

Agri-food trends and policy: Green deal challenges and opportunities in EU pre-accession countries (Albania, Kosovo, North Macedonia)

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Abstract

EU pre-accession economies, including Albania, Kosovo and North Macedonia, rely heavily on agriculture that is a key employer in rural areas. The main challenges in the agriculture sector remain low productivity, lack of infrastructure, and poor access to finance and markets. EU membership aspirations and the pursuit of European Green Deal (EGD) guidelines provide a yardstick to assess regional agricultural policies, emphasizing sustainable practices and organic farming. The need for balanced increase in production and demand, improved supply chains, and compliance with EU standards is evident. Although, the Green Agenda for the Western Balkans (GAWB) emphasizes the countries' commitment towards sustainability, yet implementation is inconsistent due to low level of support for agriculture and rural development in terms of environmental benefits, and for organic agriculture specifically. Aligning policies toward the EGD, developing a reliable quality infrastructure, and increasing the financial support and capacity building interventions is crucial for sustainable transformation. Further research on economic viability and behavioral factors affecting environmentally linked policy adoption is necessary to inform policy interventions.

Keywords: Green Agenda, Organic Agriculture, Western Balkans, EU integration.

1. Introduction

European Union (EU) pre-accession countries, such as Albania, Kosovo, and North Macedonia (part of the Western Balkans [WB]), still heavily rely on agriculture as a major sector in

their economies. Agriculture is a crucial source of employment and income, primarily because a significant portion of the population resides in rural areas and engages in agriculture. Farmers in these countries in South-East Europe face numerous challenges, including slow productiv-

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ity growth, lack of mechanization and modern equipment, unclear property rights, and limited access to finance, technology, services, and markets (Martinovska Stojcheska *et al.*, 2024).

The agri-food sector as a whole faces challenge in creating market institutions, and establishing marketing and distribution chains. Albeit to different extent across the WB countries, challenges also arise in meeting EU food safety and quality requirements, complying with veterinary and phytosanitary standards, and building the administrative capacity to support these processes. The organic sector in particular is subject to additional specific requirements. Several studies have identified the shortcomings in the food safety system and the associated risks and concerns among consumers (Grunert *et al.*, 2021; Haas *et al.*, 2021). Farmers' non-compliance with these standards undermines their market access, leading to low farm income, continuous out-migration of youth, and the abandonment of agricultural land.

The agri-food sector in the region has significant development potential, for example by adopting certain structural changes such as farm consolidation and value chain integration, and certain institutional changes such as quality infrastructure as well as food safety and agricultural support services (Sanfey and Milatovic, 2018; Aramyan *et al.*, 2024). Moreover, the WB region's geographical location is suitable for supplying agri-food produce to the EU which is already its major trading partner (Sanfey and Milatovic, 2018; Martinovska Stojcheska *et al.*, 2024).

Given the EU membership aspirations of Albania, Kosovo, and North Macedonia, the Common Agricultural Policy (CAP) of the EU significantly influences their agricultural policy developments. An important driver towards sustainability has also been their ambition to align with the European Green Deal, a comprehensive policy initiative aimed at transforming the EU into a more sustainable, resource-efficient, and climate-neutral economy. The EU Farm to Fork Strategy, part of the Green Deal, aims to enhance soil health, expand organic production, reduce fertilizer and pesticide use in agriculture, and promote biodiversity (EC, 2020).

The whole WB region is committed to align-

ing with key aspects of the European Green Deal and aims to achieve climate neutrality along with Europe by 2050. This commitment is underscored by the adoption of the Green Agenda for the Western Balkans (GAWB) in 2020, along with an accompanying Action Plan in 2021. Action 46 of the GAWB specifically focuses on promoting environmentally friendly and organic farming practices, as well as reducing the use of synthetic chemicals in food production (RCC, 2021). This presents both opportunities and challenges for developing organic farming in the WB region. Re-orientation to organic farming is a promising solution for the WB economies – since it generates more jobs, creates more production value and profits, and has less environmental costs compared to the conventional production methods (Znaor, 2013). However, concerns remain regarding the effectiveness of agriculture and rural development policies in driving sustainable transformations in agri-food systems, particularly regarding greener policy instruments and measures related to climate change, biodiversity loss, and natural resource management. While the EU-27 aims for organic agriculture to comprise 25% of the total utilized agriculture area by 2030 (FiBL, 2024), the Western Balkans have yet to reach this target, experiencing slow growth of organic agriculture. Concerns have been raised about the integration of environmental and sustainability objectives into policy frameworks in WB countries, as well as the extent to which these goals are translated into actionable measures (Zhllima *et al.*, 2021). In addition, any new policy vision is often observed mostly as a scientific effort or an imported policy reflection, rather than a genuine, locally emerged social or economic need (Seremesic *et al.*, 2021; Zhllima *et al.*, 2021). Therefore, this paper aims to investigate and compare the agricultural policies of three EU pre-accession countries (Albania, Kosovo, and North Macedonia) and their commitment—both strategic and operational—in relation to the EU Green Deal, focusing on measures that promote environmental benefits. The results are important for understanding the level of agricultural policy preparedness of the Western Balkans to meet the Green Agenda targets related to the environment.

