?
- What types/techniques of production are used in agriculture?
- What are existing food supply chains?
- How food supply chain is organized according to the stakeholders?

c) Urban planning, ecology, energy efficiency:

- What is the share of agricultural land in urban areas?
- What is municipal plan with agricultural land?
- What is the state of urban ecology?
- What is action plan for improvement of urban ecology?
- What skill and competences are required to meet strategic plan?
- Is there an action plan including greening of public spaces or community gardens?

This desktop research based on scientific and non-scientific literature and references as well as statistical data provides the basis for further empirical surveys including the surveys among the key stakeholder groups of Higher Education Institutions (HEIs), Small- and Medium-sized Enterprises (SMEs), Non-Governmental Organizations (NGOs), and Public Authorities (PAs) (Deliverable 1.2), but also including the farm survey (Deliverables 1.3/1.4) and consumer survey (Deliverable 1.5).

The expert working groups’ reports are accessible in the Deliverable 1.2 report; chapter 2.1 “Status quo reports: EU and national levels”.

2.2.2 Surveys among key stakeholder groups

Besides the EU and national desktop research on urban agriculture’s skills and competences (s. above 2.2.1), primary data from representatives of key stakeholder groups provide additional information and insights into the situation and status quo of the three Western Balkan states Bosnia and Herzegovina, Kosovo, and Montenegro. The questionnaires we used had been developed, tested, in the Training Needs Analysis within the course of the Erasmus+ project URBAN GREEN TRAIN (Urban Green Education for Enterprising Agricultural Innovation). URBAN GREEN TRAIN’s Training Needs Analysis and links between BUGI and URBAN GREEN TRAIN findings are accessible in the Deliverable 1.2 report. The four considered key stakeholder groups are Higher Education Institutes (HEIs), Small and Medium-sized Enterprises (SMEs), Non-Governmental Organizations (NGOs), and Public Authorities (PAs). In total, 136 survey replies have been received, whereof the majority of 96 origins from Kosovo and each 20 from Bosnia and Herzegovina and Montenegro (s. Figure 1). All 20 Montenegrin ones have been conducted with PAs, while in Bosnia and Herzegovina eleven PAs, six NGOs, and three SMEs could be surveyed. The replies from Kosovo origin from HEIs (35), SMEs (31), and NGOs (30) showing a homogeneous distribution. Although country-specific coverages of the key stakeholder groups are imbalanced, summing the three states the surveys reached more than 30 for each stakeholder group.

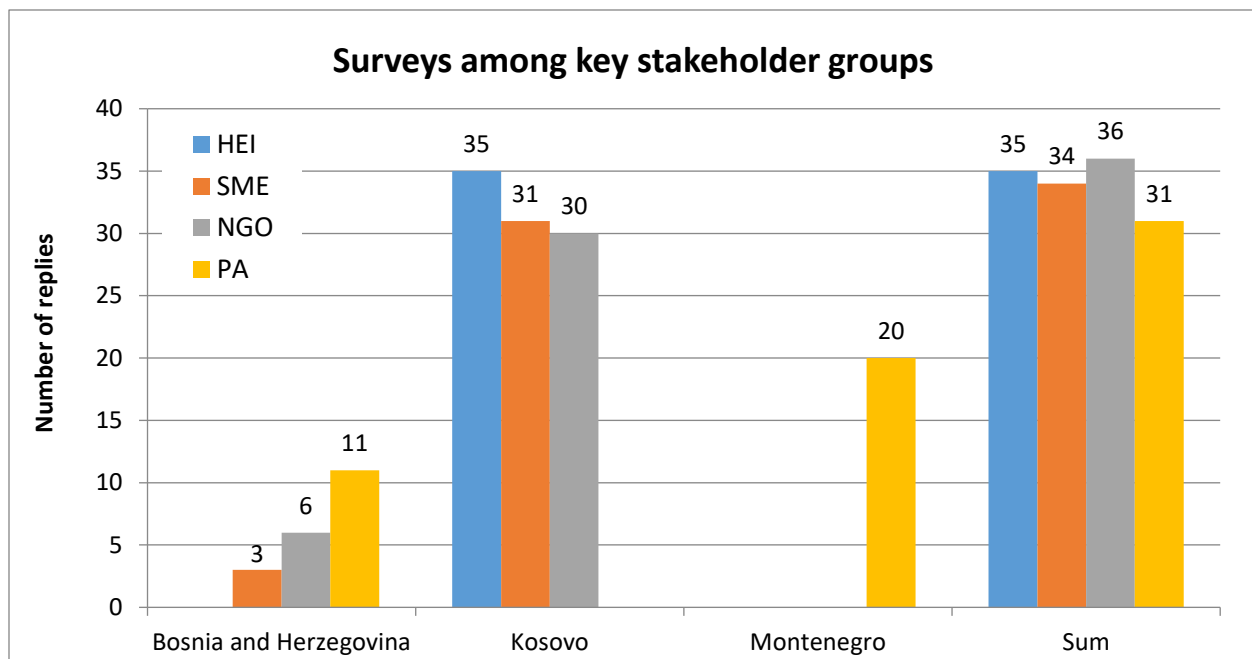


Figure 1: Number of interviews per Western Balkan state and stakeholder group

Fifteen (43%) of the in total 35 surveyed persons from Kosovan HEIs name, that some elements of Urban Agriculture are already integrated into their curricula. The topics, which are covered in existing curricula with linkages to Urban Agriculture and named to more than 50% by the 15 HEI persons, are plant production, project planning, machinery/engineering, marketing/trading, and business planning, administration, and finances. The large majority of 86% name an interest in Urban Agriculture entrepreneurial education. The differences between countries and stakeholder groups are comparable small – except a lower interest of SMEs from Kosovo (s. Figure 2).

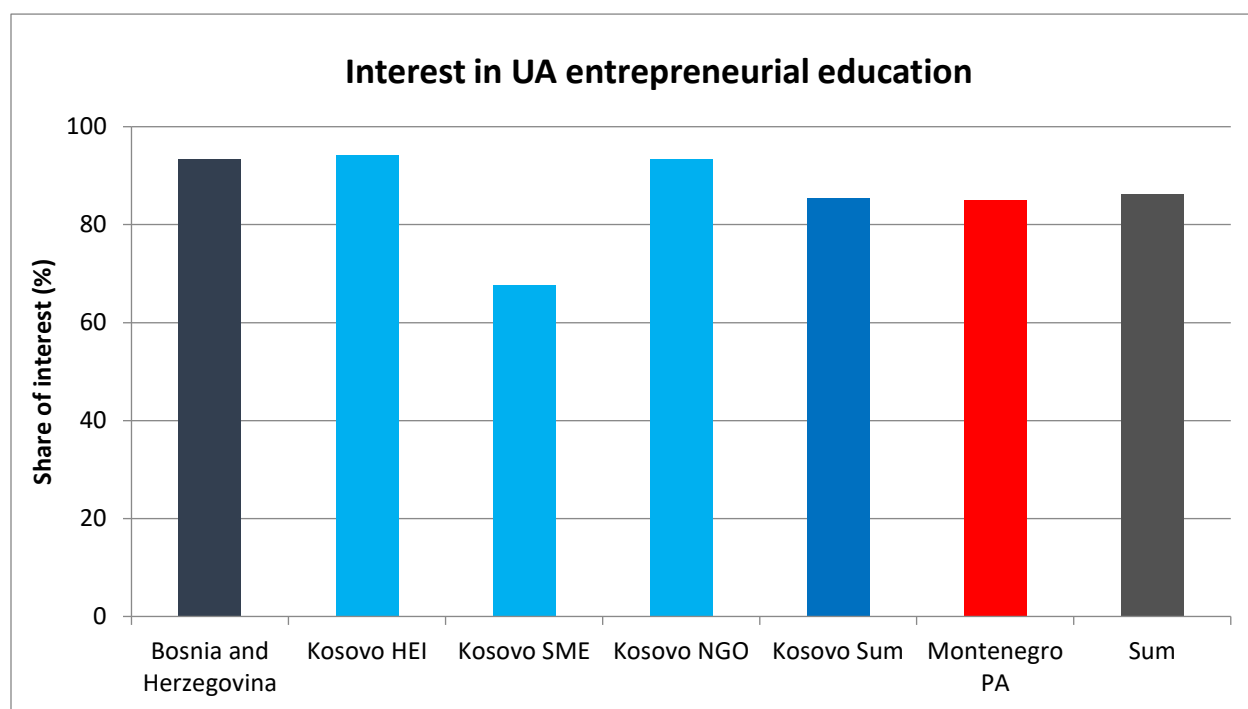


Figure 2: Share of interest in Urban Agriculture entrepreneurial education with regard to states and stakeholder groups.

The formal master and bachelor university courses are highlighted as the most suitable levels of education (s. Figure 3). Contrarily, PhD courses are named by less than 20%. Non-formal life-long learning (LLL) / out-of-school offers reach with more than 40% the third highest rank following the master and bachelor level. Technical / Vocational schools and computer-supported training offers reach also a certain level to be considered. It becomes obvious that especially the Kosovan HEIs support university master and bachelor, but also technical / vocational schools and LLL offers to more than 80%, while all the other stakeholder groups and Western Balkan countries are more reluctant. Some comments from Bosnia and Herzegovina

regarding the level and kind of education emphasizes the formal university education, but go also behind by including in-formal LLL, practical skills, and offers for people with special needs. These statements from Bosnia and Herzegovina are in line with some corresponding comments from Kosovan HEIs and SMEs.

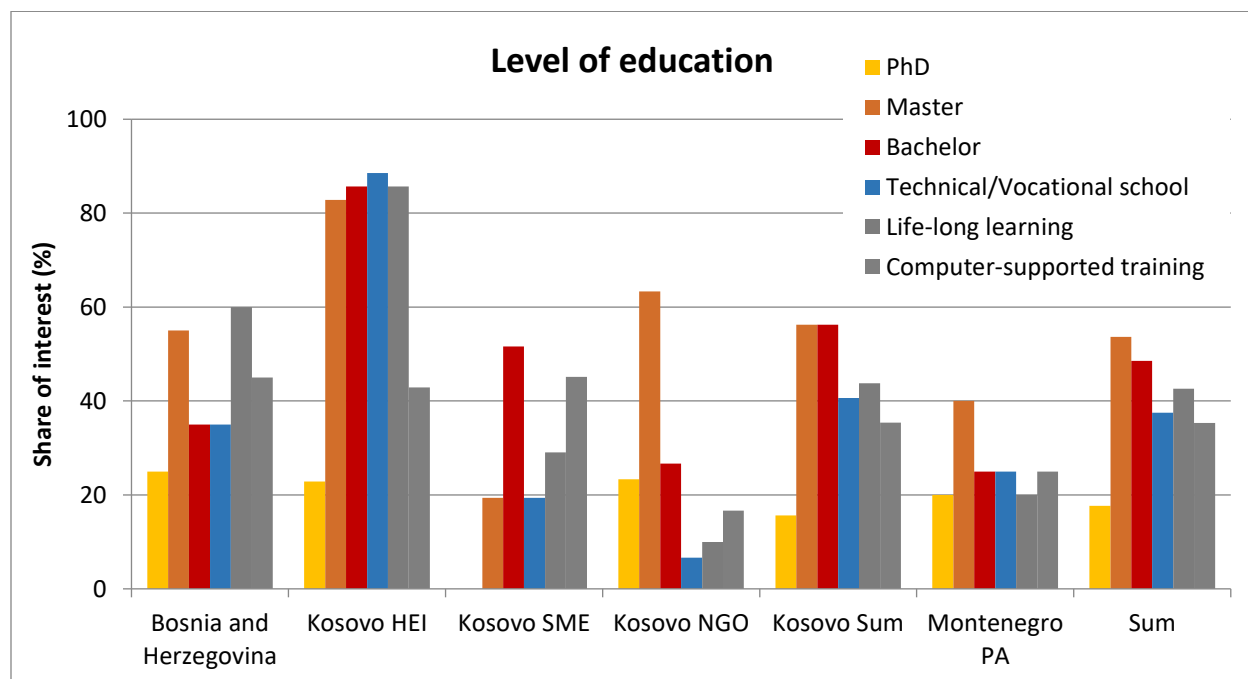


Figure 3: Which level and kind of education is from your point of view suitable for UA entrepreneurial education

About 75% name communication a required soft skill for UA entrepreneurship and an issue to be covered in UA entrepreneurial education (s. Figure 4). Communication is ranked highest followed by creativity, time management, and flexibility. Communication skills are named by all states and stakeholder groups to more than 75% - except the Montenegrin public authorities, while these 20 PAs from Montenegro highlight especially creativity. Analytical competences are named comparable little by the Western Balkan stakeholder groups. Kosovan replies add further comments emphasizing several times “(self-)confidence”, but also “teamwork, reliability, seriousness” and “commitment”. One respondent from Bosnia and Herzegovina names also additional skills, like “innovation”, “ability to think in different directions”, and “desire for learning”. Generally speaking “all are linked together to be complete”.

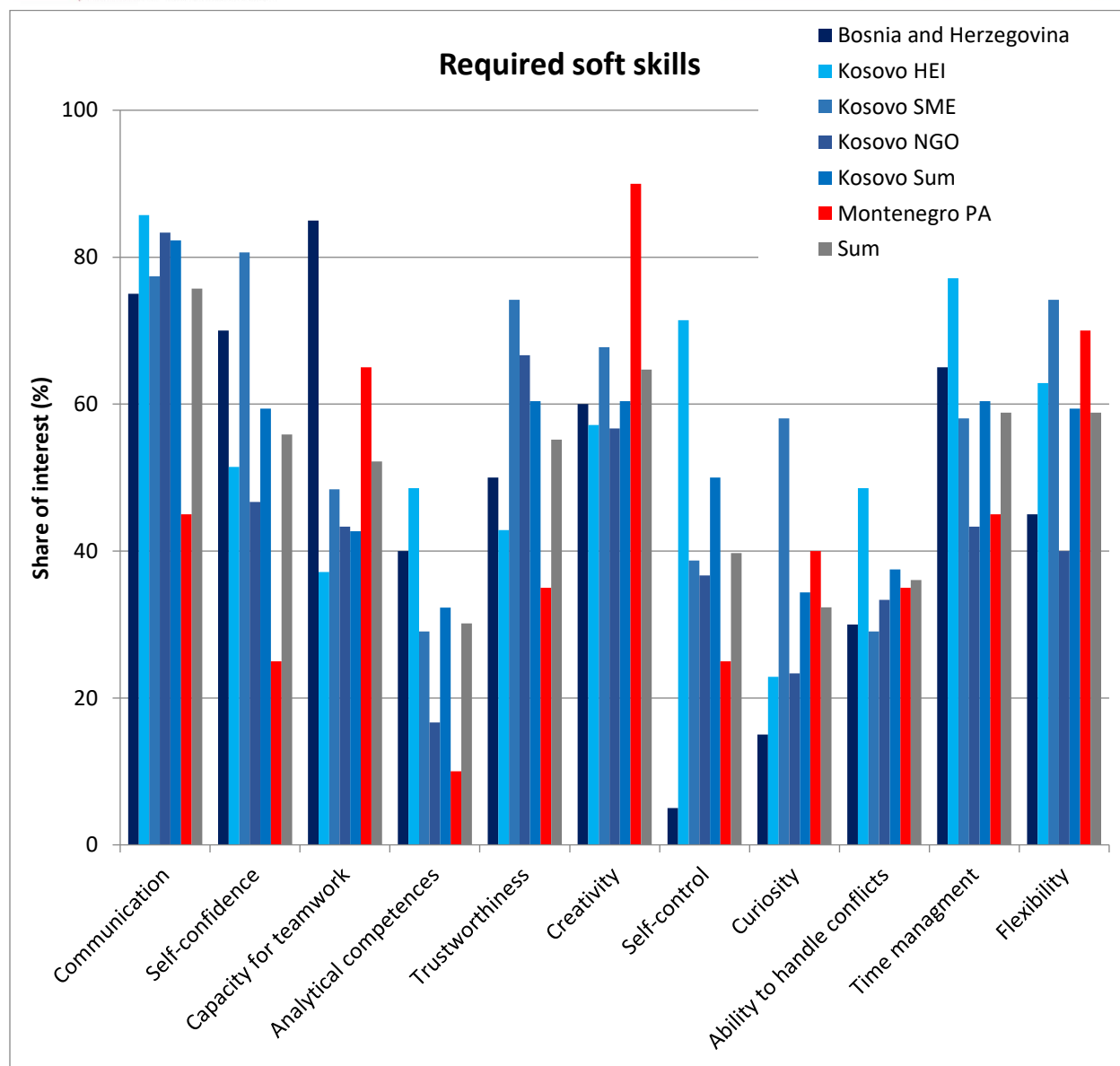


Figure 4: Required soft skills for UA entrepreneurial education

All subjects –except legal framework – are named by more than 40% of the surveyed people to be of value for UA entrepreneurial education (s. Figure 5). About two thirds name plant production (68%) and project planning (65%) followed by marketing / trading (53%), urbanity (51%), communication/networking (50%), and business planning, administration and finances (50%). Bosnia and Herzegovina as well as Montenegro rank plant production highest, while Kosovo names project planning a few per cent points more often than marketing/trading and

plant production. Machinery/Engineering and business planning, administration and finances are named somewhat more often in Kosovo compared to Bosnia and Herzegovina.

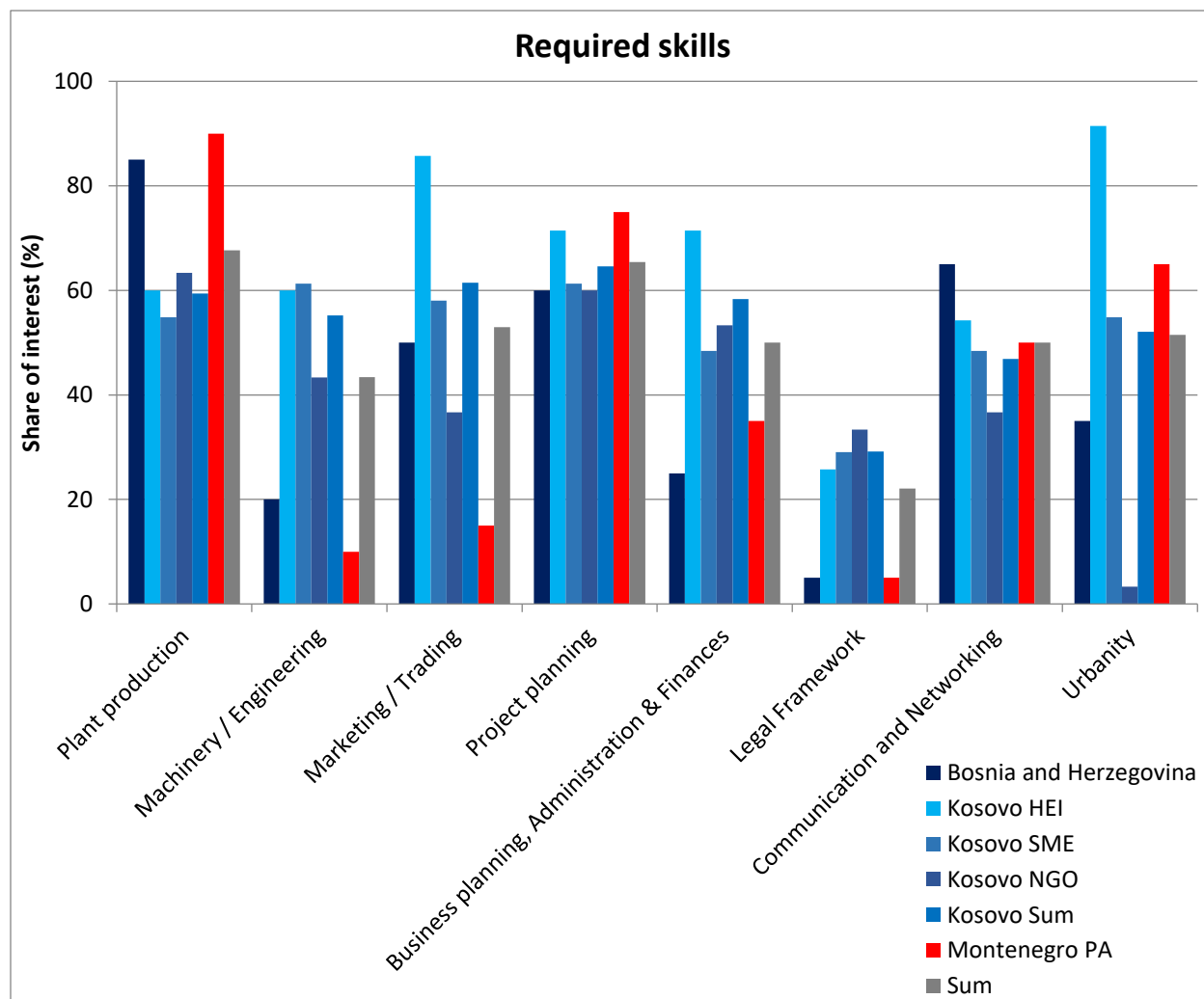


Figure 5: “Hard skills” named to be taught for UA entrepreneurial education

Further statements with regard to individual subjects name further issues of relevance for UA entrepreneurial education; sometimes these comments confirm subjects the survey asks for, but some comments introduce also new ideas and issues:

- “knowledge of agrochemical operations”, “creating micro-gardens in small areas”, “production in greenhouses is characteristic for this area”, “variety of plants and animals”, “herbal production”, “beekeeping (school)”, “increasing the cultivation of vegetables in

- urban areas*“, *“plant protection with new system of herbicides*“, *“urban education should focus on horticulture, urban farming of poultry and livestock, where the potential for food production is high*“, *“pesticides consequences of improper use*” (Plant production),
- *“handling of agricultural mechanization*“, *“new technologies*“, *“precise farming enables each step to be made better and safer*“, *“harvesting technologies*” (Machinery/Engineering),
 - *“knowledge of the market*“, *“marketing is a very important part*“, *“marketing strategies*“, *“specialized micro-enterprises*“, *“helps to promote the sustainable commercialization of commercial market gardening in urban areas*” (Market/Trading),
 - *“project planning - is considered as the most important skill for the realization of urban agriculture*“, *“we believe that especially young people need to be able to write projects and apply them to different funds*” (Project planning),
 - *“how a business is created and how it works*“, *“it helps in business planning, risk management, land access, land quality, water use, capital use, etc.”* (Business Planning, Administration, and Finances),
 - *“political and institutional support facilitates the necessary legal measures for land security for urban agriculture*” (Legal Framework),
 - *“direct contact with producers and customers*” (Communication and Networking), and
 - *“urban agriculture mitigation of unemployment*“, *“the physical, social, economic characteristics of the respective cities*“, *“it contributes to the reduction of urban poverty, the creation of employment and food security, to stimulate the governance with the participation of the city and the improvement of urban management*“, *“urban planning*“, *“urban sociology*“, *“landscape architecture*“, *“urban spaces*“, and *“green spaces*” (Urbanity).

