SEEDS

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Manual of Agroecology - State of the art of agroecology education in SEEDs countries

DELIVERABLE FACTSHEET

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Glossary and Abbreviations	
A.VE.PRO.BI	Associazione Veneta dei Produttori Biologici e Biodinamici (Veneto Association of Organic and Biodynamic Producers, Italy)
ANRD	Albanian Network for Rural Development
APOSO	Agency for Preschool, Primary and Secondary Education
AVETAE	Agency for Vocational Education and Training and Adult Education (Kosovo)
BAC PRO	Baccalauréat Professionnel (Professional Baccalaureate, France)
BP REA	Brevet Professionnel Responsable d'Exploitation Agricole (Professional Certificate for Farm Management, France)
BTSA APV	Brevet de Technicien Supérieur Agricole – Agronomie: Productions Végétales (Higher Agricultural Technical Certificate – Agronomy: Plant Production, France)
CAP	Common Agricultural Policy
CAPA	Certificat d'Aptitude Professionnelle Agricole (Agricultural Vocational Aptitude Certificate)
CPIA	Centri Provinciali per l'Istruzione degli Adulti (Provincial Centers for Adult Education, Italy)
CSO	Civil Society Organization
CVETA	Council for Vocational Education and Training (Kosovo)
DATR	Développement et Animation des Territoires Ruraux (Development and Coordination of Rural Territories, France))
DIH	Digital Innovation Hub
ELGO-DIMTRA	Hellenic Agricultural Organization – Dimitra (Greece)
EOPPEP	National Organisation for the Certification of Qualifications and Vocational Guidance (Greece)

EQF	European Qualifications Framework
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FAOLEX	FAO's Legislative and Policy Database
HLPE	High Level Panel of Experts (Committee on World Food Security)
IeFP	Istruzione e Formazione professionale (Vocational Education and Training, Italy)
IFTS	Istruzione e Formazione Tecnica Superiore (Higher Technical Education and Training, Italy)
INRAE	Institut National de Recherche pour l'Agriculture, l'Alimentation et l'Environnement (National Research Institute for Agriculture, Food and Environment, France)
IPM	Integrated Pest Management
ISCED	International Standard Classification of Education
ISS	Istituto di Istruzione Superiore (Upper Secondary Education Institute, Italy)
ITS	Istituti Tecnologici Superiori (Higher Technical Institutes, Italy)
KPI	Key Performance Indicator
KSEEK	Central VET Council (Greece)
LGF	Le Galline Felici (The Happy Hens -Italian agroecological cooperative, Italy)
LLL	Lifelong Learning
MEKI	Ministry of Economy, Culture and Innovation (Albania)
MEST	Ministry of Education, Science and Technology (Kosovo)
MFR	Maisons Familiales Rurales (Rural Family Houses, France)
NAES	National Employment and Skills Strategy (Albania)
NAVETQ	National Agency for Vocational Education, Training and Qualifications (Albania)
NQA	National Qualification Authority (Kosovo)
PAT	Projet Alimentaire Territorial (Territorial Food Plan, France)

PCTO	Percorsi per le Competenze Trasversali e l'Orientamento (Pathways for Transversal Skills and Orientation, Italy)
VET	Vocational education and training

TABLE OF CONTENTS

Executive Summary **9**

1. Introduction **11**

1.1. Why agroecology and participatory approaches matter in VET? 12

1.2. Methodology 13

2. What is agroecology? **15**

2.1. Role of agroecology in sustainable food systems 16

2.2. Role of agroecology in climate resilience and environmental protection 17

2.3. Agroecology: increasing relevance in international and EU policy framework 18

2.4. Framing Agroecology: from FAO 10 elements to 13 principles of HLPE 19

3. Agroecology in SEEDs countries **22**

3.1. Italy 23

3.2. Greece 25

3.3. France 27

3.4. Albania 29

3.5. Bosnia and Herzegovina 29

3.6. Kosovo 30

3.7 Agroecology in SEEDs countries: EU vs non-EU comparison - Similarities and differences 30

4. VET system governance in SEEDs countries **32**

4.1. Italy 32

4.2. Greece 34

4.3. France 35

4.4. Albania 37

4.5. Bosnia and Herzegovina 39

4.6. Kosovo 40

4.7. EU vs. non-EU comparison: similarities and differences in VET system governance 40

5. Integration of agroecology into VET curricula **42**

5.1. Italy 42

5.2. Greece 44

5.3. France 45
5.4. Albania 47
5.5. Bosnia and Herzegovina 49
5.6. Kosovo 50
5.7. EU vs. non-EU comparison: similarities and differences on agroecology integration in VET systems 50

6. Challenges and opportunities of the VET agroecological education in the local context 52

6.1. Italy 52
6.2. Greece 54
6.3. France 56
6.4. Albania 58
6.5. Bosnia and Herzegovina 59
6.6. Kosovo 61

7. Conclusions 62

Annex I - SEEDs questionnaire on agroecological education in national contexts 65

Bibliography 67

List of figures

Figure 1. Agroecology integration in SEEDs countries-similarities and differences 51

List of tables

Table 1. 13 principles of Agroecology (HLPE, 2019) 22
Table 2. VET system governance in SEEDs countries: EU vs non-EU (source: authors based on the literature review) 42
Table 3. Local case studies and institutional models on agroecology integration from VET school 47

EXECUTIVE SUMMARY

The *Manual of Agroecology - State of the art of agroecology in VET in SEEDs countries* provides an overview of the current state of agroecological education in SEED countries. This snapshot will guide the next phases of the project, which include developing a Roadmap for a participatory agroecological curriculum for VET providers, as well as creating training materials to support them in designing tailored, participatory agroecology curricula.