The framework for comparing and assessing agricultural policies in EU pre-accession countries such as Albania, Kosovo, and North Macedonia, in light of the EU Green Deal, involves evaluating strategic policy frameworks, financial resource allocation, and implementation of various support measures. Special emphasis is placed on measures that promote environmental actions, including support for organic agriculture. This approach enables comparative analyses based on both qualitative and quantitative indicators of policy alignment with the EU Green Deal. Policy objectives and targets in GAWB are compared with the Farm to Fork Strategy, the EU Strategy for Biodiversity 2030, and other targets emerging from the Water Framework Directive. Quantitative analysis is based on a comparative assessment of measures and criteria of the agriculture and rural development budgetary support across countries, with a focus on payments, to measure support for environmental benefits and organic agriculture. The Agricultural Policy Measures Classification (APMC) tool is employed as a unified classification approach (Rednak *et al.*, 2013). Total Budgetary Support (TBS) encompasses all transfers to agriculture and rural development from national and other sources, including IPARD funds, categorized into three pillars: market and direct producer support, structural and rural development support, and general support to agriculture (Rednak and Volk, 2018). Structural disparities are analyzed using relative indicators such as total budgetary support per area or unit of production,

as well as the share of gross value added in agriculture to all activities in the country. The analysis uses the latest available figures (2022), with 2010 serving as the baseline year.

The structure of the paper is as follows: the next section highlights the main economic and agri-food sector trends in Albania, Kosovo, and North Macedonia. The third section analyzes the agri-food policies in these countries towards the EU Green Deal, while the final section consists of a discussion and conclusions.

2. Main macroeconomic and agri-food sector trends

In the last three decades, the WB countries have undergone a transition of the political system, market, and society as a whole. Since the early 2010s, the Gross Domestic Product (GDP) and the Gross Value Added (GVA) nearly doubled in Albania, Kosovo, and North Macedonia (Table 1). At the same time, the overall population has decreased, due to high out-migration and also lower birth rates.

Despite economic growth, a significant portion of the population is still at risk of poverty (about 21-22% after social transfers, compared to the EU average of 16.8% in 2021) (EUROSTAT, 2023). The income inequality expressed through the Gini coefficient has stayed relatively low with a declining trend, averaging roughly 31-33%, indicating that although poverty rates are still high, there is some equity in the distribution of income (EUROSTAT, 2023).

Table 1 - Key macroeconomic indicators.

Indicator	Albania		Kosovo		North Macedonia	
	2010	2022	2010	2022	2010	2022
GDP at current prices (mill. EUR)	9 003	17 972	4 402	8 896	7 109	13 034
Population ('000)	2 913	2 794 ¹	2 181	1 774	2 055	1 837
GDP per capita (EUR)	3 091	6 433	2 480	5 073	3 459	7 115
GVA at current prices (mill. EUR)	7 825	15 702	3 687	7 145	6 132	11 269

Source: WBC StatDatabases (2024).

¹ This is an official estimate for 2022. In Albania a population census was carried out by the Albanian Institute of Statistics (INSTAT) during 2023, and data was made available in 2024, indicating the population is circa 2.4 million (see <https://www.instat.gov.al/media/13626/cens-2023-census-botim.pdf>).

From 2010 to 2022, all three countries experienced significant developments in their agri-food sectors. While the absolute GVA of agriculture in Albania has increased (Table 2), its share within the total economy has declined (from 20.7% in 2010 to 18.6% in 2022). In addition, the sector employment and its share of total employment reflects structural changes. This trend indicates faster growth in other sectors rather than a decline in agricultural productivity. Similarly, Kosovo and North Macedonia have seen a decrease in the share of agriculture's GVA (from 16.2% and 11.7% in 2010 to 7.4% and 8.6% in 2022, respectively) (Table 2). In parallel, the number of people engaged in agriculture has almost halved due to an overall population decrease and massive migration from rural to urban areas and abroad.

The value of agri-food product exports has seen substantial growth since 2010, especially in Albania and Kosovo. This remarkable increase in export values highlights the expanding capabilities and international competitiveness of the agrifood sector. The growth in the absolute values of agri-food exports is followed by an increased share in the total exports, with the exception of North Macedonia where its share in the total exports slightly decreased, despite the export value growth. In addition, the value of agri-food product imports doubled in all three countries from 2010 to 2022, albeit with a de-

creasing share of the value of total imports (Table 3). The major imports include cereals, meat, and processed foods unavailable domestically. The trade balance in agri-food products worsened for all three countries over this period. This reflects the need for strengthening the agri-food sectors which would lead to a more favorable export position for certain commodities and an increasing contribution to the local economies.

3. Agri-food policy towards the EU green deal

3.1. Strategic policy framework

The agricultural policy framework in the pre-accession countries is supported by relevant legal and regulatory acts on agriculture and rural development. All countries have adopted long-term national strategies defining the development of the sector (endorsed by respective ministries of agriculture during 2021 or 2022 covering a period until 2027). The strategic objectives in Albania, Kosovo, and North Macedonia are strongly related to those of the EU CAP (Table 4).