Furthermore, links between the topics are named *“that should we cultivate for urban marketing agriculture*“ and *“the most difficult skills to learn are: project planning, business planning, administration and finances, legal frameworks, and so on.”*

More in a holistic direction another comment from Bosnia and Herzegovina highlights the interdisciplinary and versatile character of UA: *“knowing everything listed is essential for successful commercial production*“, *“economic development is achieved through urban agriculture where residents gain the ability to cultivate and sell their food*“, *“urban agriculture is indispensable and applicable*“, *“...all are needed for [...] urban agriculture*“, *“urban education is interested in promoting partnership and collective action for the development of horticulture, training coordination and capacity building*“, and *“everything has to be taken into account to succeed and to have a good impact on Urban Agriculture in the designated place”*.

The specific training needs for all enquired topics are accessible in the Deliverable 1.2 report. There, they can also be compared with URBAN GREEN TRAIN findings from France, Germany, Italy, and The Netherlands.

Farm models and value chains in Bosnia and Herzegovina, Montenegro, and Kosovo

2.3.1 Global North's overview

About ten years ago the global society has turned predominantly urban – for the first time in history (United Nations, 2014; Wiskerke, 2015). Future population growth is predicted to concentrate in cities and agglomerations so that by 2050 about two thirds of until then nearly ten billion people will live urban (United Nations, 2015). Europe and Germany are among the world regions and countries with the highest shares of urban population. About three quarters of the Europeans and Germans live in cities. In contrast to the global figures, forecasts expect population losses in Europe and Germany. However, further population growth is predicted for most European and German urban areas, while most rural areas and due to economic decline also some old-industrialized agglomerations face losses. Population growth and ongoing urbanisation processes continuously demand land – especially in urban and peri-urban areas. As this land in and around cities is often comparable fertile, farmland losses are concentrated in one of the most productive areas for food production. Agriculture is an important land user in urban and peri-urban areas. The UN estimates – based on expert judgements – that globally about 800 million people were engaged in UA in the late 1990s (Smit et al., 1996; van Veenhuizen and Danso, 2007). Out of these 800 million, about 200 million were expected to act commercially providing food for the urban market. Sixty per cent of the global irrigated croplands and 35% of the global rainfed croplands are located in and around (20 km buffer) cities exceeding 50,000 inhabitants (Thebo et al., 2014).

Urban food systems were marginalized from the perspectives of cities and agriculture for a long time (Wiskerke, 2015). Nowadays rationalized and efficient globalized food systems and long value chains offer benefits for people from the global North, but cause also long food miles and increasing alienation of – especially urban – people from food and nutrition. Apart from providing benefits, the globalized food systems hold also inherent costs, which are progressively criticised. Thus, since about two decades increasing dynamism and interest in food-related issues can be detected in and around cities. The UN's Sustainable Development Goals and the New Urban Agenda explicitly name urban agriculture an important building block for sustainable and resilient cities and agglomerations (United Nations, 2016; United Nations, 2017).

Urbanisation is an important factor influencing agriculture. Cities and agglomerations hold advantageous as well as disadvantageous framework conditions for farming – especially the large number of potential consumers for goods and services on one side and land-related constraints on the other side. These challenging urban conditions are overlaid by more general developments including global North's saturated agrarian markets with export orientations, increasing global market involvements, and low margins as well as progressively emerging concerns about today's farming practices in distinct groups of people. Farms located in close proximity to cities have to cope with both – the local and the global – framework conditions. This increasingly incentivizes farms to adjust to the urban conditions aiming to achieve profitability and business success. The diversity and complexity of urban influences result in a variety of farm activities, adjustments strategies, and business models. This variety of city-adjustments, including high-value production, product niches, Short Supply Food Chains (SSFCs), Alternative Food Networks (AFNs), and service provision, is more pronounced than in rural areas. Since a few years, business model classifications have been emerging to categorize urban farming. Van der Schans (2010) proposes the business models specialization, differentiation, and diversification, while later classifications put a stronger emphasis on urban farming's social innovation, co-production, and participation with business model nominations like 'reclaiming the commons', 'shared economy', and 'experience'.

The FAO report 'Profitability and sustainability of urban and peri-urban agriculture' highlights a 'lack of sufficient [economic] data [...] [and] 'limited number of studies with sound economic analysis' (van Veenhuizen and Danso, 2007: 29). Still today, urban farming 'remains poorly quantified' (Thebo et al., 2014: 1) and Specht et al. (2016) highlight, that especially in Europe urban farming's entrepreneurial activities have been largely neglected. Yet, several empirical studies give insights into common city-adjustments strategies and business models used to take advantages of the proximity to large consumer potentials. Urbanisation is one of the most important factors influencing agriculture' (Heimlich and Barnard 1992: 50) so that 'proximity to the city is [...] a key determinant of the current production and land use decisions' (Wästfelt and Zhang, 2016: 180). Farm strategies adjusted to cities have to exploit the chances – especially the huge consumer potential and innovative urban milieu – and avoid the multifaceted obstacles, which origin from cities and agglomerations.

Cities and agglomerations increasingly incentivize farms to adjust to the urban conditions aiming to achieve profitability and business success. By doing so, farms increase chances to maintain economically viable or enhance their business performance (van Veenhuizen and Danso, 2007). When farms do not adjust adequately to the multifaceted and dynamic urban influences, they increasingly tend to give up or turn into part-time or hobby farming with main revenues originating outside of agriculture (Zasada, 2011). These part-time and hobby farms

build a valuable component of urban farming. Their farm businesses and developments go beyond primary profit orientation of full-time farms due to their earnings from outside agriculture. Different from many rural settings, economies of scale via increasing quantities in land and livestock are only very rarely possible development paths for urban farms. Mainstream agricultural production prevails in rural environments but is only of minor relevance in urban spheres. When adjusting adequately to the cities, 'commercial farming in urban areas is surviving and even prospering' (Gardner, 1994: 100). Consequently, the diversity and complexity of urban influences result in a variety of adjustment strategies and farm activities. 'Distinct farm types co-exist within metro areas that have evolved from pursuing different adaptations to urban pressures' (Heimlich and Barnard, 1992: 50). This variety is more pronounced than in rather rural areas, which are often dominated by one or very few regionally clustered farm strategies (e. g. Bryant et al., 1992). Urban areas offer development opportunities in various fields. Urban farming 'has been identified as being more diversified, polarised and multifaceted than elsewhere' (Zasada, 2011: 640). Common city-adjustment strategies of farms include high-value production, product niches, short supply chains, Alternative Food Networks (AFNs), and the provision of services connected with agriculture (e. g. Heimlich and Barnard, 1992; Gardner; 1994; Mougeot, 2000; Bailey et al., 2000; Houston, 2005; Zasada et al., 2011; Aubry et al., 2012; Aubry and Kebir, 2013; Bryant et al., 2013). In line with these, adjustment strategies such as specialization, niche production, multifunctionality, food chain management, quality of food, and embeddedness of food are listed by Wästfelt and Zhang (2016) as appropriate ones in urban farming. By focusing on the consumer side, Barbieri and Mahoney (2009) and Inwood and Sharp (2012) highlight that better chances of farm business survival and development exist for those city-adjustments which apply immediate consumer orientations and relationships. Agricultural innovations often take place on farms and agricultural systems within urbanised areas and subsequently diffuse into rural farming areas (Beauchesne and Bryant, 1999; Prain and de Zeeuw, 2007; Elgåker and Wilton, 2008; Zasada, 2011; Liu, 2015).

The following paragraphs on short supply food chains, Alternative Food Networks, services, and business models is an extract from the dissertation thesis of Bernd Pölling (Pölling, 2018).

Short supply food chains

In the global North, industrialization, globalization, and agricultural modernization widely terminated the geographical dependency and symbiotic relationship between farms around cities and the local population (von Thünen, 1826; Inwood and Sharp, 2012; Akimowicz et al., 2016). Traditionally, these spatially wedded farming activities served the local markets. This alliance largely disappeared in the 19th and 20th century. Since then long value chains with

several specialized intermediary industries and services have been dominating agricultural and food trading and markets. In more recent times, the modern globalized food sector of rationalized farming and the prevalence of long food chains are increasingly criticized, especially within distinct groups of urban societies. Competition on the global market demands continuous rationalization to maintain viable under comparable low producer prices (Heimlich and Barnard, 1992). While in the 1970s farmers did not see the benefits for short chains when being located close to cities (Rettig, 1976), nowadays consumers, inhabitants, and local stakeholders are increasingly interested in local food (Inwood and Sharp, 2012; Aubry and Kebir, 2013). Thus, farms, which are located in or close to cities and agglomerations, can exploit the producer-consumer proximity as a locational advantage by establishing short value chains. A short value chain – here Short Supply Food Chain (SSFC) – eliminates all or most of the intermediaries of long value chains (van der Schans, 2010; Aubry and Kebir, 2013). The vicinity to huge consumer potentials offers favourable conditions for SSFCs in urban farming (Beauchesne and Bryant, 1999; Lohrberg, 2010; Zasada, 2011). While farms integrated in long value chains hand over tasks like processing, packaging, distribution, and marketing to other agribusiness enterprises, SSFCs conduct vertical integration of these work stages on-farm; thus, differentiating from long food chains (Ilbery, 1991; McNally, 2001; van der Ploeg and Roep, 2003; Barnes et al., 2015; Weltin et al., 2017). Locally embedded SSFCs reduce connections with global market and price mechanisms and contribute to agriculture’s multifunctionality (Wilson, 2008). Personal, transparent, and reliable producer-consumer relationships contrast with anonymous long value chains. The urban consumer potential, newly emerging and intensifying urban demands for regional food of high quality, and reduced vulnerability to macroeconomic fluctuations encourage urban farmers to integrate market niches into their businesses (Beauchesne and Bryant, 1999; Meert et al., 2005; Zasada, 2011; Aubry and Kebir, 2013; Meraner et al., 2015; Opitz et al., 2016; Wästfelt and Zhang, 2016). High-value, niche, and high-quality products, like vegetables, fruits, traditional breeds, and organic products, play an important role herein. By doing so, these farms exploit local consumer potentials to avoid the fragile dependency of long value chains and globalized markets (Aubry and Kebir, 2013).

The establishment of business relations outside long value chains is necessary to avoid comparative disadvantages when competing with competitors’ products marketed via longer value chains. Within urbanised areas, SSFCs are common marketing strategies to create added value (Inwood and Sharp, 2012; Aubry et al., 2012). Direct producer-consumer connections, innovative business activities, authenticity, and transparency distinguish them from traditional supply chains justifying and allowing higher product prices (Beauchesne and Bryant, 1999; Prain

and de Zeeuw, 2007; van der Schans, 2010; Zasada et al., 2011). Some (urban) consumer segments are willing to pay higher prices for locally and transparently grown food (Akimowicz et al., 2016; Doernberg et al., 2016). SSFCs can increase the profit by eliminating intermediaries and opening possibilities for active price setting, but this vertical integration raises also business complexity along with intensified equipment and labour demands (van der Ploeg et al., 2000; van der Schans, 2015).

The geographical and organized proximity of producers and consumers are crucial for SSFCs (s. Table 2). Aubry and Kebir (2013) differentiate in their typology between weak and strong organized and geographical proximity. While long supply chains are characterized by weak proximities for both perspectives' dimensions, SSFCs have at least one kind of strong proximity between producers and consumers. Strong organized proximity without spatial closeness creates distance relations. Here, producers and consumers are immediately connected via distance relations (internet services). By contrast, strong geographical proximity emphasizes spatial closeness either via direct or indirect relations. The latter one summarizes weak organized proximity, which is reasoned in the integration of intermediaries between producers and consumers, while SSFCs with direct relations of producers and consumers cover the idea of short supply chains in its full sense.

Table 2: Matrix of SSFCs based on proximity (adapted from Aubry and Kebir, 2013: 87)

| | | Geographical proximity | |
|----------------------------|---------------|--|--|
| | | weak | strong |
| Organized proximity | weak | Long Supply Chains - loose relations via: - international markets | Short Supply Chains - indirect relations via middleman: - collective point of sale - local supermarkets - local professionals |
| | strong | Short Supply Chains: - distance relations via: - direct online selling - direct mail order selling | Short Supply Chains: - direct relations via: - Farmers' markets - on-farm selling - box schemes, etc. |

SSFCs cover a wide range of direct sale arrangements with personal relations between producers and consumers, while indirect relations within regional supply chains include also other short supply chains with one or very few intermediaries, for instance, restaurants, canteens, nearby farmers with on-farm shops, and supermarkets with regional offers purchasing food directly from local farmers (van der Schans, 2010). Frequently used and well-established direct sale arrangements are on-farm shops, sale booths, farmers' markets, pick-your-own, and box schemes. Pick-your-own offers allow urban farmers to use consumers as an urban resource resulting in a competitive advantage due to reduced labour costs (Wästfelt and Zhang, 2016).

The importance of SSFCs for farms located in areas of certain population densities is shown empirically in several studies. Selected examples are briefly introduced here for a better idea of the remarkable relevance of SSFCs in urban farming: Eleven million people are living in Ile-de-France, but farming is with around 50% still the dominant land user (Aubry and Kebir, 2013). More than one quarter of the farms located in Ile-de-France exploit SSFCs with increasing proportions approaching Paris. The most important types of SSFC are direct relations, like on-farm shops and farmers' markets. The proportion of Ile-de-France SSFCs is higher than the national average. Yet, this means also that around 70% of the farms in Ile-de-France do not market directly to the nearby population. This majority accounts for 94% of the agricultural land. These figures have to be seen in the light of the largest European wholesale market for fresh products, Rungis. Around 60% of the farms situated within the municipality of Rome and more than 40% of the farms in the wider province of Rome apply SSFCs (Cavallo et al., 2016). This high proportion is accompanied by a recent ascent of farmers' markets of more than 50% within a few years. Nearly one third of Polish urban farmers markets directly (Sroka, 2016). Farms located in easy travelling distance to the city of Montreal apply SSFCs more often than their competitors further outwards in more rural areas (Bryant et al., 1992). In the USA, SSFCs grew considerably from 1,755 (1994) to 8,144 (2013) farmers' markets and other direct sales in 20 years (Brown and Miller, 2008; Pascucci et al., 2016).

Alternative Food Networks

SSFCs and Alternative Food Networks (AFNs) cannot be strictly separated from each other (Pascucci et al., 2016). Definitions and typologies differ in studies in accordance to their research topics and backgrounds; for example some scholars subsume farmers' markets under AFNs, while others do not. In this thesis, rather traditional and well-established marketing arrangements outside mainstream long value chains, including farmers' markets, are

summarized under SSFCs, while AFNs comprise more recently emerging producer-consumer interactions with direct consumer involvements in food-related activities, like production, processing, and distribution. These new forms of consumer involvement in farming build the key element of AFNs (Pascucci et al., 2016). In AFNs, individuals engage in common actions, like joint production, resource sharing or collective distribution schemes. They re-establish the connection between producers and consumers and go beyond direct sale or other short chains by generating purposed socio-economic and environmental benefits. Social innovation, participation, and co-production are often used terms when talking about AFNs, for what reason they are introduced at the end of this subchapter.

Alternative food demands and trends emerge progressively in global North's urban areas. They can be seen as a refusal of rationalized mainstream farming practices and agribusiness chains (Opitz et al., 2016; Specht et al., 2016). AFNs, which do not only avoid intermediaries to shorten the value chain (SSFCs) but actively integrate consumers into agricultural production, distribution, management, and decision-making, are rooted in these emerging urban demands and trends (Vogl et al., 2004; Wästfelt and Zhang, 2016). Food commons and food re-localization associated with AFNs are of interest for distinct city dweller groups and they also leverage options for remunerative city-adjustments of farms (Aubry and Kebir, 2013; van der Schans et al., 2016). Farmers are able to charge higher prices with comparable stable demand over time (Pascucci et al., 2016). Business-orientation co-exists with ethical and social engagements. Many scholars focus primarily on alternative ways of food production and consumption driven by social, cultural, and environmental motivations and values, which contrasts with mainstream food systems. Yet, the transactional behaviour of participants 'seeking cost-economising strategies when it comes to purchasing credence foods' (Pascucci et al., 2016: 57) is underrepresented. This latter aspect is gaining particular importance when talking about ways to upscale AFNs (Pascucci et al., 2016).

AFNs are analysed from different vantage points; especially ethical consumption, rural development, and supply chain/organizational perspectives (Renting et al., 2003; Beckie et al., 2012; Roep and Wiskerke, 2012; Mount, 2012; Long and Murray, 2013; Wubben et al., 2013). The ethical consumption approach focuses on consumers' awareness and their preference to contribute to additional values beyond products and product prices, like social, cultural, environmental, and health externalities. The rural development focus emphasizes on AFNs as a food system providing better producer-consumer relations, supporting the well-being of communities, and maintaining cultural heritage and rather small-scale farming practices. AFNs

are often highlighted as the counterpart of ‘mainstream and globalised food regimes/systems’ (Pascucci et al., 2016: 48). The supply chain and organization perspective emphasize that AFNs reduce transaction costs via customer involvements, cooperation, efficient organizations, and mutual trust among participants involved in the AFNs. Beckie et al. (2012) and Roep and Wiskerke (2012) show that AFNs are geographically concentrated where natural resources are under pressure from intensifying agricultural practices and/or urban encroachments. Pascucci et al. (2016) state with references to Morris and Buller (2003) and Tregear (2011) that the ‘emergence and development of AFNs has often been associated with consumer reaction to increased urbanisation’ (Pascucci et al., 2016: 49).

Specific examples of AFNs are Community Supported Agriculture (CSA), Solidary Purchasing Groups (SPGs), ‘rent-a-field’, and food assemblies. In CSAs, customers (co-partners) pay shares to run a farm and receive the corresponding shares of the harvest (Doernberg et al., 2016; Pascucci et al., 2016; Timpe, 2017). Thus, these seasonal shareholders do not pay product prices but bring financial capital into the farm. This business concept ensures secured revenue streams for the farmers without short-term risks caused by fluctuating producer prices or severe weather conditions. Herein, farm products are no longer traded over a real market but receive the shareholders immediately. Besides co-determination in decisions like selection and quantity of cultivated crops, many CSAs encourage also the seasonal shareholders to participate actively in cultivation, harvest, processing, and distribution. The number of CSAs has been increasing in recent years; for example with about 200 CSAs in the United Kingdom and 600 in France (Pascucci et al., 2016).

Solidary Purchasing Groups (SPGs) were founded in Italy at the end of the 1990s (Pascucci et al., 2016). Since then, ‘SPGs have [...] boomed in Italy, especially in the main urban centres, representing an increasingly important source of food purchase for urban consumers, especially if fresh produce is considered’ (Pascucci et al., 2016: 47). SPG members collectively buy farm products directly from local farms. SPGs are different from other groups buying farm products collectively by going beyond pure economic advantages. Per definition, SPGs select local farms only as a source of their food purchase in case the farmer agrees to reduce environmental impacts of production activities, pays specific attention to workers’ rights, and collaborates in building relationships based on trust (Cembalo et al., 2013).