Environmental benefits are reflected as top strategic objectives, albeit with varying terminology: either environmental protection (Albania), sustainable management of natural resources (Kosovo), or environmental practices (North Macedonia). Key objectives in all three

Table 2 - Agri-food sector contribution to the economy.

Indicator	Albania		Kosovo ²		North Macedonia	
	2010	2022	2010*	2022	2010	2022
GVA of the agriculture, forestry, and fishery sector (mill. EUR)	1 617	2 658	599	658	720	965
Share in GVA of all activities (%)	20.7	18.6	16.2	7.4	11.7	8.6
Employment in agriculture, forestry, hunting and fishery sector ('000 persons)	496	427	14	9	122	69
Share in total employment (%)	54.9	34.7	6.2	2.2	19.1	10.0

Source: SWG WBC StatDatabases (2024) based on labor Force Survey data.

*Note: Another base year is reported for Kosovo (KAS, LFS 2012-2022) due to data limited availability in 2010.

² In Kosovo there are three types of statistics used for revealing the importance in agriculture. According to the Census of Agriculture there were 362400 persons working in agriculture which make up 25% of the employed persons while the Survey on Agriculture Holding in 2019 report 270181 workers or 23.5% of labour force. While LFS report a very low number of workers (13900 in 2012 and 9110 in 2022). For more details see GIZ (2022).

Table 3 - Key agri-food trade indicators.

Indicator	Albania		Kosovo		North Macedonia	
	2010	2022	2010	2022	2010	2022
Export of agri-food products (mill. EUR)	69	435	25	119	418	711
Share in export of all products (%)	5.9	10.6	8.3	13.0	16.5	8.6
Import of agri-food products (mill. EUR)	633	1255	483	1197	528	1135
Share in import of all products (%)	18.2	15.7	22.4	21.0	12.8	9.4
Trade balance in agri-food products (mill. EUR)	-564	-820	-458	-1078	-110	-424

Source: SWG WBC StatDatabases (2024).

countries also include actions aimed at mitigating, adapting to, and combating the effects of climate change. In Albania and North Macedonia, another critical policy framework is the ongoing implementation of the Instrument for Pre-Accession Assistance in the Rural Development Programme (IPARD), supported by the EU and currently in its third programming cycle covering the period 2021-2027. The IPARD programme's strategy outlines the promotion of environmentally friendly farming practices and the protection and enhancement of biodiversity, landscapes, water, and soil and support measures for climate change mitigation. The IPARD measure focusing in particular on agri-environment and climate action has not yet been implemented

in both countries. Some countries address these issues through separate strategic documents that address climate action, resource utilization, biodiversity, and related matters.

Climate change mitigation and adaptation are central to *Albania's* policy framework, particularly within the National Strategy for Development and European Integration (NSDEI) 2021-2027, demonstrating the government's dedication to aligning climate and developmental objectives. Specific climate actions are outlined in the National Plan for European Integration 2022 and the Strategy on Agriculture, Rural Development, and Fisheries (SARDF) 2021-2027, (both endorsed by the Government of Albania) (UNIDO, 2024). SARDF

Table 4 - Strategic objectives of the agricultural and rural development policy.

Albania	Kosovo	North Macedonia	EU CAP
<ul style="list-style-type: none"> • Enhancing the sustainability and competitiveness of the agri-food sector • Strengthening environmental protection and climate-related actions • Bolstering the socio-economic fabric of rural areas • Promoting sustainable maritime and aquaculture development 	<ul style="list-style-type: none"> • Increasing the competitiveness of the agri-food sector and improving the efficiency and sustainability of farm production • Sustainable management of natural resources (land, forests, and water) • Supporting businesses in rural areas and enhancing employment and social infrastructure • Comprehensive institutional and sector reform to create efficient public services 	<ul style="list-style-type: none"> • Improving the competitiveness, economic sustainability, and income of ag. holdings • Applying environmental practices and climate change mitigation and adaptation • Ensuring sustainable development of rural areas • Sharing knowledge, innovation and digitalization in agriculture and rural areas 	<ul style="list-style-type: none"> • Ensuring fair income for farmers • Increasing competitiveness • Improving the position of farmers in the food chain • Climate change action • Preserving landscapes and biodiversity • Supporting generational renewal • Vibrant rural areas • Protecting food and health quality • Fostering knowledge and innovation

Source: Martinovska Stojcheska et al., 2024, DG AGRI.

2021-2027 prioritizes achieving a sustainable and competitive agri-food sector, particularly in terms of budgetary support, alongside other strategic goals such as environmental protection while organic agriculture is separately emphasized as its objective.

In *Kosovo* ambitious policies have been developed towards climate adaptation and mitigation. In this regard, the National Climate Change Strategy 2019-2028 serves as a cornerstone for policy action in mitigation and adaptation towards climate change. The Climate Change Law (08/L-250 approved in January 2024) aims to improve environmental protection through the prevention and control of greenhouse gas emissions from agriculture and other sources like industry and transportation. It foresees the development of Kosovo's first Strategy on Climate Adaptation including an Action Plan. One of the strategic objectives of the Strategy for Agriculture and Rural Development 2022-2028 emphasizes the sustainable management of natural resources, including land, forests, and water. This objective encompasses climate adaptation and the promotion of renewable energy sources, with a strong focus on implementing sustainable practices across land, water, and air. Key priorities include biodiversity protection, enhancement of ecosystem services, and conservation of habitats and

landscapes which enable the agricultural sector to effectively manage natural resources, ensuring ecological integrity for future generations.

In *North Macedonia*, sustainability is at the core of all economic activities, as outlined in the National Development Strategy until 2040. The Smart Specialization Strategy (2023-2027) prioritizes Smart Agriculture and Food with higher value-added, aiming to foster innovations for green and digital transformation in the sector. The country's long-term Climate Action Strategy, along with its Action Plan, sets a vision for North Macedonia to achieve a prosperous, low-carbon economy by 2050 through sustainable and climate-resilient development pathways. Additionally, the National Adaptation Plan focuses on comprehensive policies and measures for climate adaptation. The key sectoral policy document, namely the National Agricultural and Rural Development Strategy 2021-2027 (MAFWE, 2021), establishes three specific objectives to increase the adoption of environmental practices in production, thereby contributing to climate change mitigation and adaptation: (1) promoting sustainable energy use; (2) fostering sustainable development and efficient management of natural resources such as water, soil, and air; and (3) enhancing biodiversity protection, ecosystem services, and conservation of natural habitats and landscapes.

Table 5 - Agricultural and rural development policy budgetary transfers by countries in 2010 and 2022.

Indicator	Albania		Kosovo		North Macedonia	
	2010	2022	2010	2022	2010	2022
Total budgetary support to agriculture (mill. EUR)	19.0	85.6	11.0	93.4	83.9	165.4
Market and direct producer support measures (%)	4.7	41.3	31.8	61.5	78.8	71.6
Structural and rural development measures (%)	78.9	43.9	39.0	38.5	12.6	19.3
Other measures related to agriculture (%)	16.3	15.1	29.1	-	8.7	9.0
Total budgetary transfers in total GVA (%)	0.2	0.3	0.3	1.3	1.4	1.5
Total budgetary transfers in AgGVA (%)	1.2	2.6	1.8	14.2	11.7	17.1
Total budgetary transfers per total agricultural area (EUR/ha) ^{a)}	16	73.5	27	226	75	132
Total budgetary transfers per inhabitant (EUR/capita)	6.5	30.6	5.0	52.6	40.8	90.0

Source: SWG WBC APMC database (2024); Note: ^{a)} in absence of previous and latest figures for Kosovo, 2014 Agricultural Census data was used for calculation.

3.2. Agricultural and rural development policy measures and payments

Actual budgetary transfers to the agriculture sector and rural areas reflect the *de facto* policy priorities of the countries. Budgetary support for agriculture has seen substantial increases in Kosovo and Albania, and it has remained consistently significant in North Macedonia over the past decade (Table 5). While a large part of the strategic objectives focuses on structural changes and rural development, these priorities are not equally transposed into concrete support. In Albania, the share of such measures has fallen from 79% to 40% but has increased in absolute terms. In Kosovo, they have remained stable at around 39%, with a significant value increase proportional to the whole agricultural policy support. In North Macedonia, they have somewhat increased to 19% in 2022, although still below the policy target of over 30% (MAFWE, 2021).

3.3. Organic farming

Organic agriculture is considered a key component of the Green Agenda for the Western Balkans, in line with EU Green Deal (RCC, 2021). It focuses on promoting sustainable agricultural practices that contribute to environmental protection and climate change mitigation. Organic agriculture has been proposed as a sustainable alternative to conventional agriculture, with potential benefits such as higher biodiversity, improved soil and water quality, enhanced profitability, and higher nutritional value (Reganold and Wachter, 2016). Organic farming enhances total microbial abundance and activity in agricultural soils on a global scale (Seufert and Ramankutty, 2017; Lori *et al.*, 2017). Moreover, organic farming provides quality food without adversely affecting soil health and the environment, highlighting its sustainability in global agriculture (Eyhorn *et al.*, 2019).

In *Albania*, organic food regulations and legislation are partially aligned with those of the EU. There is no organic agriculture action plan for the country. The Albanian government is currently drafting a new law on organic production, expected to be adopted in 2024, to fully align with EU

regulations (OECD, 2024). A Commission for Biologic Production in the Ministry of Agriculture and Rural Development (MARD) and a control body for organic certification exist, according to Law Nr. 106/2016 “On biologic production, labeling of biologic products and their control”. However, there are yet institutional gaps and budgetary limitations pertaining to organic certification (EC, 2023) which show the low capacity of Albania to implement the right measures and maintain the commitments stated in GAWB. In terms of budgetary support, the existing measures for organic farms do provide lump sums for certified farms in Albania since 2018, starting at 1,000 EUR in the first year, increasing to 1,500 EUR in the second year, and reaching 2,000 EUR in the third year based on certification/conversion stage. Additional government initiatives include subsidies for planting medicinal and aromatic plants (MAPs), certification under Global Gap standards, and VAT exemption on imported insects for biological control.