Another AFN concept of increasing importance is ‘rent-a-field’ (in German: Miet-/Selbsterntegärten), which is of special interest in city regions with certain population quantities and densities (Vogl et al., 2004; Timpe, 2017). Herein, people who are interested in active

gardening (hobby gardeners) rent small field plots on seasonal base. They cultivate and harvest a variety of plants, mainly vegetables and herbs, which are prepared and sown by the farmer. In return, the farmer gets paid for renting the land on seasonal base (rental fees). This concept is mainly offered by farms, which conduct already or intend to establish direct sale on-farm to create synergy effects for financial revenues and customer loyalty. While some farms do all the required tasks to establish and run 'rent-a-field' by themselves, others take advantage of a service provider taking care of management, organization, and marketing aspects like promotion, accounting, and paper work.

A food assembly is a new web-based form of direct sale (Food Assembly, 2017). It can be categorized into SSFCs or AFNs. This shows the fluent transition between SSFCs and AFNs; however, due to its recent emergence, it is classified here as part of AFNs. Customers order online by choosing from a wide range of food products offered by local farmers. The choices in terms of what, how much, and how often are up to the customers. On regular base – often weekly – the farmers and customers meet to transfer the products. As the sales business is done online, these meetings give room to get in personal contact. In September 2017, more than 1,500 food assemblies are registered in Western Europe on the food assembly website (Food Assembly, 2017). The origin and also the current majority of food assemblies is France with more than 800 food assemblies; alone more than 150 in Ile-de-France (Paris). More than 100 food assemblies are established in Italy (167), Spain (125), Belgium (121), and Germany (107) followed by the United Kingdom (87). About half of the Spanish food assemblies are situated in and around Madrid and more than 20 in Berlin and London each. About a dozen food assemblies are present in Switzerland (31), Denmark (22), and the Netherlands (18).

The divide between producers and consumers in the food sector, which dates back to the time of industrialization and globalization in the global North, has been starting to narrow since several years respectively few decades. SSFCs and AFNs contribute to this narrowing, which becomes especially evident in affluent society's urbanised areas. Participation, co-production, and embeddedness of consumers in food issues are key elements herein and directly linked to AFNs and SSFCs (Voorberg et al., 2015; Wästfelt and Zhang, 2016; Pascucci et al., 2016; Timpe, 2017). Some customer groups see 'the disconnection with the production and distribution phase, and reduced embeddedness [...] exposed to higher behavioural uncertainty, such as opportunistic behaviour from supply chains actors. [...] This may lead such consumers to engage systematically in AFNs in which participants monitor and control activities directly with farmers,

since participating in AFNs can then increase (comparative) transactional advantages’ (Pascucci et al., 2016: 50).

Social innovation, co-production, and participation

Social innovations of participation and co-production are discussed in the context of developments that vanish the clear divide between producers and consumers (private goods) and between producers and users (public goods) (Kundel, 2010; Voorberg et al., 2015; Timpe, 2017). Key features of social innovations are (1) changing relationships, positions, and rules between involved actors, (2) open processes of participation, exchange, and collaboration with stakeholders, and (3) surpassing of organizational frames. Von Hippel (1987) names the involvement of end-users as the indication of co-creation – a synonym for co-production (Voorberg et al., 2015). In line with Voorberg et al. (2015) only the term ‘co-production’ is used hereafter. Co-production has been progressively emerging since the global North’s transformation from an industrial to an information and service society. Ostrom (1996) defines co-production as ‘the process through which inputs used to produce a good or services are contributed by individuals who are not ‘in’ the same organisation’ (1996: 1073). Consumers take over tasks and activities traditionally carried out by producers. Consumers are becoming ‘prosumers’. Recent views on co-production contrast sharply with traditional assumptions of advantages gained through specialization (Wessel, 2015). Both, producers and consumers (‘prosumers’), have specific motivations to form and apply co-production, like reduction in costs, increase in productivity, market growth, economy of time, and enhanced quality and image (Grün and Brunner, 2002). Beyond customer satisfaction and loyalty, Grissemann and Stokburger-Sauer (2012) emphasize specifically on comparative advantages for businesses conducting co-production. Business motivations include consumers’ takeover of certain steps in the production and value-added chains as well as co-producing consumers as sources of innovations. Additionally, intrinsic and normative features motivate co-production including democracy, participation, involvement, and influence (Verschuere et al., 2012; Wise et al., 2012; Voorberg et al., 2015). Voorberg et al. (2015) emphasize on co-production in the public sector – especially health care and education. For the public sector, their review provides valuable details including a typology on different levels of citizen involvement. Besides the potential advantages of co-production for producers and consumers, unreliability and unpredictable behaviours of co-producers are named by Roberts et al. (2013) as reasons for politicians’ and professionals’ reluctance and unwillingness to support and implement it. While co-production necessitates the active involvement of end-users, the term participation refers to a broader concept including passive involvement (Prahalad and Ramaswamy, 2000; Vargo and Lusch, 2004). With regard to

food co-production, Timpe (2017) proposes a broad approach. He argues that direct sale arrangements are a simple form of co-production due to consumers' takeover and replacement of farmers' transportation and distribution tasks. CSA and 'rent-a-field' are introduced by Timpe (2017) as stronger types of co-production.

Service provision

While aforementioned farms' city-adjustments – high-value production, product niches, SSFCs, and AFNs – are directly bound to food (and non-food) goods, the provision of services is often only loosely linked or even unlinked with farming's primary production. One of the first studies, which linked farm services with city proximity, shows concentration patterns near English cities (Ilbery, 1991). Additionally, Gardner (1994) named – besides higher added values per farmland – the provision of services a characteristic farm adaptation for metropolitan farms. For the agricultural sector, services can be a response to overproduction and the growing squeeze on agriculture in primary production (van der Ploeg et al., 2000; Lange et al., 2013). In urban areas, farmers are encouraged to offer services due to the presence of the huge amount of potential local customers, but also due to challenges in urban farming's primary production when competing with larger-scaled (rural) farmers exploiting economies of scale. Thus, this leads urban farmers into service provisions to create revenues, which origin from outside the primary production. Services 'generate opportunities for farmers to internalize externalities of multifunctionality' (Ohe, 2011: 886) 'that enable farmers to provide [...] services as a viable market in the future' (Ohe, 2011: 891).

Urban farms offer a broad and manifold range of services for private as well as for public customers. This subchapter aims to give an idea of the diversity of services offered by agricultural businesses; especially when being located in or close to cities. Important groups of services are (1) recreation, tourism, and leisure-time, (2) social and education, and (3) additional public and private ones like landscape and nature reserve management and winter road clearance (Gasson, 1988; Heimlich and Barnard, 1992; Beauchesne and Bryant, 1999; Bailey et al., 2000; McNally, 2001; Busck et al., 2006; Zasada, 2011; Lohrberg and Timpe, 2011).

Farms' recreation, tourism, and leisure-time services can be summarized as agro-tourism services, which are in any manner connected with farming. Agro-tourism has emerged in the 1970s and 1980s in Europe and North America followed by countries like Australia, New Zealand, and Israel (Pizam and Pokela, 1980; Frater, 1983). These activities are of increasing importance for quality of life and public health; especially within global North's highly urbanised regions characterized by density and plenty of possible wealthy customers (de Vries et al., 2003;

Yang et al., 2010; Zasada, 2011). Within inner-city settings recreation areas are scarce. Thus, farmland in the urban fringe increasingly gains importance as comparable easily accessible leisure and recreation arena for urban dwellers (Bailey et al., 2000; Antrop, 2004; Zasada, 2011). The large number of possible customers living nearby encourages farmers to apply agro-tourism services, which include for example gastronomy, accommodation, sport activities including equestrian services, and cultural events (e. g. concerts and poetry readings). While the economic potential was underestimated in the 1990s (Page and Getz, 1997), it is increasingly considered as a business nowadays (Yang et al., 2010), so that ‘recreation-oriented diversification opportunities contribute to the economic development process of the countryside near urban centres’ (Zasada, 2011: 644).

Already Ilbery (1991) shows that the urban fringe provides favourable conditions for on-farm services at what he emphasizes specifically on farm-based recreation offers. Besides being a promising city-adjustment of farms in terms of economic performance, they satisfy urban dwellers’ growing demand for recreation and leisure-time activities. Agro-tourism services are not an intrinsic characteristic of urban and peri-urban settings, but are geographically biased (Zasada, 2011). Also rural areas and especially touristic regions with attractive countrysides are favourable for on-farm agro-tourism. Due to their financial incentives farm-based tourism services build an important farm survival strategy in the urban-rural transition zone. Yang et al. highlight that agro-tourism ‘in peri-urban areas [...] offers a means to promote integrated urban and rural development in a manner that can counteract some of the negative impacts of urbanisation’ (2010: 374). This is empirically verified by several scholars investigating urban farming in Denmark (Busck et al., 2006; Præstholt and Kristensen, 2007; Zasada et al., 2011), Germany (Lange et al., 2013; Zasada et al., 2013), the Netherlands (Meraner et al., 2015), England (Ilbery, 1991), North America (Heimlich and Barnard, 1992; Bryant et al., 1992; Akimowicz et al., 2016), China (Yang et al., 2010), and Japan (Ohe, 2011).

Equestrian services are an agro-tourism service of particular relevance within global North’s urbanised areas (Bailey et al., 2000; Quetier and Gordon, 2003; Elgåker and Wilton, 2008; Zasada et al., 2011). The proximity to cities with corresponding population numbers advantages equestrian services. They are ‘likely to have long term benefits for farmers’ (Bailey et al., 2000: 191) due to their elastic demand compared to rather inelastic demands for agricultural commodities. A Danish study reveals an agricultural extensification trend due to the reduction of land resources for agriculture and horticulture in favour of permanent grassland – often meant for horse keeping and associated services (Busck et al., 2006). This study is supported by Zasada

et al. (2011) who show a clear spatial concentration of horses around Copenhagen and with regard to farm viability they expose the specific relevance of market-sensitive activities, like horse services, around cities. Renting of cottages, equestrian services, and farm holidays are named to be typical agro-tourism services in Berlin's fringe (Lange et al., 2013). Besides the urban influence, they emphasize particularly on rural attractiveness as an important determinant to offer agro-tourism services. Equestrian services are frequent around Berlin (Zasada et al., 2013). Meraner et al. (2015) show in their Dutch-wide study, that an increasing population density has a positive influence on the establishment of on-farm tourism services. Already 25 years ago, Bryant et al. (1992) name equestrian services a significant diversification activity of farms near Montreal. An 'emerging and booming of agro-tourism, which extends and diversifies agricultural production into tourism services' (Yang et al., 2010: 375) has been witnessed in China. In the last 25 years, the peri-urban zone of Beijing has seen a rapid increase of agro-tourism offers and creation of so-called agro-tourism parks (Yang et al., 2010).

Farm-based social and education services are of special interest in urban areas, where the majority of people lives. The integration of therapy, health, caretaking, rehabilitation, education, and childcare into agricultural activities are summarized under the umbrella of on-farm social and education services (Lohrberg and Timpe, 2011; Zasada, 2011; Ohe, 2011; Meraner et al., 2015; Recasens et al., 2016). Examples are therapies and care farming for people with special needs, health offers in green environments of reduced urban emissions, and education services. Education services are valuable to provide first-hand experiences for people without any or only little agricultural knowledge or background (Ohe, 2011). Care farming – also named social farming or green care – combines productive agriculture with social work, healthcare, education, and therapy for people with special needs (Hassink et al., 2007; Eweg and Hassink, 2009; Wiskerke, 2009). Clients of care farming are mentally and physically disabled and socially disadvantaged people, addicts, and long-term unemployed, but also children, adolescents, and seniors requiring special need, e. g. children from problematic families or young adults facing problems on the first labour market. Farming activities support rehabilitation, therapy, and education adjusted to the specific client groups. Hassink et al. (2007) name care farming one of the fastest growing business cases of Europe's multifunctional agriculture. Care farming 'might be a strategy for farms around the city to strengthen their economic position' (Eweg and Hassink, 2009: 1). It is of particular relevance in urban and peri-urban settings due to the proximity to large numbers of (possible) clients (Wiskerke, 2009; Siebert et al., 2009; van der Schans et al., 2016). This is theoretically and empirically discussed inter alia by Meraner et al. (2015) for the Netherlands and by Cavallo et al. (2016) for Italy. The

number of Dutch care farms increased from around 70 in 1997 to more than 600 in 2006, whereof most are dairy farms and situated close to cities (Eweg and Hassink, 2009). Care farming can be a business case for established family-run farms adjusting to cities, while other care farms run by private or public entities – e. g. charitable organization and health institutions – employ agricultural activities as a vehicle for their primary social purposes.

The beforehand introduced common city-adjustments strategies high-value production, product niches, SSFCs, AFNs, and service provision show the broad diversity of adjustment strategies and business opportunities for farms located in urbanised regions. It has to be considered that individual farm businesses often use few or even several of these strategies to adjust adequately to the city conditions and urban influence factors. The business model approach supports to systemize this set of strategies more strategically. Thus, the following chapter, firstly, introduces business models in general and, secondly, summarizes attempts to classify urban farming's business models.

Business models

Concepts of business models aiming to set-up and analyse enterprises have risen in the mid-1990s, while its first appearance dates back to the 1960s (Osterwalder, 2004; Henriksen et al., 2012). However, the wider appearance of the term business model is a relatively young phenomenon that has found its first peak during the web-hype at the beginning of the third millennium (Osterwalder, 2004). Alexander Osterwalder has strongly contributed to the business model concept with his dissertation thesis 'The business model ontology. A proposition in a design science approach' (2004) and several other well-known and comprehensively cited publications, like 'Business Model Generation' from Osterwalder and Pigneur (2009).

Referring to definitions of the terms 'business' and 'model', he concludes 'a representation of how a company buys and sells goods and services and earns money' (Osterwalder, 2004: 14) as a first simple understanding of the term 'business model'. The model – or representation – aims to support the understanding, description, and prediction of buying and selling goods and services to earn money. Nowadays, a range of different definitions and interpretations exists and is in use; however, a common understanding of business models is obvious. Business models explain how companies do businesses (Henriksen et al., 2012). They:

- *stand for the 'design of organizational structures to enact a commercial opportunity' (George and Bock, 2011: 83f.),*

- describe 'the rationale of how an organization creates, delivers and captures value' (Osterwalder and Pigneur, 2009: 14),
- show 'how a firm is able to earn money from providing products and services' (Boons and Lüdeke-Freund, 2013: 9), and
- explain 'how value is created for the customers and how value is captured for the company and its stakeholders' (Henriksen et al., 2012: 31).

Business model concepts have emerged as a relatively new unit by highlighting the holistic approach towards explaining how firms do business on a system-level. Organizational activities play an important role in the various conceptualizations of business models, which seek to explain how value is created and captured. The identification of the 'who', 'what', and 'how' are essential when analysing business models (Henriksen et al., 2012), e. g. who are the target groups and customers, what are their needs, what is the company's value proposition to the targeted customers, and how is the company configuring its business operations.

The value proposition, supply chain, customer interface, and financial model build four generic business model components (Boons and Lüdeke-Freund, 2013). Herein, business model's more specific building blocks are for example value creation, revenues, costs, resources, activities, and internal and external relationships and networks. They are suitable for an overview of value creations and captures, relationships, success factors, and comparisons with competitors. They consist of interlocking elements that, taken together, create values; e. g. customer value propositions and profit (Johnson et al., 1996). Business models give a company a good overview of how to create and capture value, enable business comparisons with competitors, and support knowledge creation and awareness for required changes to keep a competitive advantage or for future innovations.

With regard to (social) innovation, which is of importance for urban farming, scholars have largely neglected 'the way in which firms need to combine a value proposition, the organization of the upstream and downstream value chain and a financial model in order to bring sustainable innovation to the market' (Boons and Lüdeke-Freund, 2013: 9).

Urban farming's business models

The heterogeneity of urban farming's city adjustment strategies as well as the lack of business model approaches highlighted by Boons and Lüdeke-Freund (2013) both have been providing the basis for the recent emergence of business model classifications in urban farming (and urban agriculture) since a few years. These business model approaches aim to understand the

key business developments covering the wide range of city-adjustments present in urban farming.

Since 2010 the number of publications addressing urban farming's business models has been rising following the first approach from van der Schans (2010). In 2015 and 2016, further studies present similar but also different approaches (Hedin, 2015; Liu, 2015; van der Schans, 2015; Pölling et al., 2015; van der Schans et al., 2016). Specialization, differentiation, and diversification are named by van der Schans (2010) as common agricultural business models in urban and peri-urban, but also rural locations of the Netherlands and more generally for the global North. He argues that specialized business models dominate in rural areas, while differentiation and diversification summarize city-adjusted business models for farms located in or close to cities. Specialization reduces the number of activities and types of products to minimize costs in the production and value-added chain to be competitive on the global market. Van der Schans (2010) summarizes quality productions, niche productions, and vertical integration outside long value chains under differentiation. He names inter alia exotic and traditional varieties not offered in regular supermarkets or discounter stores as products of the differentiation business model. Vertical integration includes working steps of the value chain (especially processing, packaging, and marketing) on-farm to create business options outside cost-efficient long value chains. Diversification builds the third business model presented by van der Schans (2010), which includes product diversification as well as diversification into other gainful activities outside primary production. Linked to the city-adjustment strategies, high-value production can be grouped to the specialization business model; product niches, SSFCs, and AFNs to the differentiation business model; and services to the diversification business model.

The studies from Liu (2015), van der Schans (2015), Pölling et al. (2015), and van der Schans et al. (2016) build on van der Schans (2010). Their classifications are summarized in Table 3. By contrast, Hedin (2015) follows a different wording for urban farming's business models in developed countries: small production, large production, and secondary purpose. It becomes obvious that especially city-adjustments which step out of well-established value chains deserve particular attention. Urban farming's social innovation, co-production, and participation are presented with regard to the city-adjustment strategies SSFCs and AFNs. The latest business model classifications contribute to this recent discourse by defining business models 'innovative operations' (Liu, 2015), 'reclaiming the commons' (van der Schans, 2015), 'the commons' (van der Schans et al., 2016), and 'shared economy' (Pölling et al., 2015).

Table 3: Urban farming's business model classifications

| <i>van der Schans (2010)</i> | <i>Liu (2015)</i> | <i>van der Schans (2015)</i> | <i>Pölling et al. (2015)</i> | <i>van der Schans et al. (2016)</i> |
|------------------------------|--------------------------------|-------------------------------|------------------------------|-------------------------------------|
| <i>Specialization</i> | <i>Primary food production</i> | <i>Low cost</i> | <i>Cost reduction</i> | <i>Low cost</i> |
| <i>Differentiation</i> | <i>Value differentiation</i> | <i>Differentiation</i> | <i>Differentiation</i> | <i>Differentiation</i> |
| <i>Diversification</i> | <i>Diversification</i> | <i>Diversification</i> | <i>Diversification</i> | <i>Diversification</i> |
| | <i>Service provision</i> | <i>Reclaiming the commons</i> | <i>Shared economy</i> | <i>The commons</i> |
| | <i>Innovative operations</i> | <i>Experience</i> | <i>Experience</i> | <i>Experience</i> |
| | | | <i>Experimental</i> | |

The following text submitted to the Second International Conference 'Agriculture in an urbanising society' (Rome in September 2015) by Pölling et al. (2015) briefly describes the urban farming business model classification developed by the Working Group 'Entrepreneurial models of urban agriculture' of EU COST-Action 'Urban Agriculture Europe' and Erasmus+ project 'Urban Green Train' based on several dozens of European case studies. As also (commercializing) urban gardening initiatives are analysed by the EU COST-Action network and the Erasmus+ project to some extent, this conference contribution uses the term 'urban agriculture':

'Cost reduction perhaps represents the business model closest to rural farming. However, also farms located in agglomerations' peri-urban fringes use this low cost approach for profitability, and in the urban context, specific expressions have emerged. Common are specialisation in high-value crops (horticulture) and methods to reduce costs, like using available and cheap urban surplus resources.

A frequently applied business model in urban areas is differentiation to create distinctions in production, processing and/or marketing. Farms integrate processing and distribution stages for vertical integration of the value-added chain. As differentiation from the bulk market, the often exploited direct sale with premium prices for specific product features (super-fresh, ethnic, tasteful, etc.) is based on personal, transparent, and reliable producer-consumer relationships.

Enterprise diversification is another characteristic UA business model, which is strongly contrasting the cost reduction model. Diversified UA enterprises in parallel effectuate activities

in some or even many business fields, including also services close to agricultural production, like agro-tourism, care farming, training or landscaping measures. Within the diversification business model, the survey results reveal two perspectives: Firstly, rather many urban farms diversify their business into new – often service-oriented – fields and, secondly, non-agricultural enterprises which step into farming as newcomers, e. g. social care institutions, which use agriculture to diversify their businesses.

Experimental UA is based on initiatives that explicitly integrate technological innovation processes that are suited to respond to urban contextual settings. Innovation may be in production (e. g. aquaponic systems or artificial lighting for indoor cultivation), but also in the processing (e. g. recycle of the urban waste products), or in the functions (e. g. re-vitalisation of urban brownfields). An important characteristic is also that technologies often are still in development and the applied ‘vanguard’ technology can even be part of the marketing.