The organic agriculture sector has a potential for development, with MAPs, chestnuts, olive oil, and dried mushrooms and berries providing attractive opportunities for the export market (Bernet and Kazazi, 2012; Arndt, 2022). While the demand in the internal market has been stagnant (Zhllima *et al.*, 2017; Skreli *et al.*, 2017), the international market demand for the organic products from Albania has increased. According to statistical indicators provided by MARD, the overall number of operators is less than 150 and the share of organic agricultural land to total agricultural utilised land is around 0.1%. Compared to 2010, the organic certified area is 2.5 times higher (731 ha in 2022 versus 284 ha in 2010), while the number of certified farmers has slightly increased (140 farmers in 2022 versus 130 farmers in 2010). The number of farmers is very low due to lack of internal demand and price premiums in the local market.

The export demand for organic MAPs cultivated in Albania has been the main driver for converting to organic agriculture in the country. Alongside MAPs, olive trees are the most important in terms of conversion area (Zhllima *et al.*, 2021; Arndt, 2022). The growth of the organic sector has not been matched by an

expansion of traceability and inspection services. Exporters heavily depend on foreign bodies and laboratories to ensure compliance and build trust with international buyers (UNIDO, 2023). Due to weak quality infrastructure and limited culture for quality, costs for fulfilling market standards are very high. This is one of the obstacles for increasing the number of organic farmers in Albania, despite the cost of certification being partly subsidized. Farmers are reluctant to convert into organic farmers because they appear to be more cautious about the stringent market access rules associated with organic farming compared to conventional methods (Zhllima *et al.*, 2021).

In Kosovo, the Law on Organic Farming was approved in 2012, aiming to establish a foundation for organic production, ensure market integrity, promote fair competition, and protect consumer interests. The law addressed production principles, labeling, control systems, import rules, and sanctions for non-compliance. It also mandated data collection and statistical reporting related to the National Program for Organic Farming. To implement this law, the Ministry of Agriculture, Forestry, and Rural Development (MAFRD) issued eight Administrative Instructions in 2019, detailing responsibilities, control systems, standards for organic production, import criteria, and labeling requirements. Similar to other countries in the region, organic food regulations and legislation in Kosovo are partially aligned with those of the EU.

The Action Plan for Organic Agriculture (2018-2021) aimed to boost organic production and market share in Kosovo. The National Organic Action Plan (NOAP) for 2023-2026 aligns with the European Green Deal, promoting sustainable farming practices to reduce environmental impact and enhance biodiversity. These initiatives underscore Kosovo's commitment to developing its organic sector and supporting environmental sustainability.

There are currently no local organizations that certify products as organic, and consequently, no local accreditation agencies to accredit these organic certification bodies in Kosovo. Certification and control operations for organic farming

are conducted by several international organizations (OECD, 2024).

Within organic agriculture, 77% (424 ha) was for MAPs, 22% for barley, rye, oats, corn, and sunflowers, and 1% for open-field vegetables in 2022. In addition, there are 373,488 ha of certified zones for the collection of MAPs, 35 certified companies, and 45 collection centres throughout the country.

North Macedonia's government adopted the National Strategy for Organic Agriculture (2008-2011) in 2007, laying the groundwork for further development of organic production with a target to reach 4% of arable land under organic production by 2020. The Law on Organic Agricultural Production was adopted in 2009, harmonized with the European regulations 834/2007 and 889/2008. A National Action Plan followed in 2013 (MAFWE, 2013) and lasted until 2020. The preparation of a new legal framework for organic production to align with the new EU legislation (EU Regulation 2018/848) is ongoing. There are two local organic certification bodies: Balkan Biocert Macedonia and Pro-Cert, both of which are authorised by MAFWE. Other possibilities exist for international certification (OECD, 2024).

In North Macedonia, the dominant measures for environmental protection are those dedicated to supporting organic farming. Other measures linked to environmental benefits and climate change in the National Program for Agriculture and Rural Development 2023-2027 include aid for premiums for insurance of primary agricultural production against natural disasters and adverse climatic events, aid for consolidation and protection of agricultural land, and analysis of the physical and chemical properties of the soil as a basis for applying good agricultural practices.

In terms of budgetary support, organic production is supported by the Law of Agriculture and Rural Development (2010). This one comprehensive measure for organic products (measure 215) incorporates different payment schemes, such as direct payments per output, per area, and per livestock head. Additional direct payments are provided for processing of organic products from the domestic origin (including post-harvest handling and pack-

Table 6 - Payments for organic production by countries, in million EUR.

Country	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Albania	0.00	0.00	0.01	0.00	0.01	0.03	0.00	0.07	0.09	0.85
Kosovo	0.00	0.00	0.00	0.02	0.04	0.28	0.52	1.67	0.08	0.09
North Macedonia	0.40	0.50	0.40	0.80	1.40	1.40	1.40	1.50	2.00	1.90

Source: SWG WBC APMC database (2024).

aging of MAPs of organic origin), and direct payments for trade or export of fresh and processed organic products from the domestic origin. Special direct payments are also provided for expert control and certification of organic production, for agricultural holdings that have performed agrochemical or soil analysis, or organic products analysis of pesticide residues and heavy metals, and direct payments for areas intended for green manure or crop rotation.

The area under certified organic production in North Macedonia has shown an increasing trend. In 2022, there were 4,556 hectares of certified organic land or land undergoing conversion, compared to 2,909 hectares in 2013 (SSO, 2024). Production of organic cereals dominates, followed by organic forage crops. Sheep make up the largest share of organic livestock due to the extensive grazing practices already in place. Despite this growth, only 0.9% of the land is certified organic (SSO, 2024), or even less according to international statistics (0.69%, FiBL, 2024; EUROSTAT, 2024). This is a significant distance not only from the 4% national target but also from the European Commission's ambitious goal of "at least 25% of the EU's agricultural land under organic farming. by 2030" as outlined in the Green Deal's Farm to Fork Strategy.

The number of certified organic operators has tripled over the last decade, reaching 913 operators in 2022. Interestingly, a survey of the organic farming operators' drivers to start and continue organic farming revealed that every fifth organic operator in the country had no previous experience in agriculture and that most would recommend organic practices to others on value-based motivations (Martinovska Stojcheska *et al.*, 2018). This unique perspective could be valuable to the policy maker.

While all three countries have implemented measures to support organic farming, the extent of financial support varies. As shown in Table 6, North Macedonia has made the most significant strides in this regard. From 2013 to 2022, the payments for organic production in North Macedonia increased from 0.40 million EUR to 1.90 million and cumulatively amounted to EUR 11.8 million over the decade. The share of organic payments within its Structural and Rural Development measures has risen to 6.03% in 2022. This indicates a stronger policy focus on promoting organic agriculture in North Macedonia compared to Albania and Kosovo, where realised payments for organic production in 2022 reached EUR 0.09 million in Kosovo and 0.85 million EUR in Albania, or less than 0.24% and 2.22%, respectively.

What is specific for Kosovo, where financial support for organic farming started in 2016 with relatively small amounts allocated to organic producers, is the extraordinary single allocation of EUR 1.7 million in 2020. However, already in 2021, there was a sharp decrease in funding, with only EUR 0.08 million allocated to organic farming. Various factors could be attributed to this drastic downturn in payments, including the pandemic effects, policy shifts, and budget reallocations to other measures. This cut was immediately reflected in a drastic decrease in the number of hectares that received direct payments for organic production in 2021/2022 (198 ha), when compared to 2020 (1,672 ha). Such a significant and sudden reduction certainly has potential implications on environmental sustainability, and agricultural practices, altering market dynamics and consumer choices, as well as reflecting slow policy progress towards the green agenda goals.

3.4. Alignment to EU agri-environment strategic framework

Following the EU Green Deal, particularly the Farm to Fork Strategy and the EU Biodiversity Strategy for 2030, EU pre-accession countries face both challenges and opportunities in aligning with these ambitious, yet non-binding, EU-level targets. By signing the Green Agenda for the Western Balkans 2020 (RCC, 2021), the WB countries have expressed their interest in following the EU Green Deal commitment, focusing on areas like pesticide and antimicrobial use reduction, over-fertilization control, organic farming expansion, animal welfare improvement, and biodiversity protection. This translates to promoting more efficient and reduced fertilizer and pesticide usage, alongside a significant increase in land dedicated to organic farming. Western Balkan countries aim to promote environmentally-friendly (zero pollution) and organic farming and reduction of synthetic chemical products used in food production in 2030 (GAWB Action number 46). This goal presented in the GAWB action plan does not contain any quantified targets. On the other hand, the EU's Farm to Fork (F2F) has defined specific targets to be achieved by 2030: 25% increase in organic farming land, 10% reduction in overall agricultural land use by 2030, 20% reduction in fertilizer use, and 50% reduction in pesticide use, compared to the average level used in the period 2015-2017. Table 7 compares the state and progress of Albania, Kosovo, and North Macedonia with EU agricultural and environmental key targets through the GAWB Action 46 versus the F2F targets.

The countries differ in the level of institutional framework; North Macedonia is most aligned, waiting on the adoption of the new law on organic production in line with the EU *acquis*. The share of organic area ranges from 0.1

% in Albania to 0.7 % in North Macedonia, far below the 10.5% average in the EU (Table 7).

The estimations on the usage of fertilizers and pesticides in the Western Balkan countries (considering the lack of relevant data) are also far below the EU levels. The data of EUROSTAT (2023) show that in 2022 in EU is reported a consumption of a total of 322 thousand metric tons of pesticides³, which makes up an average of 2.05 kg per ha of Utilized Agriculture Area (UAA). EU has to achieve an overall use of 1.73 kg per ha of UAA in 2030, a level which Albania and North Macedonia are already under according to data available.

There is much work to be done however on control and monitoring of the use of fertilizers and pesticides. In Albania, there is no National residue monitoring plan and the Nitrate Directive is not yet aligned. There is a need to develop capacity, as well as accreditation and validation methods for Albania's laboratory network.

In Kosovo, the quality of fertilizers and pesticides is considered low, and there is no state control system to verify the concentration of active substances, which is crucial for ensuring effectiveness and safety. Other significant problems include proper storage and field-application techniques. The monitoring and controlling system needed for market access and for the safe use of pesticides requires further institutional structure; there has also been limited progress to align water legislation with the EU *acquis*.