As an expression of the new economy, since a few years initiatives based on ‘shared economy’ increasingly gain importance. Required resources to run UA in the form of a shared economy model, e. g. CSA, are jointly mobilised and managed, including land, labour, credit, tools, machinery, network contacts, and knowledge.

Experience represents the sixth business model that was distinguished on the basis of interviews. This model focuses on providing authentic and ‘memorable’ experiences by selling rather a story (experience) than only a product. Place-making and training or leisure activities (for example gastronomic experiences) are important elements that in this model are combined with food production.

These six UA business models address the special urban conditions by making use of the advantage of nearby customers, by compensating negative urban influences, and in some cases also by valorising specific urban contexts such as strong social networks and generating social and ecological benefits. Although UA is often focusing on a specific business model, many cases were found using elements out of more than one.

While economies of scale is still an important ‘rural’ business model in farming to stay competitive under intense cost pressures in the food sector, UA business models have to distinguish by adjusting to specific urban contexts and move away from mainstream commodity market and global prices mechanisms. The conducted European survey confirms that new business concepts have emerged on established (peri-)urban farms and also by initiatives of

newcomers in UA. The specific challenging, but also enabling urban conditions encourage innovations in farming, and result in the appearance of business models that in many respects are different from rural farms. Product differentiation and enterprise diversification are the prevailing business models within this survey, but new forms of and new actors in UA raise experimental, shared economy, and experience to newly emerging business models.'

2.3.2 Western Balkan

The farm survey consists of in total 117 usable replies from Kosovo (61), Bosnia and Herzegovina (29), and Montenegro (27) (s. Figure 6).

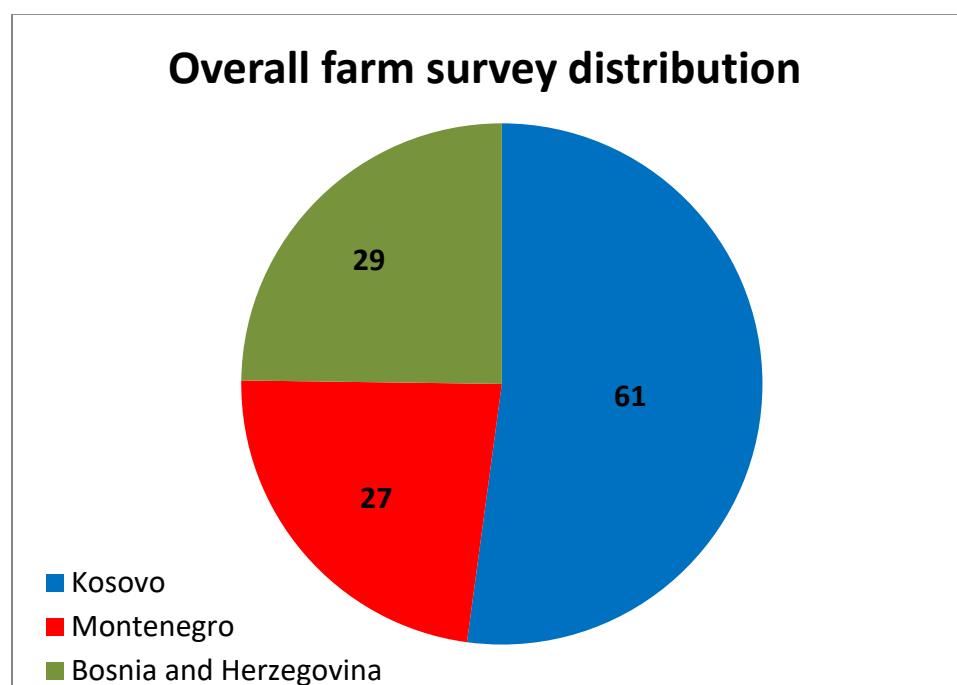


Figure 6: Overall farm survey distribution.

General farm characteristics

Within the farm survey, the average farm sizes between the three countries differ significantly (s. Figure 7). The interviewed farms in Kosovo (6.4 ha) and Montenegro (4.6 ha) are on average few times larger than the surveyed farms from Bosnia and Herzegovina with an average farm size of only half a hectare.

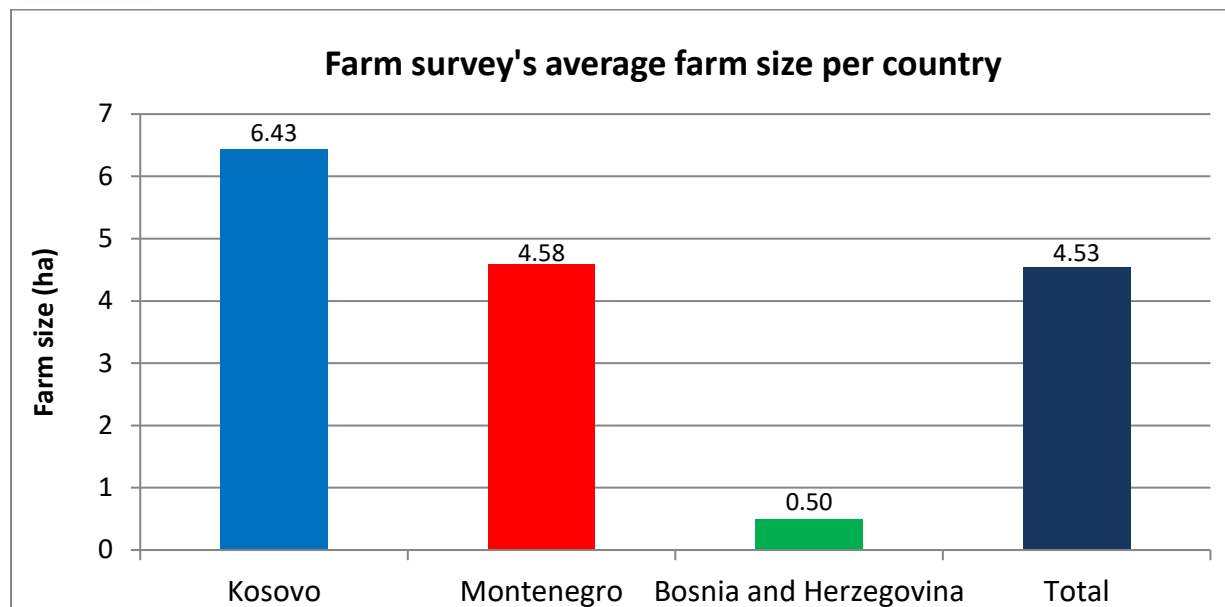


Figure 7: Average farm size.

The large majority of cultivated land is owned by the farmers (s. Figure 8). In Kosovo, nearly 30% of the farmland is leased, which is a considerably larger share than in Montenegro and Bosnia and Herzegovina.

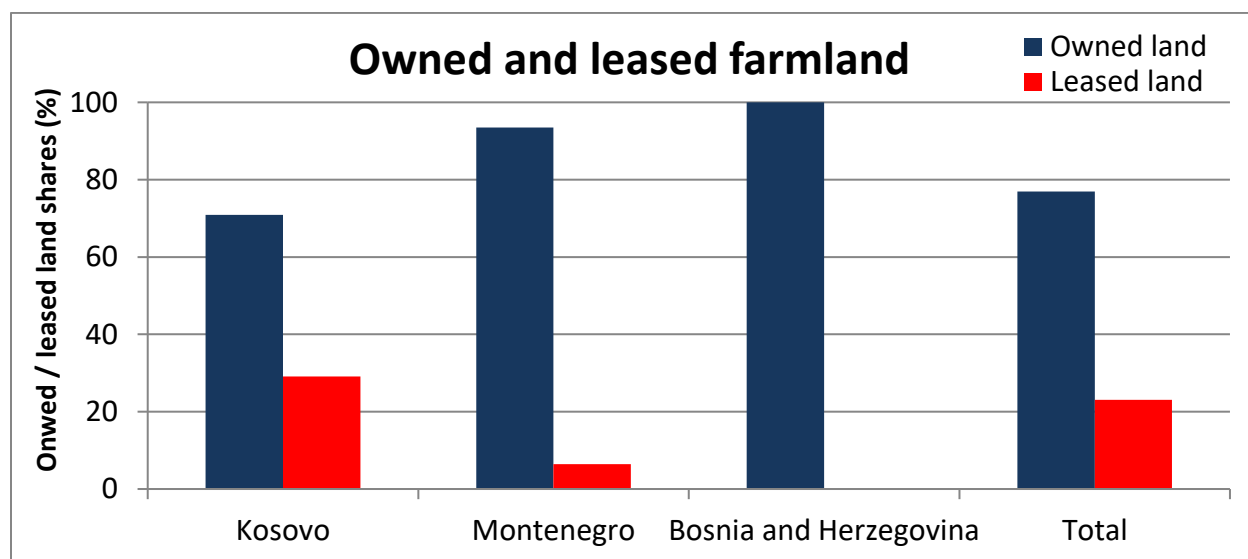


Figure 8: Farmland ownership and leasing.

While in Kosovo and Bosnia and Herzegovina cropland prevails over grassland, the Montenegrin interviewed farms are characterised by a dominance of grassland over cropland (s. Figure 9).

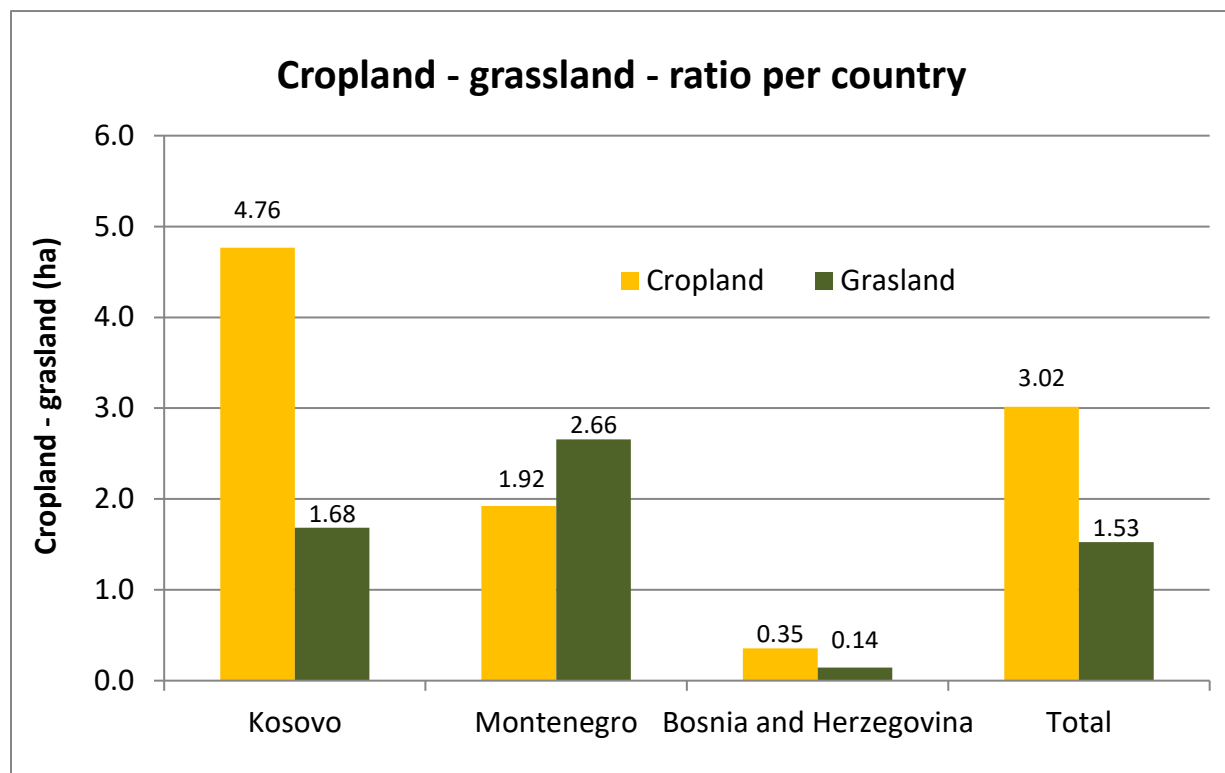


Figure 9: Cropland-grassland ratio.

Despite some inconsistencies in the data, some general trends on key crops can be detected: permanent crops and cereals prevail in Kosovan surveyed farms, permanent crops and vegetables in Montenegro and Bosnia and Herzegovina, but with a dominance of permanent crops in Montenegro and vegetables in Bosnia and Herzegovina.

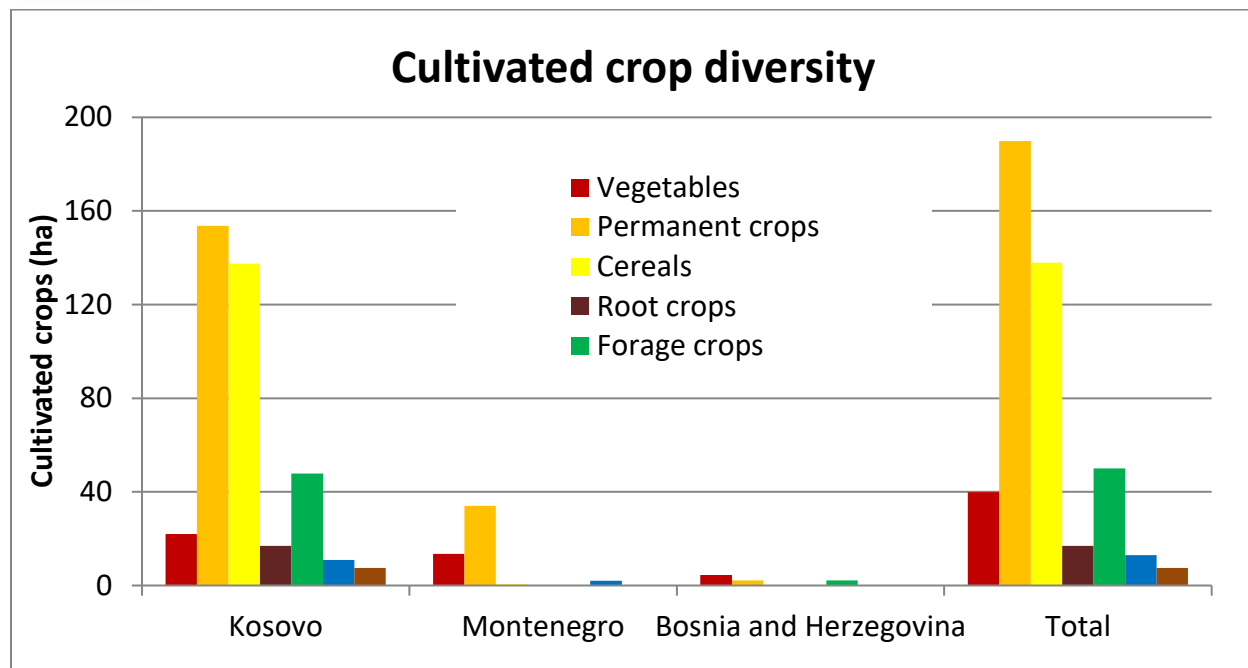


Figure 10: Crop diversity in Kosovo, Montenegro, and Bosnia and Herzegovina.

In Kosovo and Bosnia and Herzegovina more than one third of the surveyed farms have greenhouses and/or foil tunnels, while this share is below 20% for Montenegro (s. Figure 11). Furthermore, the average greenhouse/foil tunnel area is few times larger in Bosnia and Herzegovina than for the two other countries. This has to be seen in light of the comparable small farm sizes (s. Figure 7) and dominance of vegetables (s. Figure 10) in Bosnia and Herzegovina.

The majority of surveyed farms are conducting some kind of irrigation – preferably in Kosovo (75%) and Bosnia and Herzegovina (69%), while less than half of the Montenegrin farmers apply irrigation systems (44%). The climate in Bosnia and Herzegovina and Kosovo is more continental than in Montenegro being situated at the Adriatic shoreline resulting in higher precipitation levels.

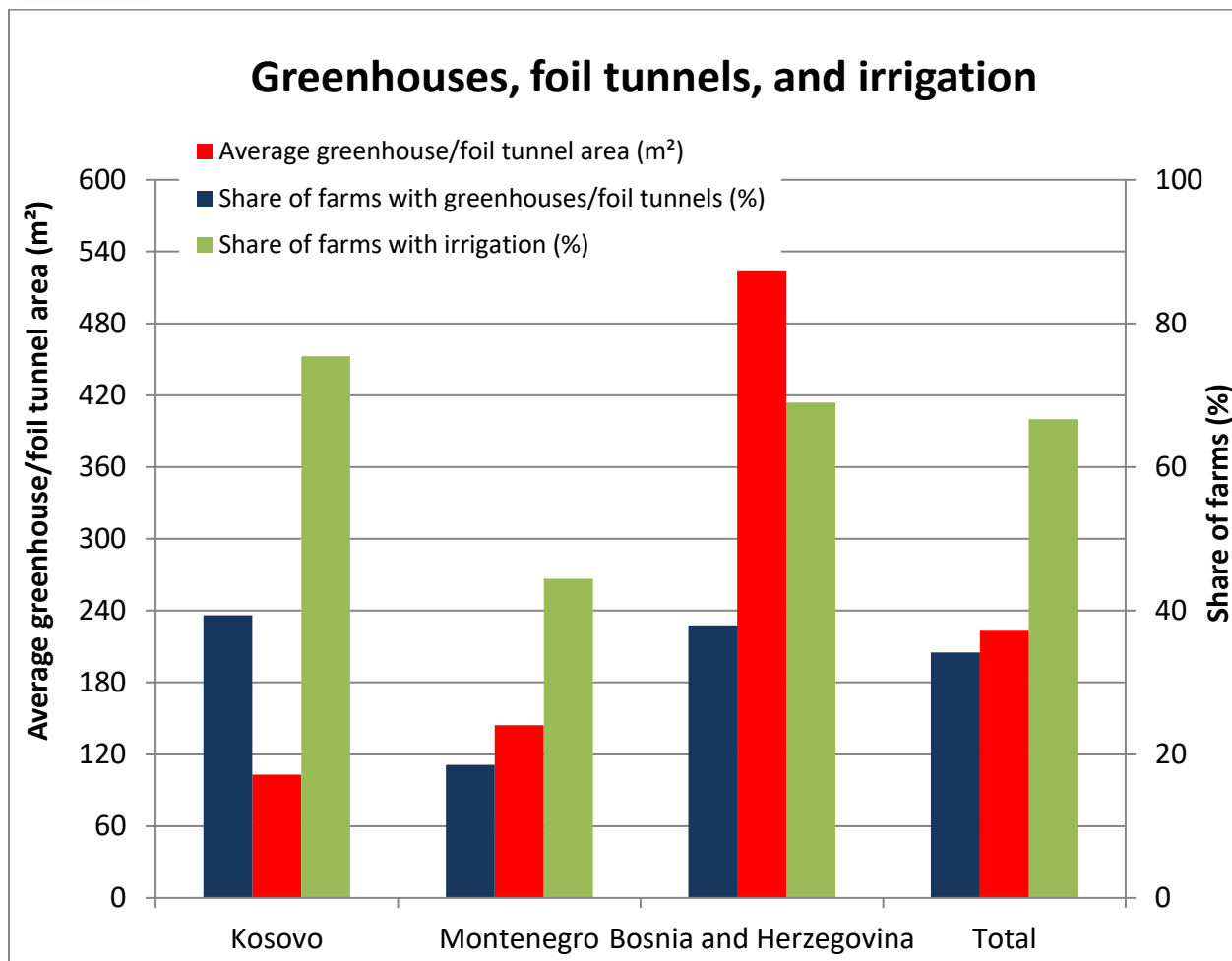


Figure 11: Greenhouses, foil tunnels, and irrigation.

The majority of farms keep livestock, especially in Kosovo (>80%) and Montenegro (>65%) (s. Figure 12). Contrarily, only about one quarter of the surveyed farms in Bosnia and Herzegovina keep livestock. Milk cows (>50%) and laying hens (>40%) are the most common livestock in the three Western Balkan countries (s. Figure 13). These high shares origin especially from Kosovo and Montenegro; for example within the Kosovan sample ca. 70% keep milk cows, nearly 60% laying hens, and about 45% cattle. These three livestock types prevail also in Montenegro. For Montenegro, sheep/goats (nearly 20%), fattening poultry (15%), and fattening pigs (15%) do also play a considerable role. Furthermore, three farmers of the sample keep also bees.

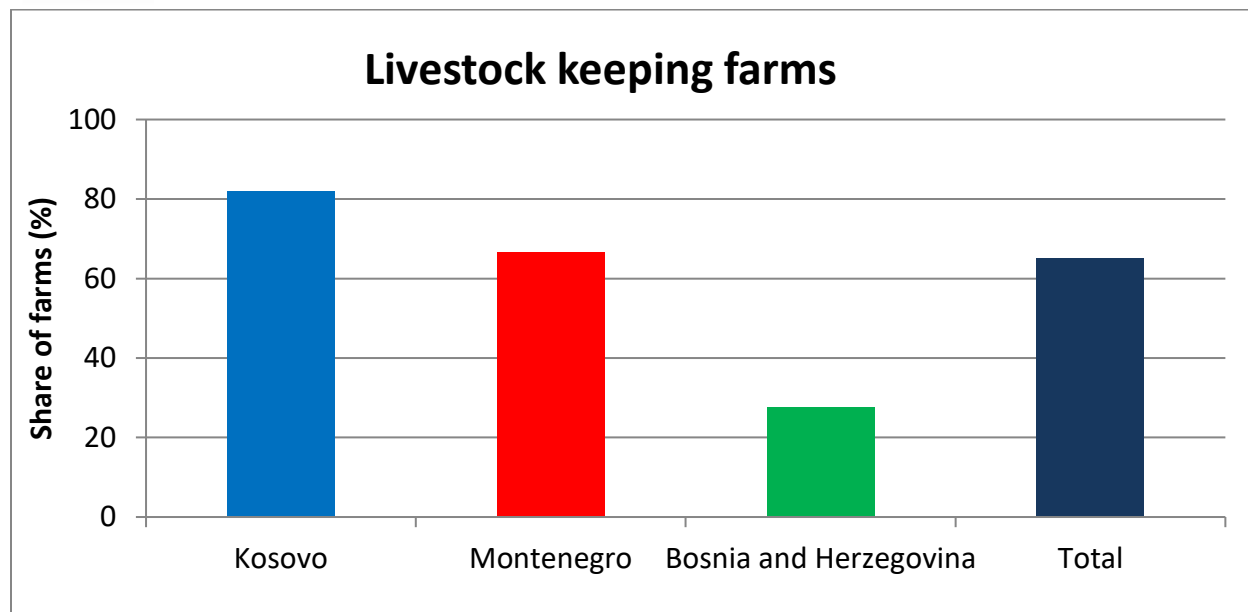


Figure 12: Livestock keeping in Western Balkan.

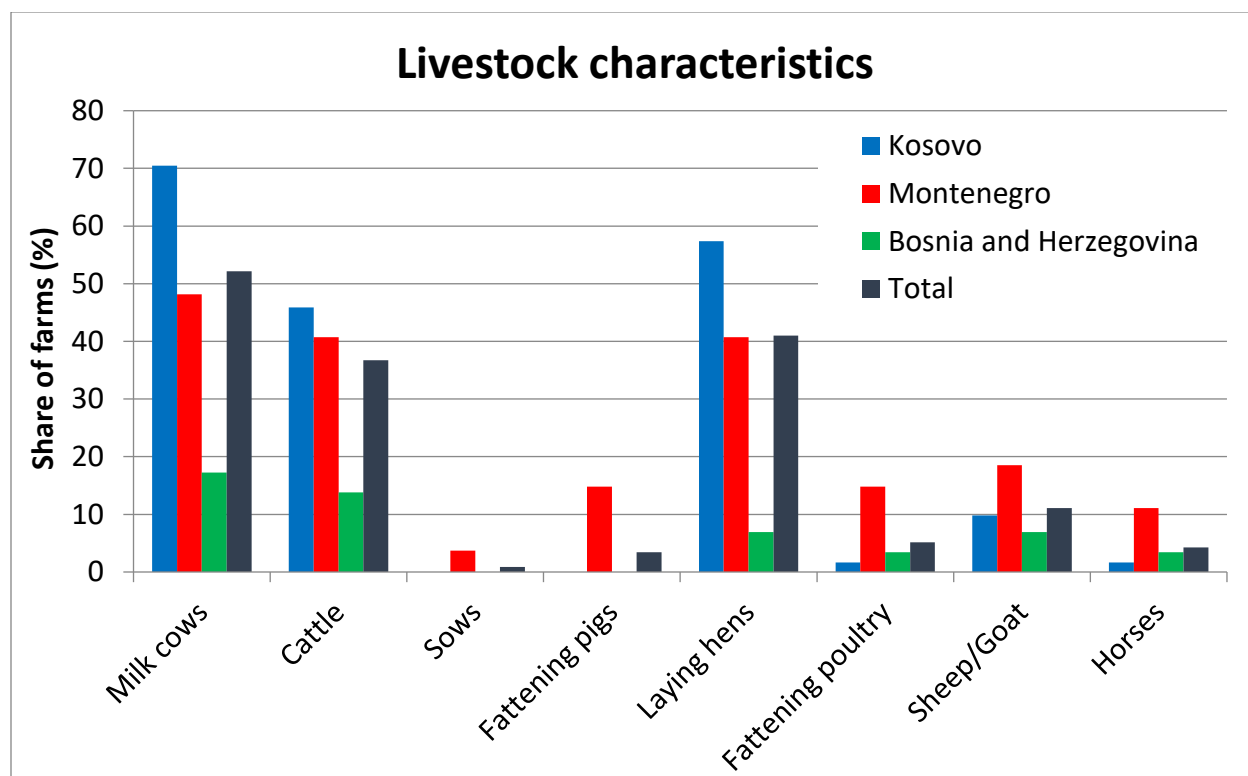


Figure 13: Livestock variety in Kosovo, Montenegro, and Bosnia and Herzegovina.

Half of the interviewed farms run full-time, half part-time (s. Figure 14). 70% of the surveyed Montenegrin farms and 60% of the Kosovan farms work full-time, while less than 20% of the interviewed farmers from Bosnia and Herzegovina indicate to be full-time farmers. The higher shares of full-time farming in Kosovan and Montenegrin sample can be an explanation for the occurrence of quality certifications within these two samples (s. Figure 15). GlobalGAP (6), organic farming (2), and HACCP (Hazard Analysis Critical Control Point; 2) are specified.

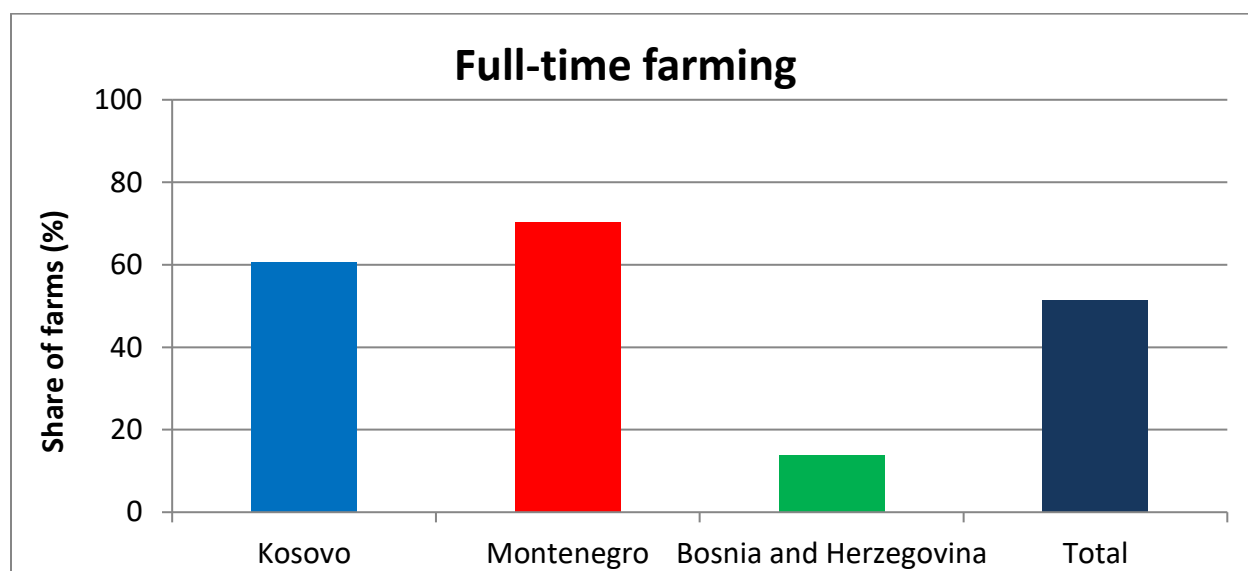


Figure 14: Full- and part-time farming.

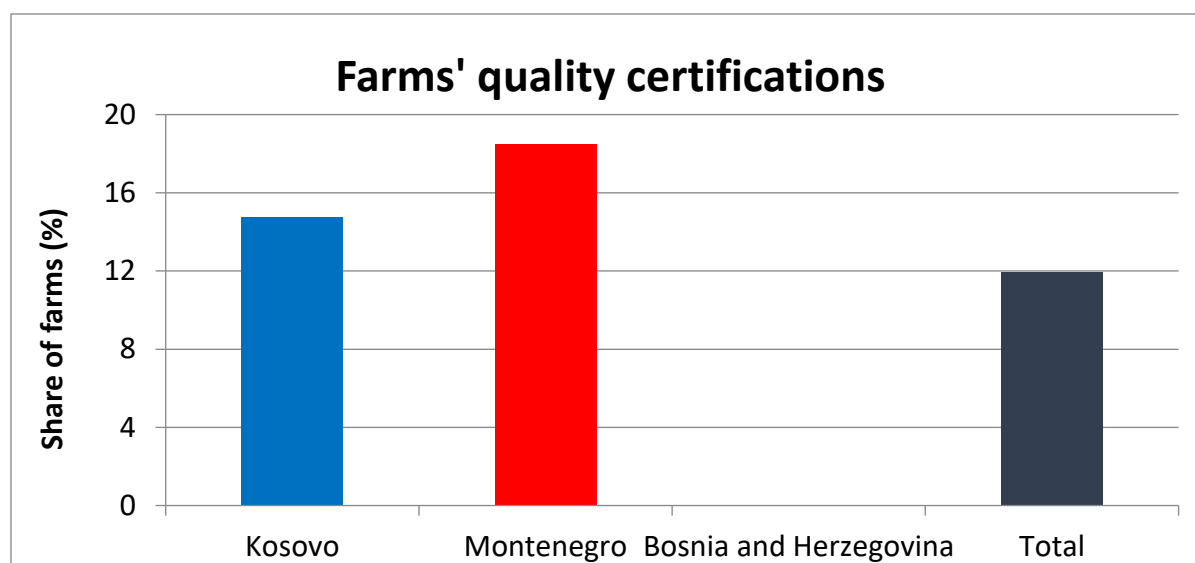


Figure 15: Presence of quality certifications.

The surveyed farmers are comparable young with on average 40 years. Youngest are the farmers from Bosnia and Herzegovina with only 35 years, while interviewees from Kosovo (43 years) and Montenegro (39 years) are a few years older – yet still young when considering an aging agricultural population throughout Europe (s. Figure 16). Several countries in Southern Europe face a dominance of old farmers (>55 years).

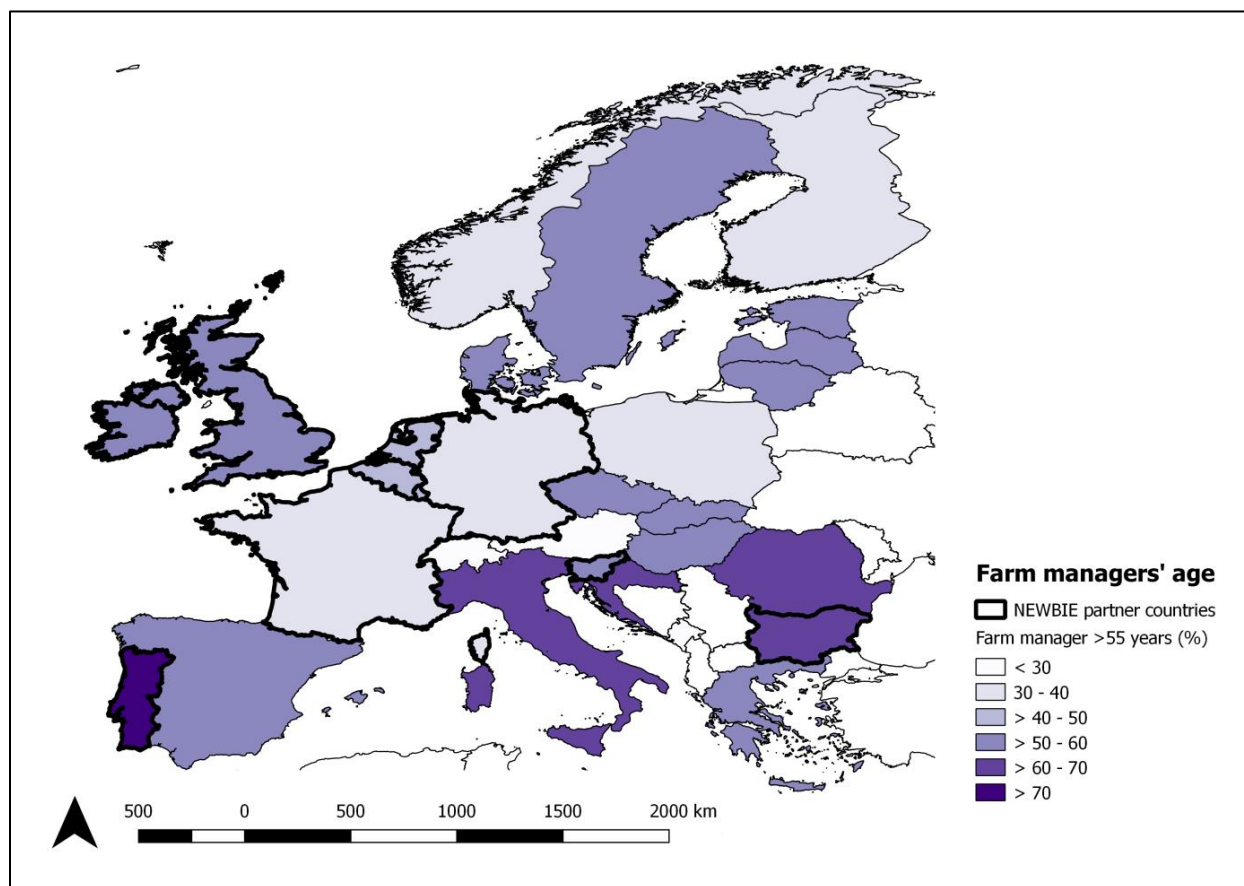


Figure 16: Agricultural aging within EU; number of farm managers >55 years.

Processing, marketing, and diversification

Within all inquired countries self-consumption of food products play a relevant role (s. Figure 17). In Bosnia and Herzegovina the majority of farms (2/3) consumes (some of) the cultivated products themselves. Yet, about one third of the surveyed farms from Bosnia and Herzegovina are selling products. This share is with about 70% considerably higher in Kosovo and Montenegro. Many farms do also process food, especially in Bosnia and Herzegovina and Montenegro.

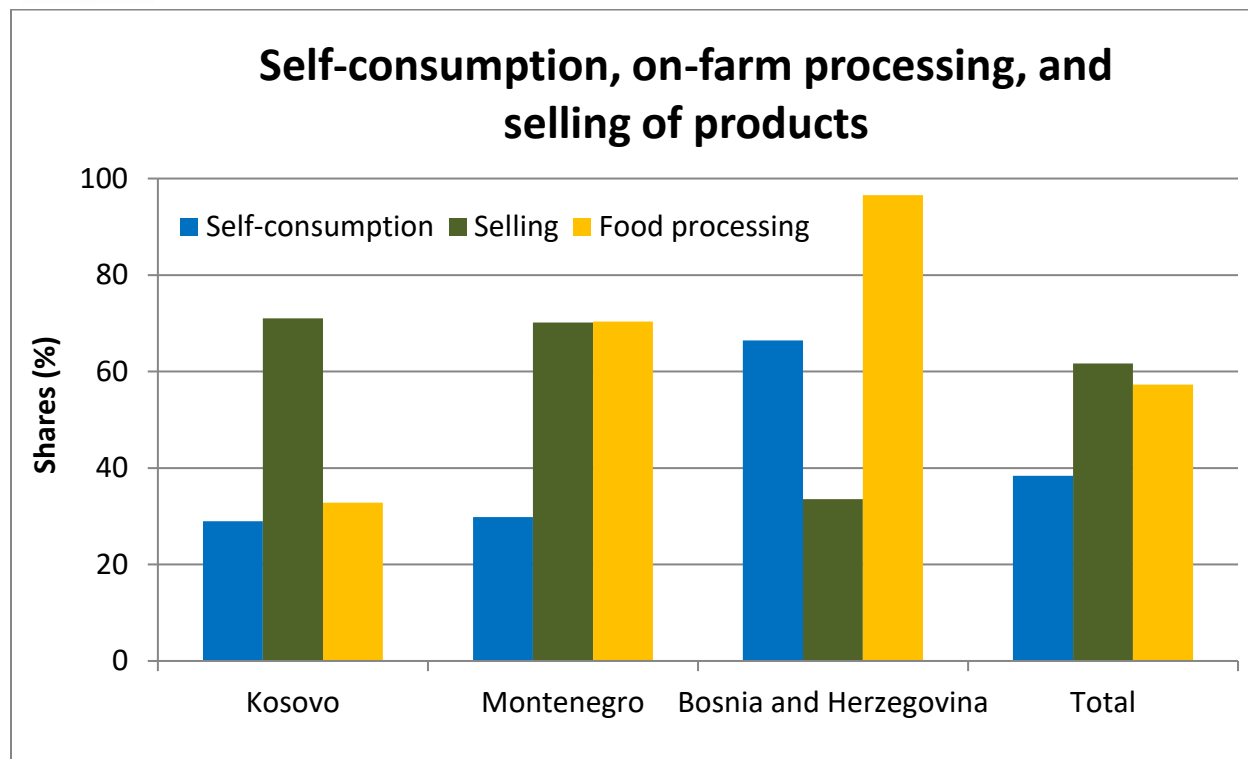


Figure 17: Self-consumption, on-farm processing, and selling of products.

Most frequent processing products are jam (38), juices (26), cheese (15), liqueur (9), and bread (7) (s. Figure 18). Furthermore, milk, meat, ajvar, yogurt, and dried fruits are processed by individual farmers and their families.

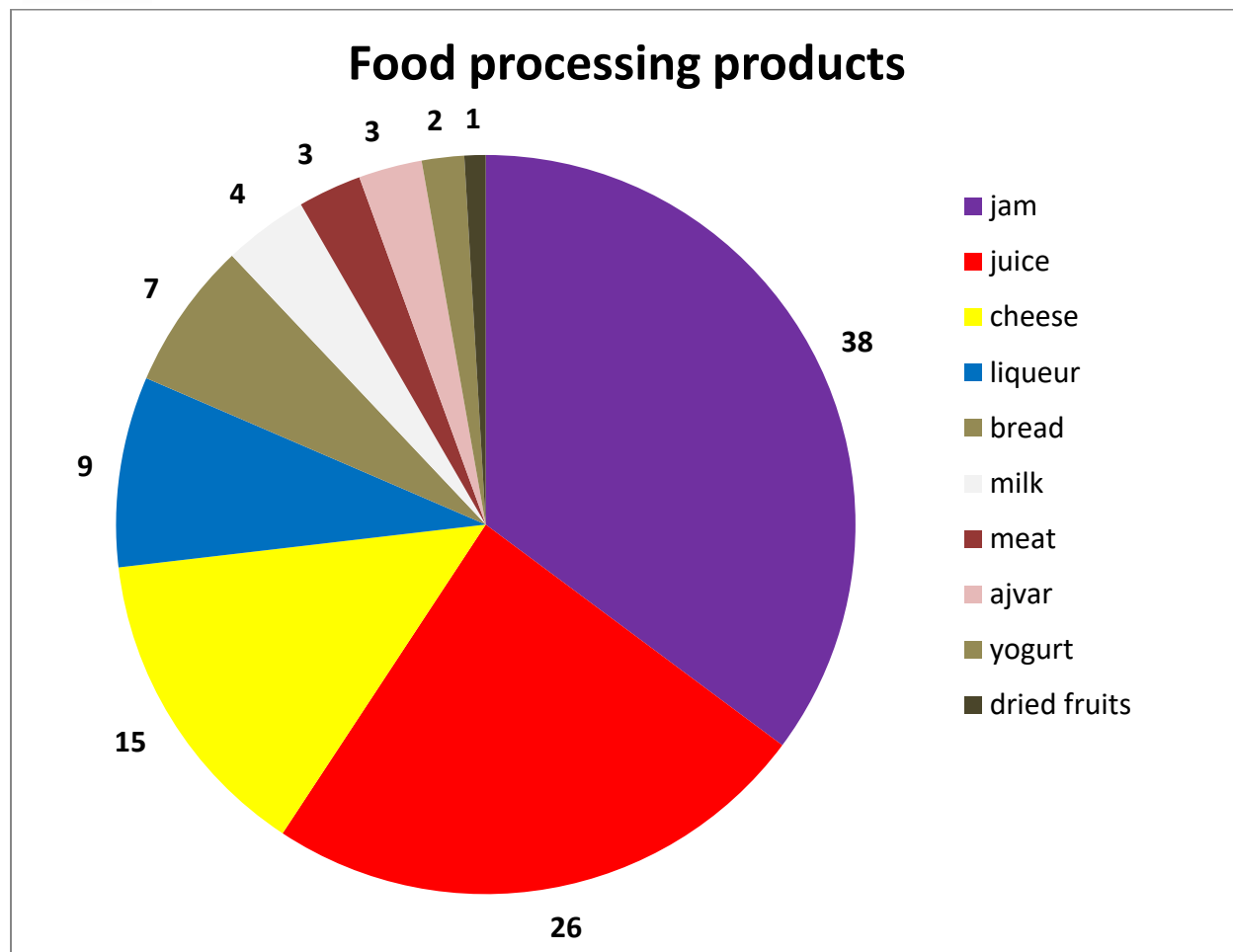


Figure 18: Food processing products.