In North Macedonia, measures on sustainable use of pesticides have not been implemented, and there is a need to collect reliable data on national pesticide use and its impact on human health. The implementation of the Nitrates Directive in North Macedonia is at an early stage. Last, but not least, besides the lack of consistent and reliable data on fertilizers and

³ In the EU, in the years 2018 to 2022, there was experienced an overall decrease of 46% in the use and risk of chemical pesticides and 25% in the use of more hazardous pesticides from the baseline period of 2015-2017; and between 2021 and 2022, there was a decrease, relative to the baseline, of 12% for chemical pesticides and 4% of more hazardous pesticides. Member States are obliged to monitor water. To avoid pollutant runoff into water systems, the highest amount of nitrogen from manure that can be applied annually is 170 kg/ha, and freshwater and groundwater nitrate concentrations must be less than 50 mg/l of nitrates.

Table 7 - Alignment and progress of Albania, Kosovo and North Macedonia with EU levels with regard to key agri-environmental targets.

	<i>Albania</i>	<i>Kosovo</i>	<i>North Macedonia</i>	<i>EU</i>
Legislation	Established relevant legislation, but labelling and certification for organic products is pending.	Lacking organic farming institutional structures.	Established relevant legislation, competent authority, control bodies and accreditation and certification system for organic production.	Legal criteria are defined.
Organic area as share of total UAA	0.1% (2022).	0.4% (2022) (own estimation).	0.7% (2022).	10.5% (2022).
Fertiliser use	95 kg/ha (2022).	Estimated use 44 kg nitrogen per ha of arable land (based on fertiliser imports).	46 kg/ha (2021).	Reduced from 143 kg/ha (in 2018) to 125 kg/ha (in 2021).
Pesticide use	1.1 kg/ha (estimated 2021).	Law on chemicals designed to align with EU REACH and CLP Regulation needs to be implemented.	0.2 kg/ha (estimated 2021). Law on phyto-pharmacy (2020) is aligned with the EU <i>acquis</i> .	2.05 kg/ha (2022).
Monitoring and controlling system	<ul style="list-style-type: none"> • National residue monitoring plan not available. • Alignment to Nitrate Directive is not yet transferred. • No validated screening methods. 	<ul style="list-style-type: none"> • Requires institutional consolidation. • Limited progress to align water legislation with EU <i>acquis</i>. 	<ul style="list-style-type: none"> • Implementation of Nitrates Directive is at an early stage. 	<ul style="list-style-type: none"> • Member states are obliged to monitor water.

Source: EC (2023), FAOSTAT (2024), EUROSTAT (2024), authors' elaboration.

pesticide use, it is difficult to set baselines and definitions to account for other targets, such as nutrient losses from agriculture, antimicrobials sales, agricultural area under high-diversity landscape features, allocation for areas of natural constraints, etc.

4. Discussion and conclusions

The EU Green Deal prioritizes sustainable agriculture and minimizing the environmental footprint of food production (EC, 2019). Aligned with these goals, the Green Agenda for the Western Balkans (GAWB) outlines a re-

gional strategy for environmental sustainability (RCC, 2021).

Based on the comparative analyses it can be concluded that in relation to agricultural and rural development strategies, the EU pre-accession countries address environmental aspects and sustainable transformation as an important part of their strategic goals. However, translating these goals into actual measures, and budgetary support for the environmental targets, is largely missing. The only country in the analysis where environmental benefits are more pronounced is North Macedonia. Those benefits are mostly represented by support for organic farming with

the allocation of dedicated funds, however these funds still comprise a modest share of the total budgetary transfers. In Albania and Kosovo, organic farming receives very limited support through the national agricultural policy. Other measures such as payments to farmers in areas with natural and environmental constraints, agro-environment and animal welfare, and overall support providing environmental and societal benefits are lacking or are insignificant (Martinovska Stojcheska *et al.*, 2024).

Organic agriculture presents a promising avenue for the Western Balkans to contribute to both the Green Deal and GAWB objectives. Organic practices can demonstrably reduce greenhouse gas emissions, enhance biodiversity, and promote a circular economy. However, implementing EU organic standards and certification processes within the Western Balkans faces certain limitations.

While there is significant development of the legal framework for organic agriculture, along with competent authorities, control bodies, and accreditation and certification systems in the countries, harmonizing with the provisions of EU Regulation No. 834/2007 and EU Regulation No. 889/2008 has been adopted with varying degrees of success. In addition, following the “moving target” of EU policy and the changes introduced with the latest EU Regulation 2018/848 implies that its transposition, implementation, and enforcement into the national legal frameworks are still missing in the Western Balkan countries (SWG, 2022).

Besides straightforward policy support, achievement of the ambitious organic farming goals requires a balanced increase in both production and consumption/demand, which implies a substantial transformation in the structures of agricultural holdings and supply chains. Only a few farms in the countries are well integrated into the supply chain, as farms produce small quantities and of insufficient quality to compete in the market while compliance with food safety and quality standards has been a challenge (GIZ, 2019).