Food sale is concentrating on (formal/informal) direct sale to the consumers without any intermediaries, wholesales, and regional retailers (s. Figure 19). Within all three BUGI countries direct sale from producer to consumer is the most important selling channel – yet with a certain peak for Montenegro, where the large majority of surveyed farmers sell directly. Wholesalers and retailers are to a certain level also used by Kosovan and Montenegrin farmers, while the interviewees from Bosnia and Herzegovina name hardly any other selling channels; except for direct sale (40%).

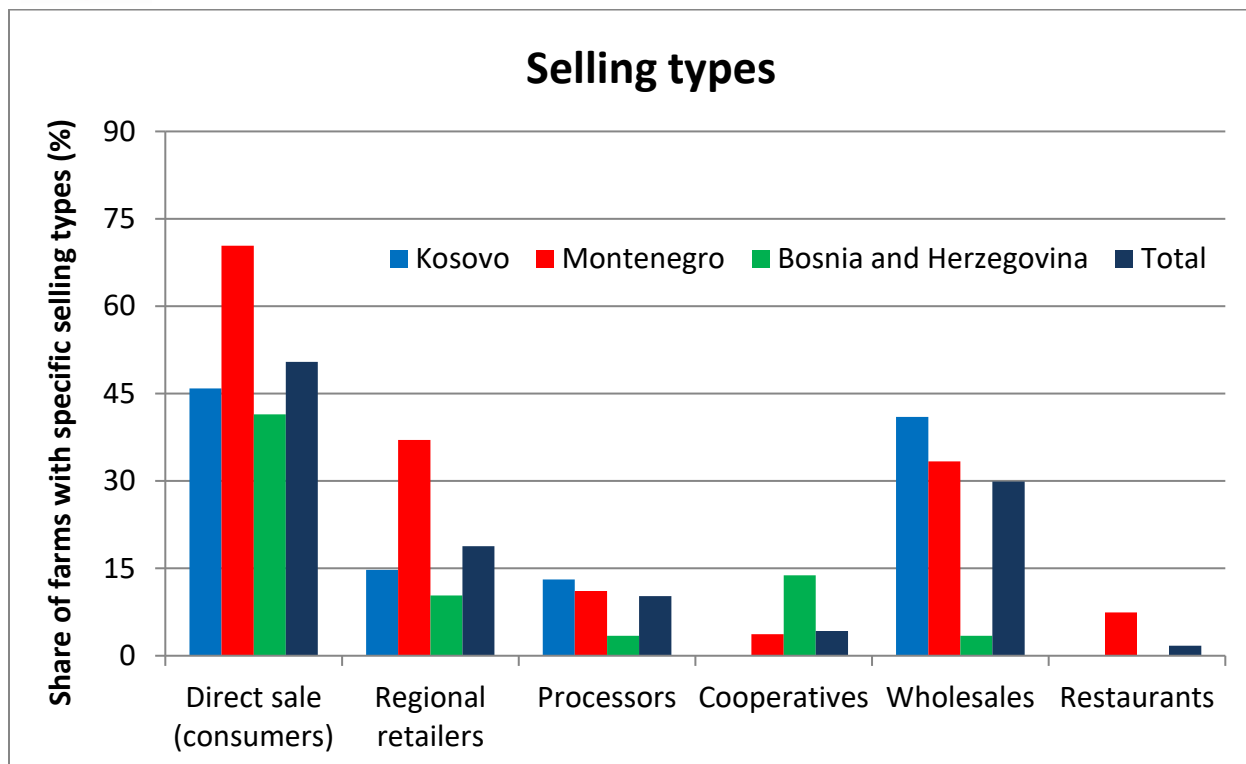


Figure 19: Food selling channels.

On-farm diversification, especially tourism and educational services, are applied by one fifth of the Western Balkan sample of 117 farms (s. Figure 20).

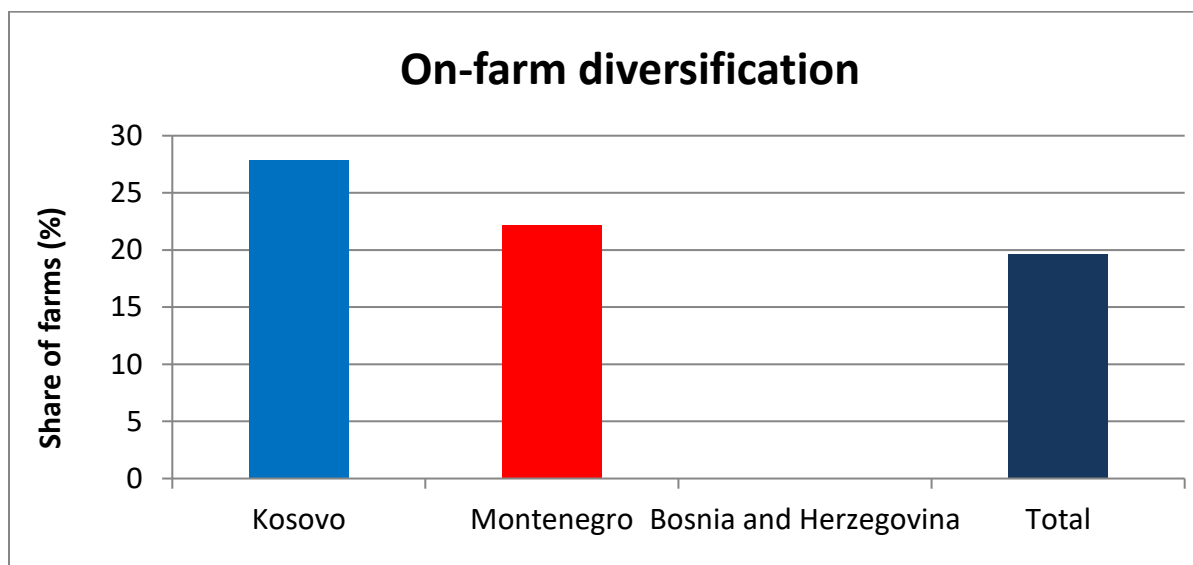


Figure 20: On-farm diversification in Kosovo, Montenegro, and Bosnia and Herzegovina.

Tourism services are prevailing in Montenegro, while educational services occur more regularly in Kosovo. No interviewed farm from Bosnia and Herzegovina names on-farm diversification measures.

Urban issues

The interviewed farmers highlight that there are strong differences (81) between agriculture in rural compared to urban environments (s. Figure 21). This is especially highlighted by Bosnia-Herzegovina and Kosovo (>80). The scale ranges from 0 (no differences) to 100 (very strong differences). The same question on farming differences between urban and rural areas has also been raised in a survey among farmers in German Ruhr Metropolis (Pölling et al., 2017). The 171 Ruhr farmers result in a value of 66.4.

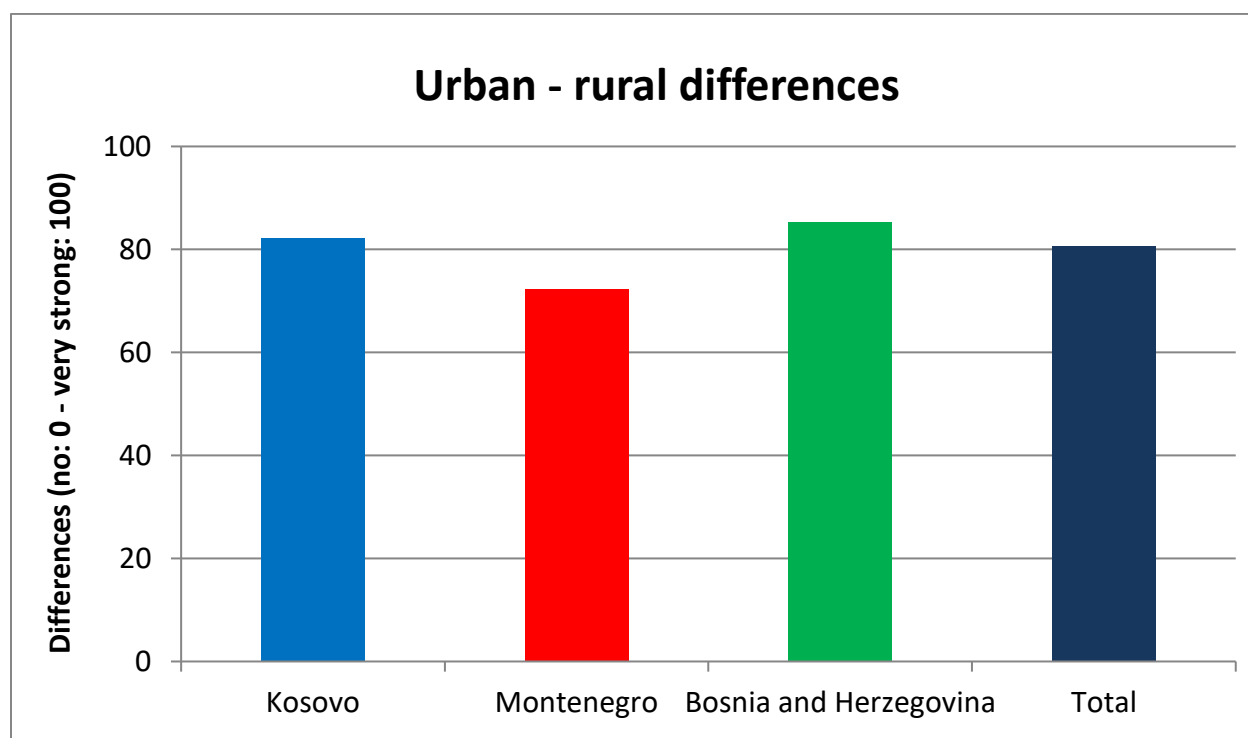


Figure 21: Urban-rural differences for agriculture.

The farmers' self-assessments of location range from very rural (0) to very urban (100). The 117 Western Balkan farmers result on average with 31 points, which means a comparable rural self-assessment of location. It is highest for Montenegro (48) followed by Bosnia and Herzegovina (43), and Kosovo (18). When focusing on more on specific frequencies it becomes obvious that 80% of the Kosovan farmers name a rural location of <40 (s. Figure 22). The majority of interviewees from Montenegro name a location >40, which means peri-urban or more towards

the urban environment. Nearly 20 % of the farmers from Montenegro name even a self-assessed location >80 (very urban).

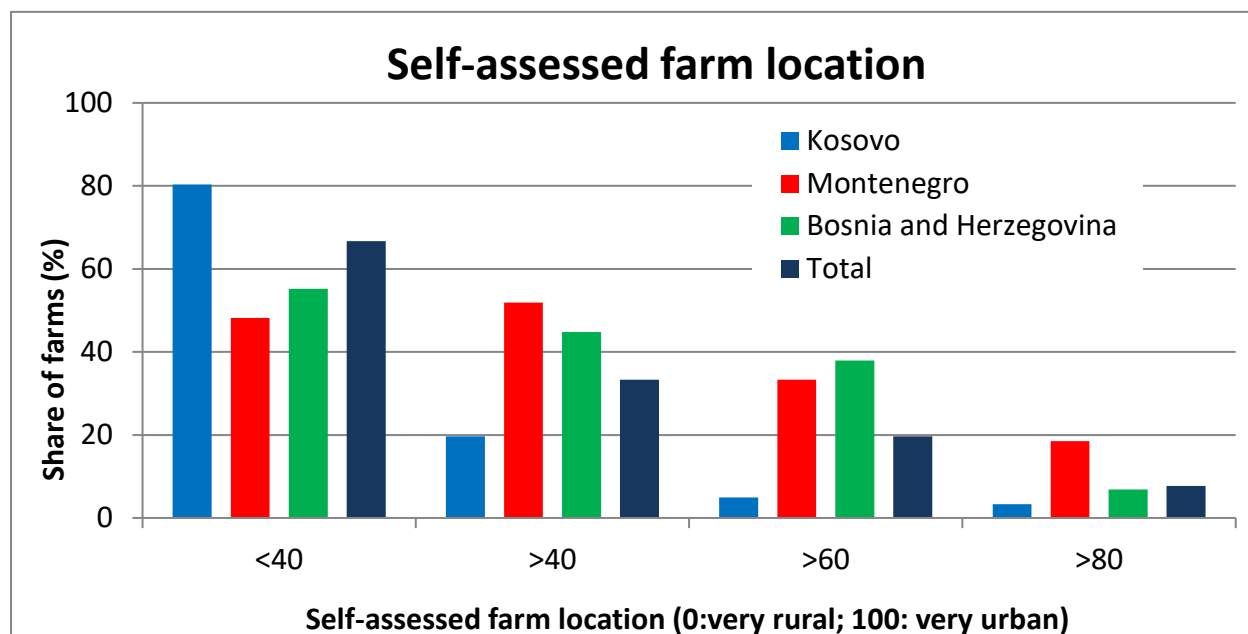


Figure 22: Self-assessment of farm location.

The overall influence of cities on agriculture can be confirmed by the survey (s. Figure 23).

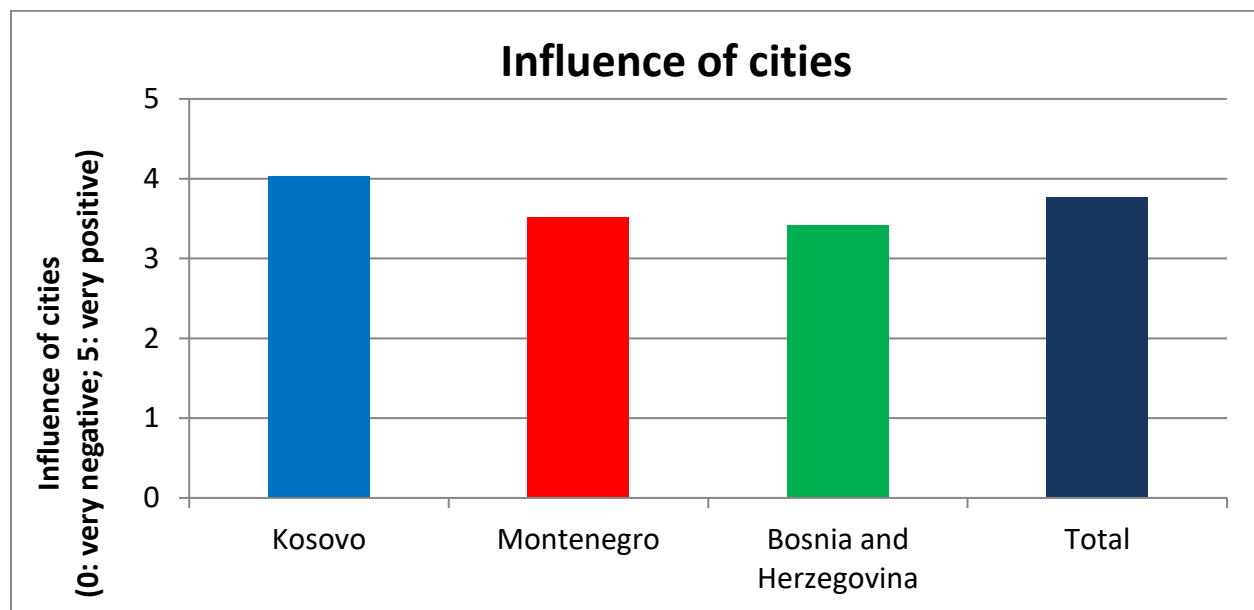


Figure 23: Influence of cities on farming.

Synthesis of farm models and food chains

Some differences between the three Western Balkan countries Kosovo, Montenegro, and Bosnia and Herzegovina can be disclosed when analysing the survey data. This synthesis is only considering the farm survey data, which is not able to result in representativeness for the countries. However, it provides insights into general farm models and food chain characteristics.

The majority of Kosovan and Montenegrin interviewees work full-time in agriculture, while the large majority of interviewed farmers from Bosnia and Herzegovina work as part-time farmers. This goes along with a considerably smaller average farm size in Bosnia and Herzegovina (0.5 ha). The main crops in Kosovo are permanent crops and cereals, in Montenegro permanent crops and vegetables, and in Bosnia and Herzegovina vegetables. Here in Bosnia and Herzegovina the sample names the largest greenhouses and foil tunnels. Greenhouses and foil tunnels are also frequent in Kosovo, while it is less frequent in Montenegro. Irrigation is again more common in Kosovo and Bosnia and Herzegovina.

A stronger emphasis of food selling of Kosovan and Montenegrin farmers results in a stronger economic focus. Contrarily, in Bosnia and Herzegovina most products are consumed inside the family without any trading. Besides a stronger relevance of selling, the Kosovan and Montenegrin do also make use of tourism and educational services as business strategies, while non interviewee from Bosnia and Herzegovina conducts on-farm diversification.

Consumer preferences survey

The consumer preferences survey consists of in total 243 usable replies from Kosovo (102), Bosnia and Herzegovina (63), and Montenegro (78) (s. Figure 24).

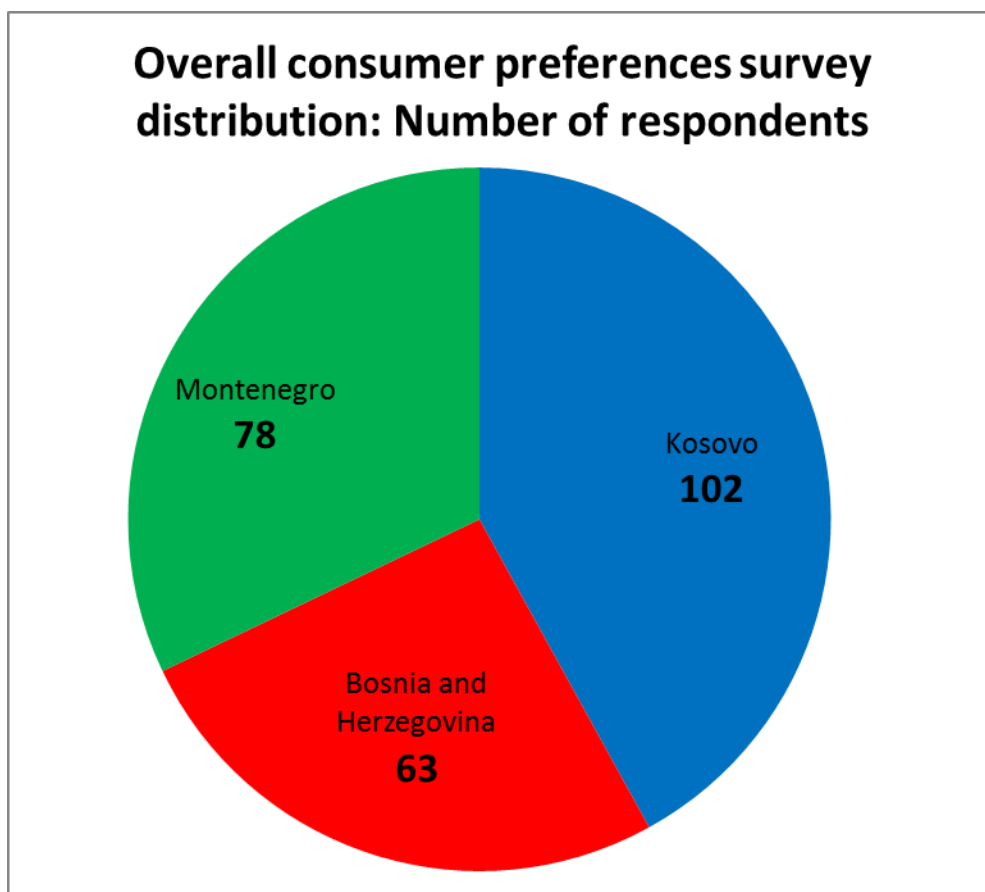


Figure 24: Overall consumer preferences survey distribution among countries

The overall gender ratio is 50:50 (s. Figure 25). While the majority of Kosovan respondents are male, most respondents from Bosnia and Herzegovina and Montenegro are female. The overall age distribution is comparable young and younger than the three countries' total populations (s. Figure 26). The average age is 35 years. All three countries have average values in the 30s.

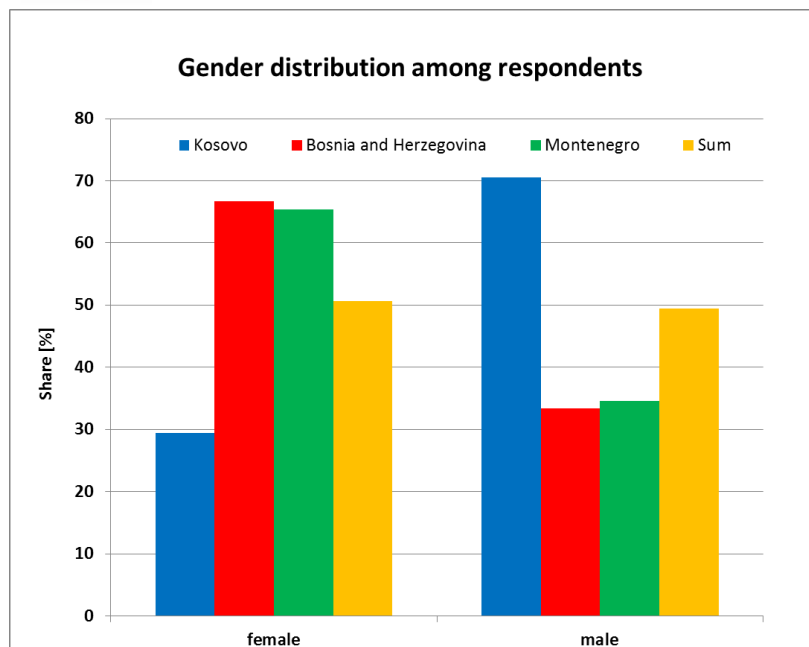


Figure 25: Gender distribution among respondents

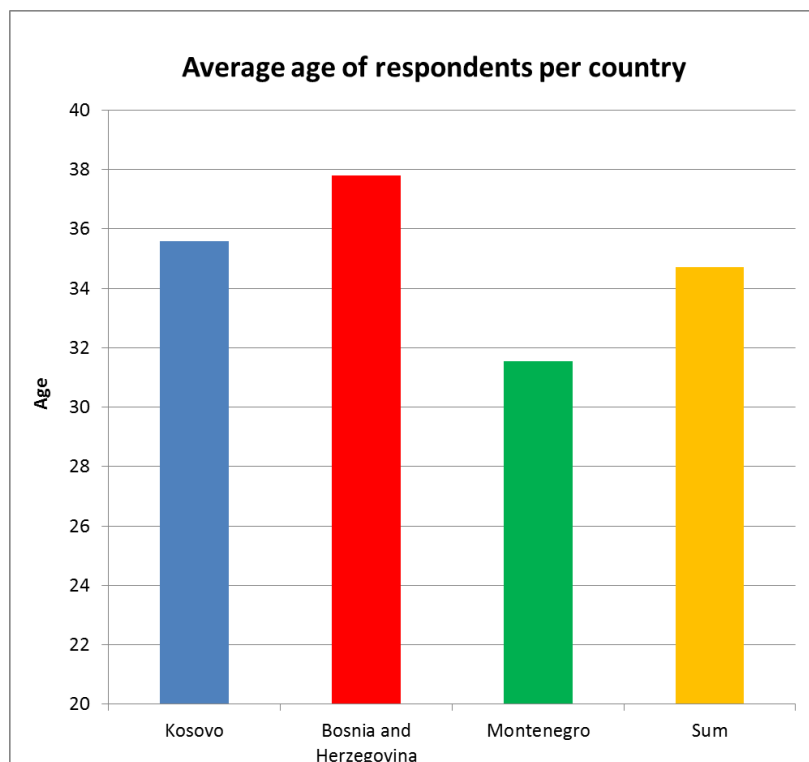


Figure 26: Average age of respondents

The respondents estimate that they respectively their families produce and consume nearly 22% of the food themselves, while about 78% are purchased elsewhere (s. Figure 27). The self-consumption share is highest for Kosovo (29%) and lowest in Montenegro (15%).

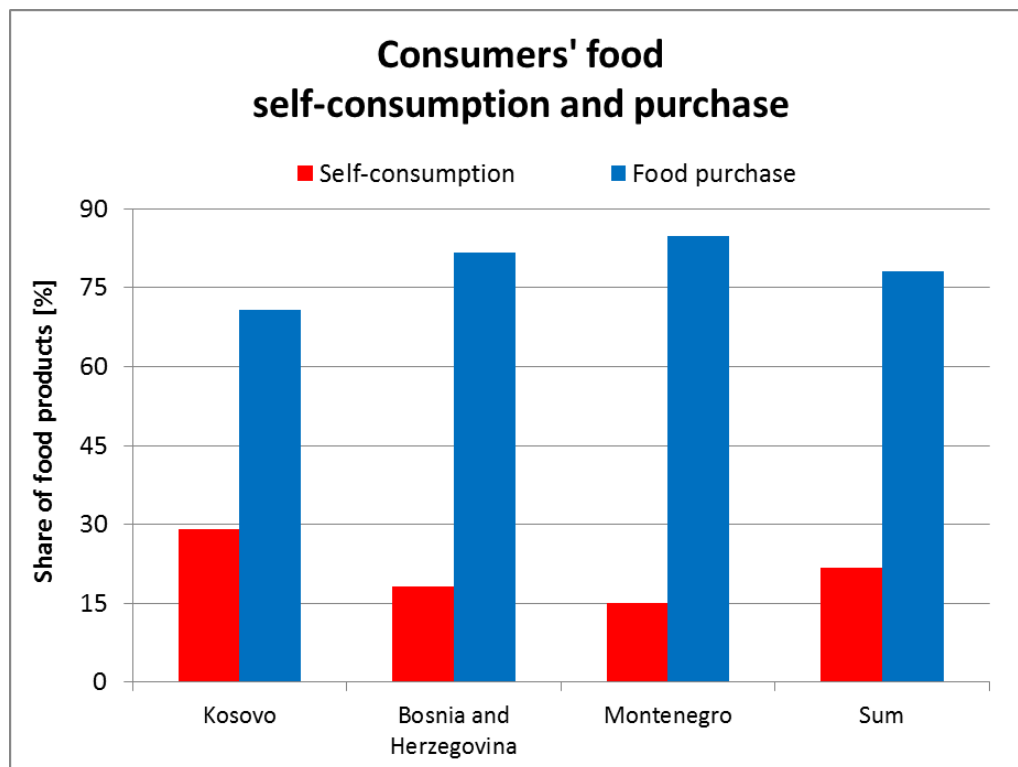


Figure 27: Consumers' food self-consumption and purchase

The following three figures show the importance of different food purchase channels for Kosovo (s. Figure 28), Bosnia and Herzegovina (s. Figure 29), and Montenegro (s. Figure 30). In all three countries discounter and farmer markets build important purchase channels for food products. In Kosovo on-farm purchase plays the most relevant role, while discounters reach the highest importance in Bosnia and Herzegovina and Montenegro. Discounters and farmer markets reach on a range from 1 (less important) to 5 (most important) values above three in all three countries.

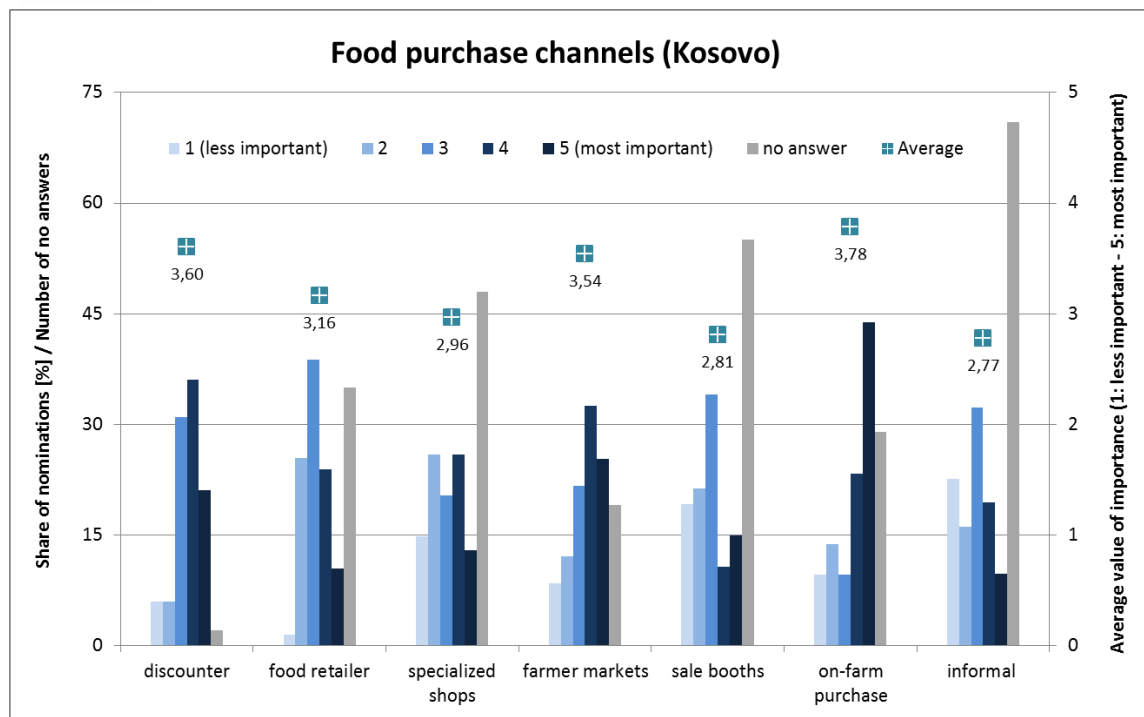


Figure 28: Food purchase channels (Kosovo)

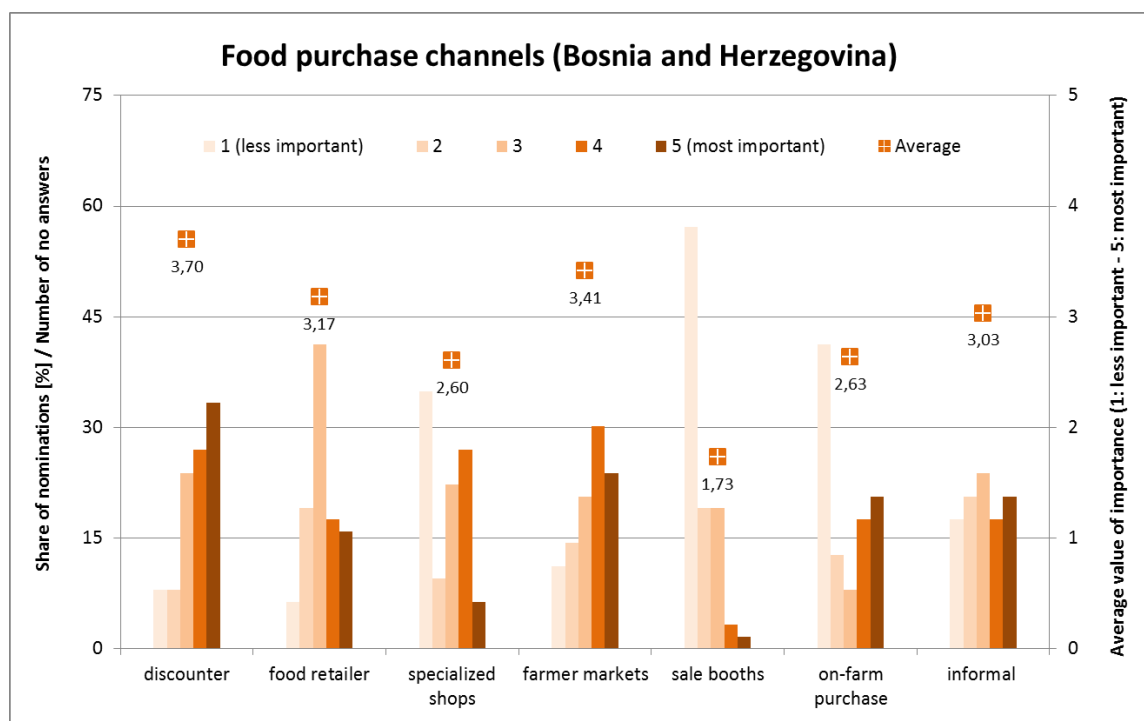


Figure 29: Food purchase channels (Bosnia and Herzegovina)

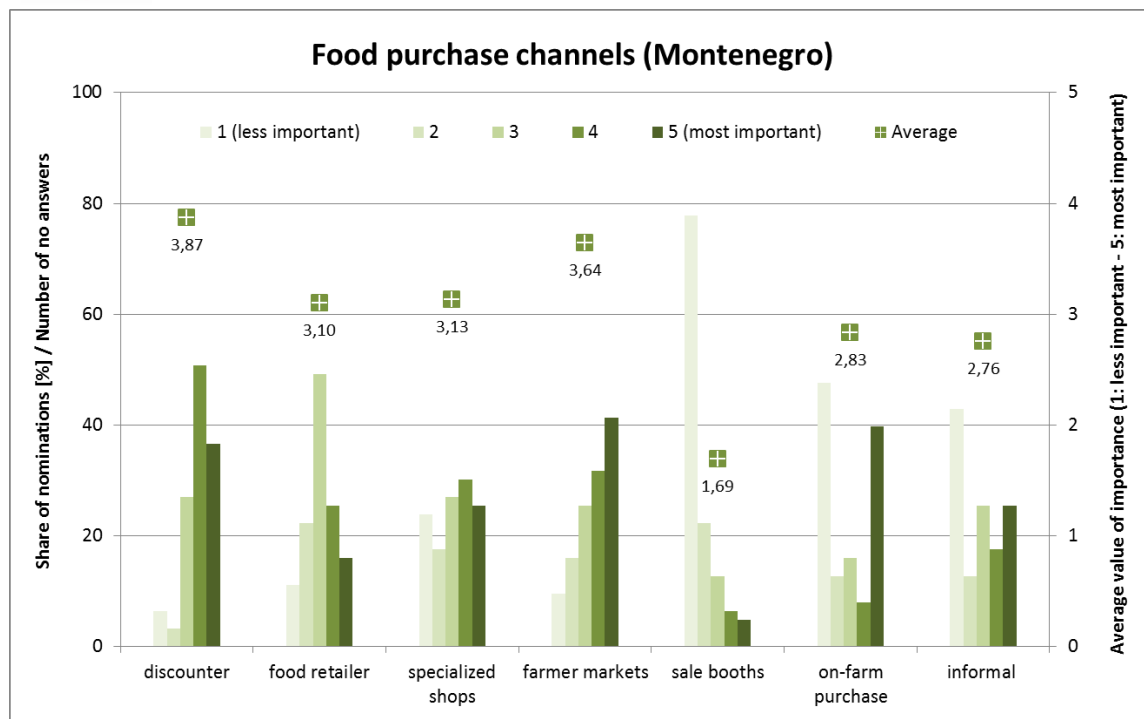


Figure 30: Food purchase channels (Montenegro)

The majority of respondents of the consumer preferences survey purchase fresh/unprocessed food (s. Figure 31). This category reaches more than 50% of all food purchases for Bosnia and Herzegovina and Montenegro. The following two food purchase categories are processed food products followed by convenience food, which accounts for ca. 30% of Kosovan respondents and less than 15% of respondents each from Bosnia and Herzegovina and Montenegro.

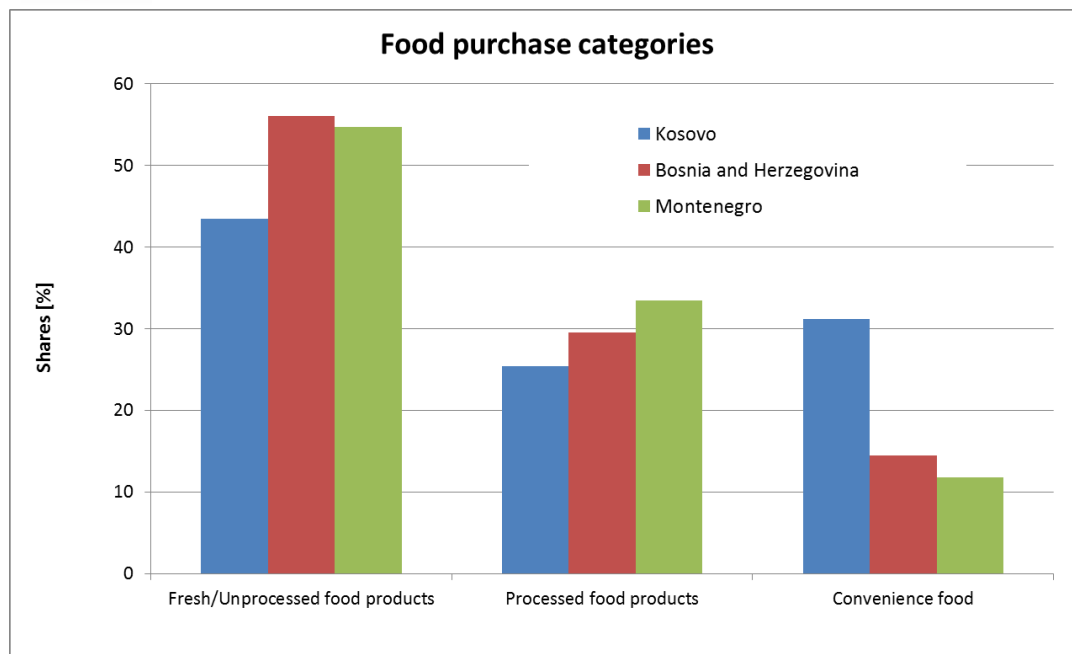


Figure 31: Food purchase categories

The majority of survey respondents has already used of the term “urban agriculture” respectively “urban farming” (s. Figure 32). The name recognition is highest in Bosnia and Herzegovina followed by Kosovo and Montenegro.

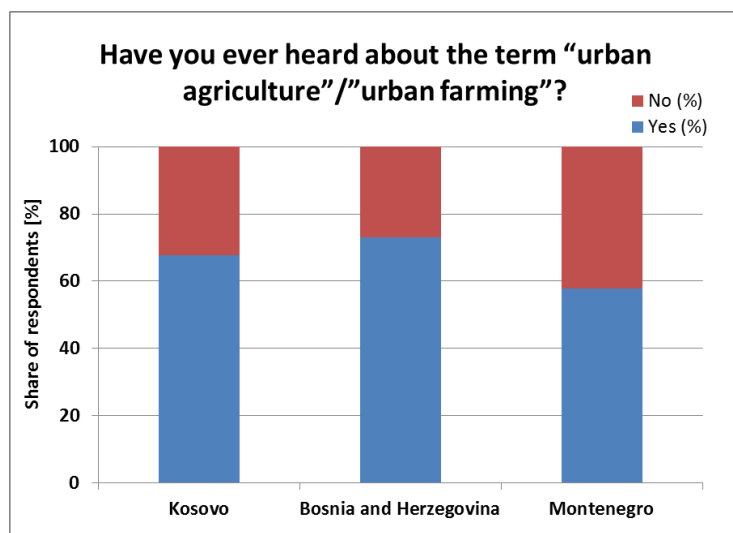


Figure 32: Recognition of the term “urban agriculture” / “urban farming”

The following question aims for deeper insights into the customers’ willingness to buy food products from specific urban agriculture production types (s. Figures 33-35). On average, (peri-)

urban farming types and private gardens receive more positive answers than the other urban gardening and technological innovation production types. In Kosovo, (peri-)urban conventional farms and pick-your-own offers reach the highest level followed by Community Supported Agriculture, private gardens, and (peri-)urban organic farms (all >4.5). Urban gardening (in public spaces and on vacant land) reaches still values >4, while technological innovations have values of on average below 4 each. These technological innovations have a high number of no answers, which has to be mentioned also for CSAs and pick-your-own.

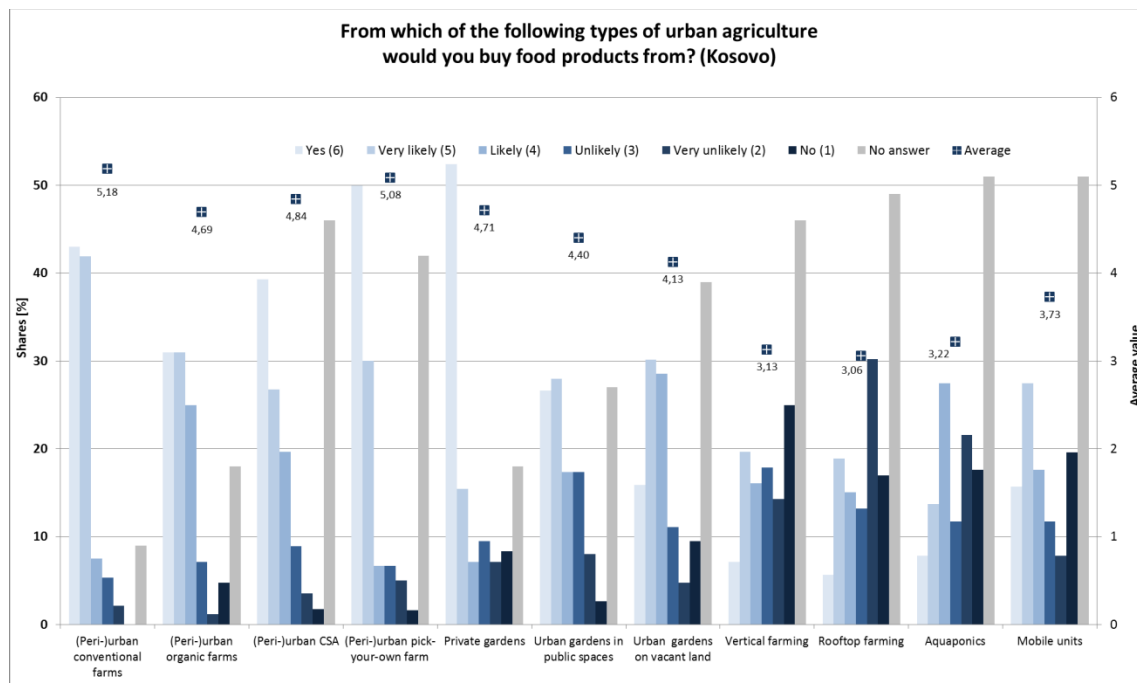


Figure 33: From which of the following types of urban agriculture would you buy food products from? (Kosovo)

Similar conclusions can also be drawn for Bosnia and Herzegovina (s. Figure 34) and Montenegro (s. Figure 35). The respondents from Bosnia and Herzegovina rate private gardens highest (close to 5); followed by the peri-urban production types: organic farming, pick-your-own, and CSAs. The technological innovations are rated higher than by Kosovan respondents. Furthermore, it has to be pinpointed that conventional farming is rated significantly lower compared to Kosovo, where it reaches the highest value of all urban agriculture production types. The values for Bosnia and Herzegovina and Montenegro are very similar between each other.