The domestic market for organic products is still underdeveloped; consumers are very price-sensitive, thus organic food prices are

a major barrier to organic product purchases, along with lack of immediate availability, limited assortment, lack of information (especially in media), and lack of transparency and trust towards organic labels (Daniloska *et al.*, 2017; AAEM, 2022). The domestic market lacks clear indications to consumers regarding organic attributes due to weak marketing and poor consumer education.

Nevertheless, there is a strong overall preference for organic food, perceived as safer and healthier than conventionally produced food – indeed, food safety and health concerns can be a primary driver behind organic food demand for instance for Albanian consumers (Imami *et al.*, 2017). In addition to food safety and quality, increasing environmental awareness is another key factor behind the growing consumer preference for organic food (Wojciechowska-Solis and Barska, 2021). A recent study conducted with Kosovo consumers showed that health concerns, certification, and environmental concerns significantly influence consumers’ attitudes toward organic food products (Miftari *et al.*, 2022). Along with increasing consumer income, the desire to consume quality food is growing, implying increasing pressure to improve food safety and quality standards (Canavari *et al.*, 2017). Still, the limited awareness of Western Balkan consumers about organic products contributes to low domestic demand (Imami, *et al.*, 2017; Daniloska *et al.*, 2017). Many consumers are familiar with the terms “bio” or “organic” but do not have a clear understanding of the meaning of these labels.

Currently, a proper network of marketing channels, collection points, and appropriate cooling and conservation facilities is lacking that would help establish functional markets for organic products. Similarly, there is a lack of support, both financially and in terms of know-how, for farmers to enter export markets. Financial constraints are a significant barrier for farmers to switch to organic agriculture because of the costs of investments to meet international quality and quantity requirements, as well as costly certification (Zhllima *et al.*, 2021).

There is an unlocked potential for opening and developing new employment opportuni-

ties and new market perspectives for organic farmers. Yet, certain obstacles related to agro-technical practices need to be addressed as well as providing sufficient educational and informational activities for the development of organic production and sustainable practices in general. Farmers' probability of adopting sustainable practices, including organic farming is positively influenced by their perceived behavioral control (i.e. farmers' self-confidence and know-how), and by a supportive environment and information awareness (Zhillima *et al.*, 2021; Rizzo *et al.*, 2024). Growth in the organic sector needs to be supported by ambitious research and innovation, appropriate advisory services, support from processors, wholesalers, and retailers, knowledge exchange, and training opportunities for all organic operators and other stakeholders in the chain. Digital innovation in facilitating sustainable transformation, as has been shown in other sectors, should be explored and applied, taking into account its potential positive impact in promoting green development and sustainability relating to agricultural practices and rural development (Mičić, 2017).

The EU's Farm to Fork Strategy outlines ambitious environmental goals, including a significant reduction in pesticide and fertilizer use, a shift towards more sustainable farming practices like crop rotation and cover cropping, and an increase in organic farming land. The challenges for Albania, Kosovo and North Macedonia lay ahead in reducing the level with proper use of fertilisers and pesticide, and increasing the share of organic area. To attain the desired sustainable agri-food systems in line with the Green Deal, challenges include potentially reduced yields, land demand, changes in diet, food waste, and distribution and access to food. External factors require shifts in the system itself, from land management to distribution, diets, education and spatial optimization (Boix-Fayos and de Vente, 2023). Recent studies estimate potential declines in agricultural output in the range of 7% up to 15%, to be followed by higher food prices, if the EU strategy is implemented as planned (Beckman *et al.*, 2020; Barrei-

ro-Hurle *et al.*, 2021). Policymakers need to carefully consider these probable trade-offs and explore ways to achieve environmental objectives without jeopardizing food security, especially in terms of availability and affordability (Beltrán *et al.*, 2022). Striking a balance between environmental sustainability and ensuring food security at affordable prices is a crucial challenge that policymakers in the WB need to carefully consider. Addressing these issues is critical in order to alleviate some of the challenges towards ensuring sustainable and just agri-food systems transformation in the WB, not only in strategy and "talking points," but more substantially in actual policy implementation.

The findings have demonstrated the need for further research to inform targeted evidence-based policy interventions that will effectively address environmental sustainability in the context of agricultural policy in the EU pre-accession countries. While the EU Green Deal's objectives and the GAWB undoubtedly address critical issues like climate change, demographic shifts, and resource scarcity, the potential socio-economic risks associated with an ill-conceived implementation of the proposed measures cannot be ignored (Beltrán *et al.*, 2022). Policy impact evaluation is of paramount importance to assess the costs for various agents and sectors in pre-accession countries such as Albania, Kosovo, and North Macedonia. For instance, a rapid transition away from traditional agricultural practices could negatively impact farmers' livelihoods. Similarly, restrictions on certain production practices might result in economic adversity. Understanding the behavioral factors affecting the adoption of sustainable farming practices in this context will be crucial for informing agricultural policy (Dessart *et al.*, 2019). To mitigate these risks, policymakers should consider a phased implementation approach, allowing the actors throughout the whole "from farm to fork" chain to adjust. A more gradual implementation timeline with locally tailored approaches would allow farmers time to adapt and to adopt more sustainable practices without experiencing significant production losses.

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