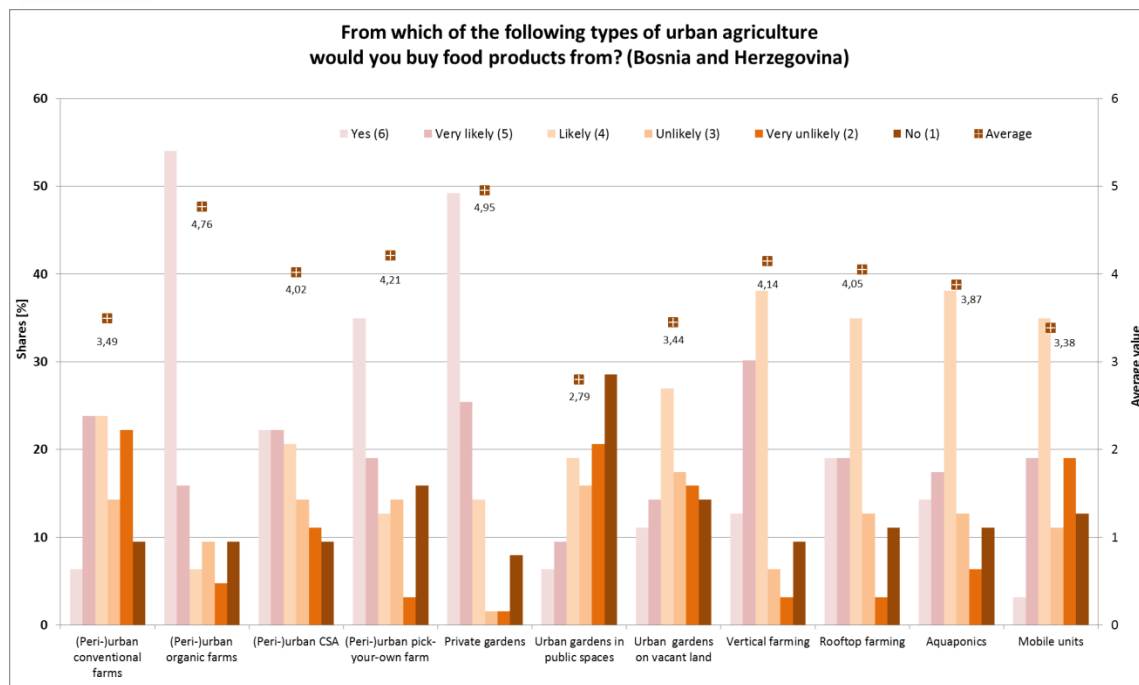


Figure 34: From which of the following types of urban agriculture would you buy food products from? (Bosnia and Herzegovina)

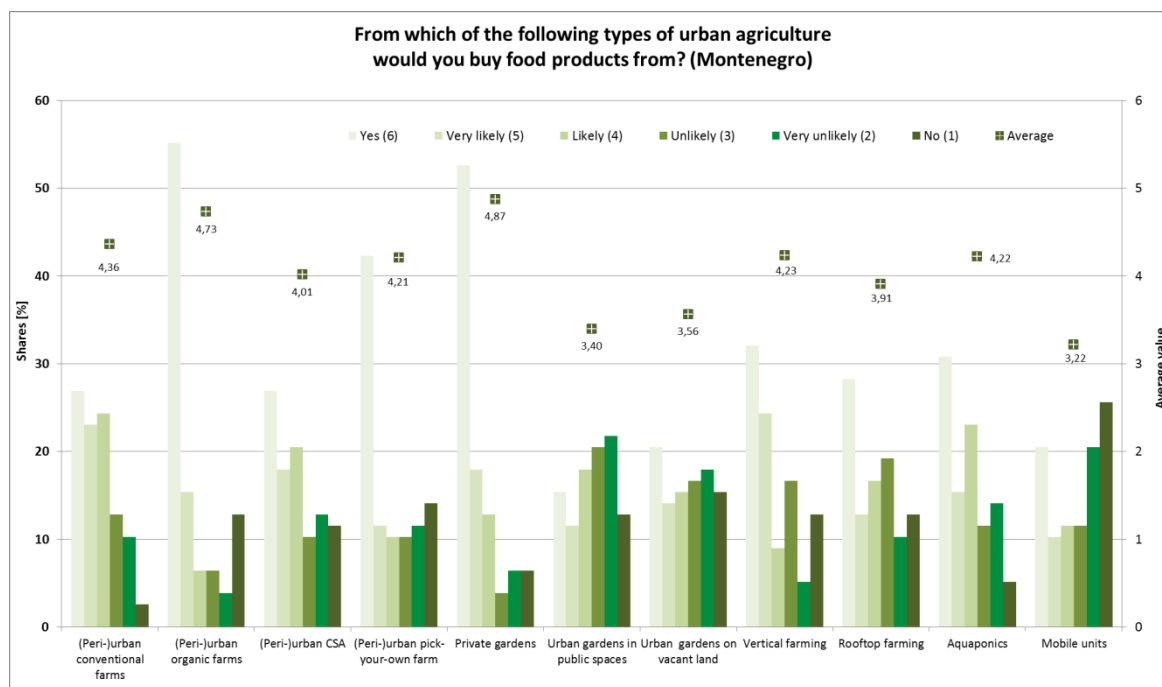


Figure 35: From which of the following types of urban agriculture would you buy food products from? (Montenegro)

The following three figures visualize the respondents' attitude to production systems and orientations (s. Figures 36-38). This attitude is described as very accepted, accepted, indifferent, rejected, and very rejected. Again, it becomes obvious that the results from Bosnia and Herzegovina and Montenegro are very similar to each other, while the values for Kosovo differ to some extent. In Bosnia and Herzegovina and Montenegro organic production reaches the highest acceptance value with some distance to second placed resource-efficient agriculture (Bosnia and Herzegovina) respectively greenhouse technology (Montenegro). All production types in all three countries reach acceptance rates above 3 except the use of GMOs. The Kosovan respondents differentiate only little between the different production types. In Bosnia and Herzegovina and Montenegro the differences are stronger accentuated. In general, organic production, resource-efficient agriculture, and greenhouse technology reach the first three places of acceptance followed by extensive production, intensive production, soilless production, and the usage of GMOs. In Montenegro, the intensive crop and livestock production reach even to a little extent better acceptance rate than extensive production.

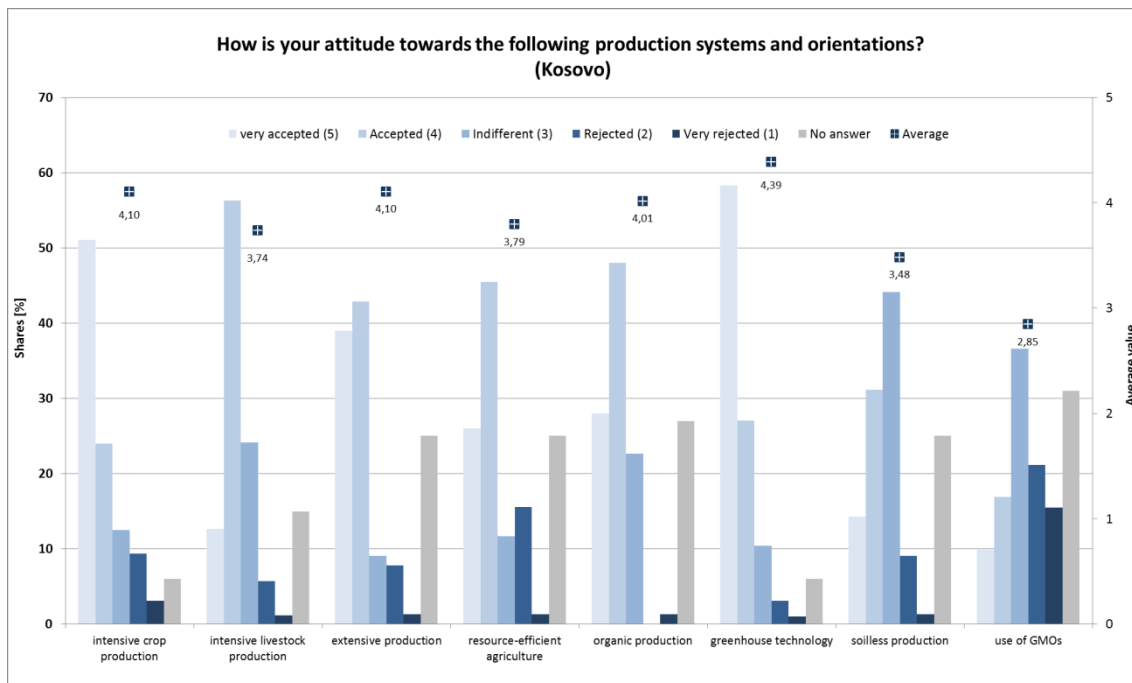


Figure 36: How is your attitude towards the following production systems and orientations? (Kosovo)

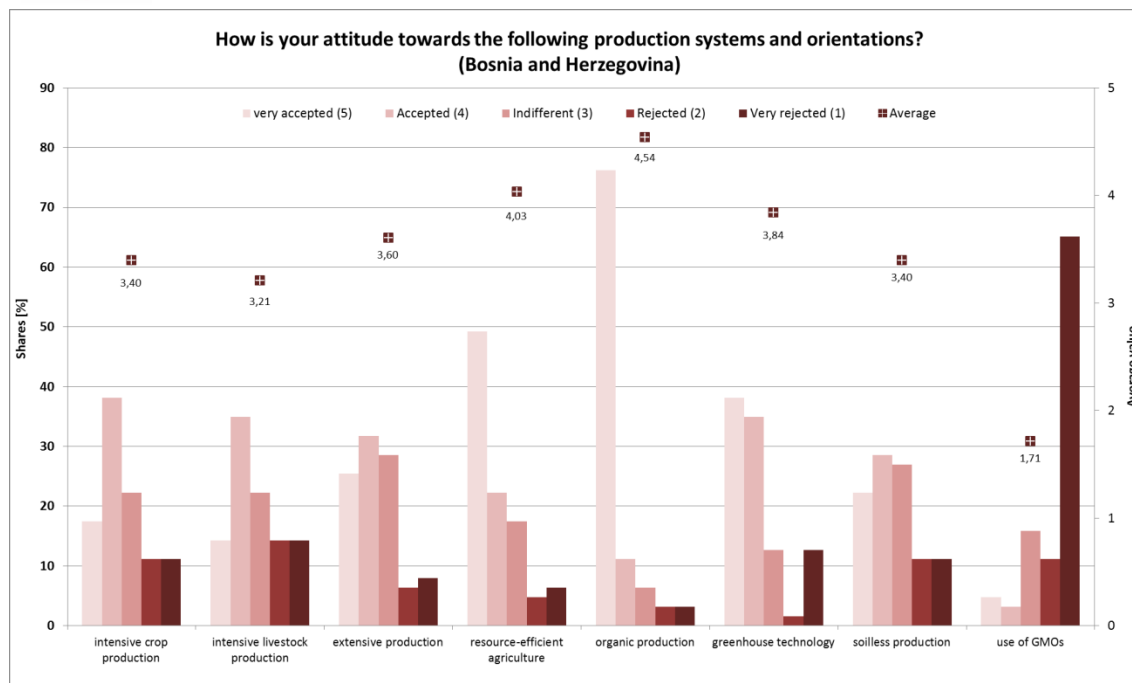


Figure 37: How is your attitude towards the following production systems and orientations? (Bosnia and Herzegovina)

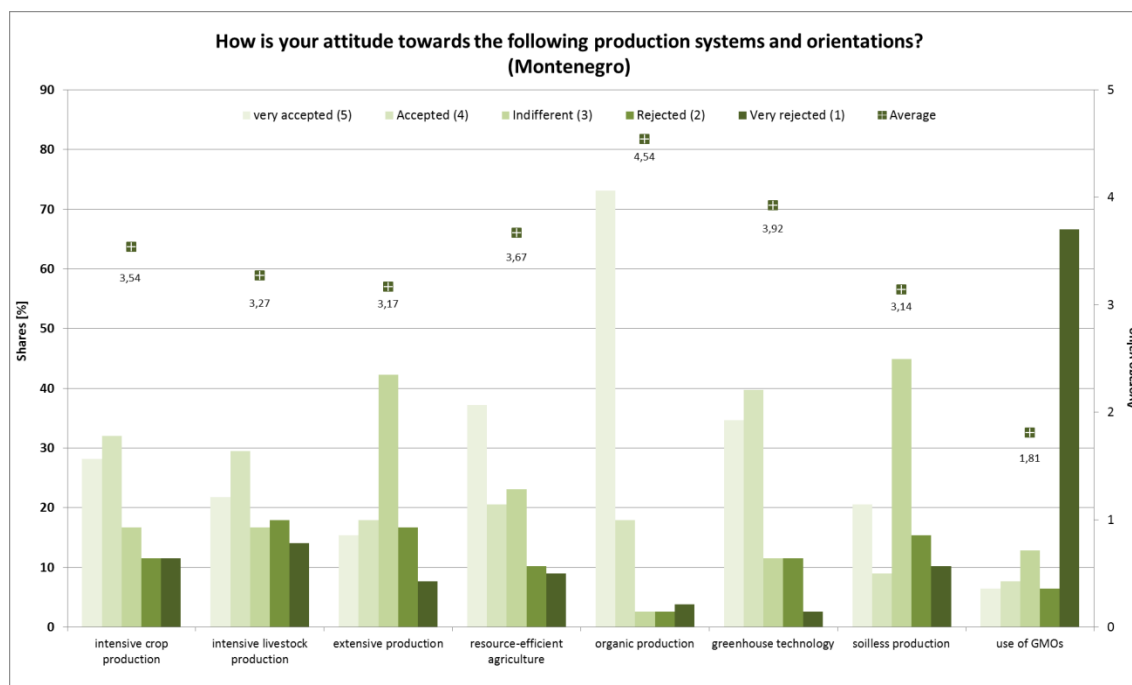


Figure 38: How is your attitude towards the following production systems and orientations? (Montenegro)

Fruits and outdoor vegetables reach the highest willingness to buy based on urban agriculture production; followed by greenhouse products, eggs, and honey (s. Figure 39). These results contradict somewhat the earlier statement of higher acceptance of greenhouse technologies compared to outdoor production (s. Figures 36-38). The differences between countries are especially obvious when focusing on greenhouse products, which reach the highest willingness to buy for Kosovo (ca. 90%), while the two other countries Bosnia and Herzegovina and Montenegro reach only about 40% respectively 35%.

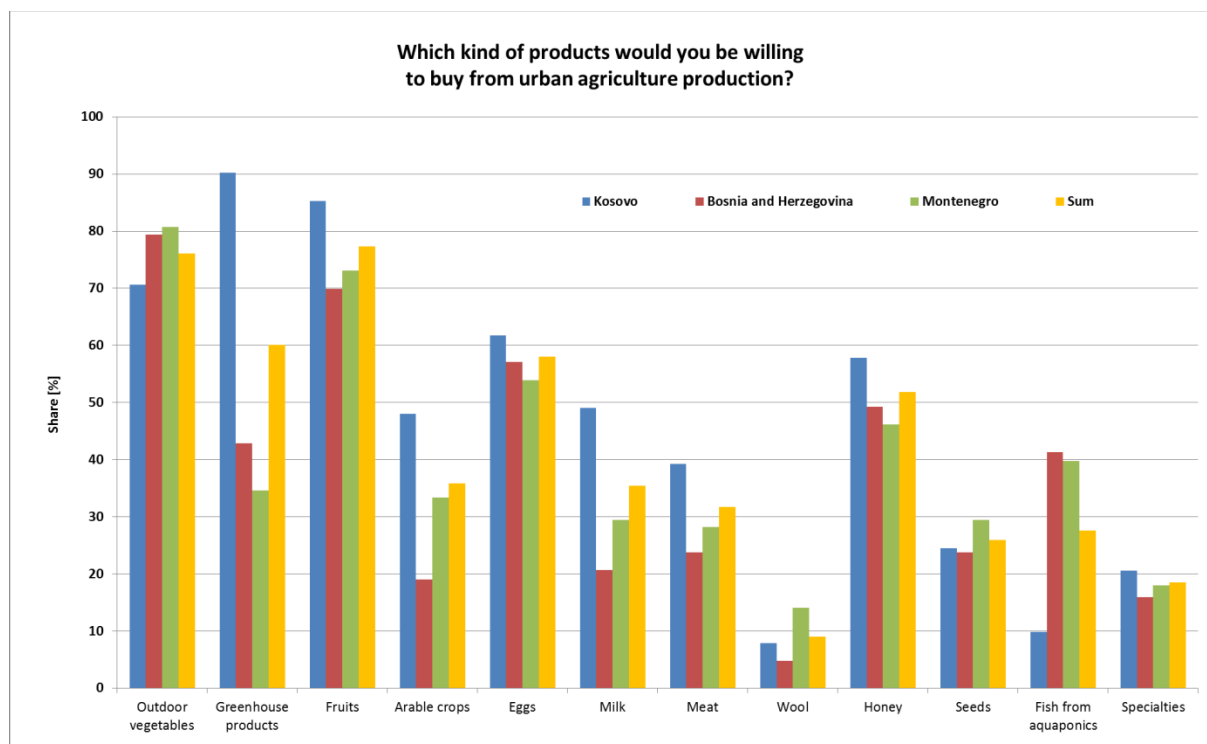


Figure 39: Which kind of products would you be willing to buy from urban agriculture production?

The willingness to pay for urban agriculture products is high (s. Figure 40). When 1kg of onions from conventional and imported agriculture costs 1 € in the supermarket, the respondents would be willing to pay for 1kg of onions from urban agriculture produced and sold in the respondents' city more than 1.70 € - in Bosnia and Herzegovina and Montenegro even > 1.80 €.

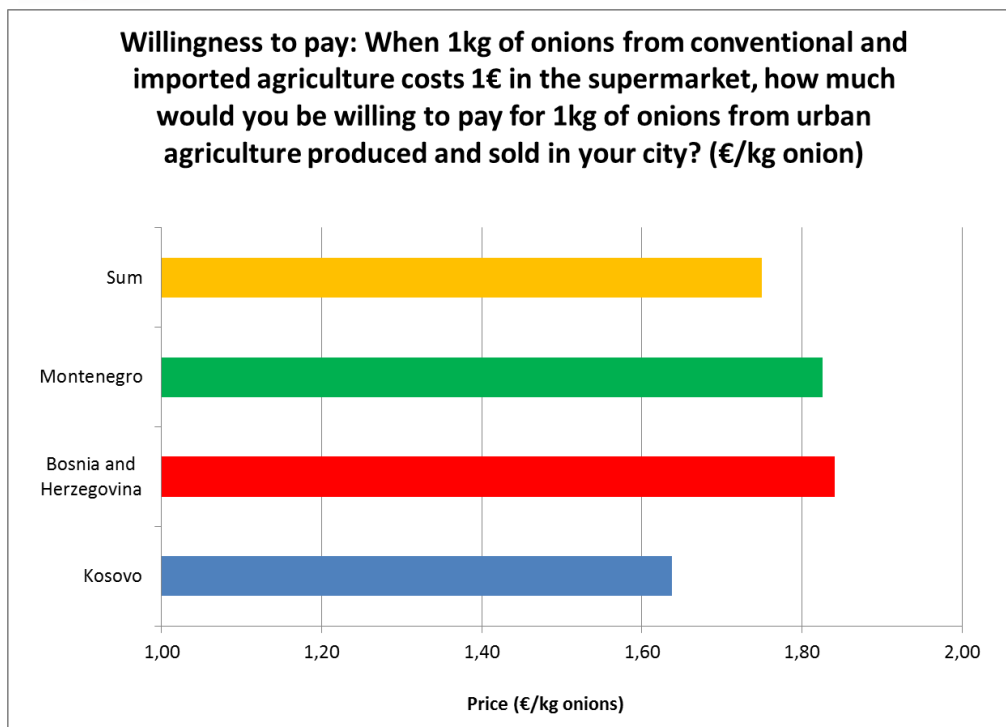


Figure 40: Willingness to pay: When 1kg of onions from conventional and imported agriculture costs 1€ in the supermarket, how much would you be willing to pay for 1kg of onions from urban agriculture produced and sold in your city? (€/kg onion)

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