The Manual begins with an introduction to agroecology in each SEED country. It then presents an overview of each country's VET system, followed by an analysis of whether and how agroecology is integrated into national VET curricula. It also highlights the main challenges and opportunities for advancing agroecological education in each context.

Based on these national analyses, a comparison between European and Balkan countries was carried out to identify commonalities, differences, and potential synergies.

1. INTRODUCTION

The Sowing agroEcological Education (SEEDs) in the VET sector project is a 2 year initiative that brings together seven partner organisations from five countries: Italy, France, Bosnia and Herzegovina, Albania, and Kosovo.[1] The project aims to strengthen the capacity of Vocational Education and Training (VET) systems by integrating agroecological principles and participatory practices into curricula development across the Western Balkans and EU countries.

Agroecology, understood as a science, practice, and social movement, offers a transformative pathway toward sustainable food systems, biodiversity conservation, and climate-resilient rural development. Yet, despite its potential, many VET systems remain poorly equipped to deliver education and training in this field. The SEEDS project responds to this gap by fostering institutional innovation, teacher training, and curriculum development centered around agroecology. It supports VET providers in anticipating future green skill demands while engaging learners and local actors in co-creating solutions for local sustainability.

The lack of structured educational pathways in agroecology is a common and pressing concern, highlighted by leading experts and practitioners alike. SEEDS directly addresses this challenge by creating tools and strategies to embed agroecology in formal and non-formal VET systems.

The project aligns closely with EU and regional strategies, including the European Green Deal, the Farm to Fork Strategy, and the Osnabrück Declaration on VET, all of which emphasize the need for inclusive, green, and innovative education systems. SEEDS contributes to these goals by empowering teachers, VET centers, and stakeholders to become catalysts for ecological transition in their regions.

The SEEDS project is structured around four interlinked objectives:

[1] The project is coordinated by CESIE (Italy) and includes the following implementing partners: Eurotraining Educational Organization (Greece), Syncnify (France), Albanian Network for Rural Developemt (Albania), Universum Colleague (Kosovo), Srednja strukovna škola Silvija Strahimira Kranjčevića Livno (BiH) and Sarajevo Meeting of Cultures – SMOC (BiH)

1. Develop participatory curricula on agroecology through a co-creation model involving teachers, learners, and community stakeholders, such as local farmers and public authorities ;

2. Train VET professionals in pedagogical approaches that support agroecological participatory education through participatory aproaches;

3. Pilot innovative teaching modules and campus greening initiatives, embedding agroecology into VET institutes' everyday practices;

4. Establish a cross-border network to promote agroecology as a viable, resilient, and inclusive model of education and community development.

1.1. Why agroecology and participatory approaches matter in VET?

The Western Balkans (6-WB) face pressing challenges such as rural depopulation, aging farmer populations, land degradation, and climate vulnerability. At the same time, EU countries are grappling with the imperative to shift towards greener, more equitable food systems. In both contexts, agroecology offers a shared and strategic response that connects ecological sustainability with social inclusion, rural revitalization, and food sovereignty.

To pursue this, agroecology requires an educational and learning model that is systemic, context-specific and participatory. This is particularly true in the VET sector, which has a key role to play in preparing the next generation of farmers, technicians, and rural changemakers.

Participatory approaches are central to this effort. They can give value to the knowledge of local actors, especially small-scale farmers, and promote collaboration between educators, learners, institutions, and communities. When applied in VET, participatory methodologies can improve engagement and motivation, while also building practical skills in cooperation, problem-solving, and systemic thinking. These are essential competences for those working in and around sustainable food systems.

The SEEDS project places this participatory vision at its core. This Manual represents the first step, mapping the current state of agroecological education across SEEDS countries. It will be followed by the development of a Roadmap for a participatory agroecological

curriculum, aimed at training VET providers and teachers not only in agroecology, but also in the facilitation of inclusive, context-based curriculum development processes. These future curricula will be co-designed with local stakeholders, first and foremost, farmers, ensuring that agroecological education reflects the ecological, social, and cultural realities of each territory.

In this way, SEEDS contributes to shaping a VET system that does not simply teach agroecology, but actively embodies its principles: collaboration, equity, and the co-creation of knowledge.

1.2.Methodology

This manual is based on a qualitative research approach that combines both use of primary and secondary data. These data are analyzed thematically to identify patterns, needs and best practices in agroecology integration in VET system. Combining insights from both literature and stakeholder interviews enhances the relevance of this manual, providing evidence based recommendations.

The review of secondary data involved a comprehensive analysis of national strategies, educational frameworks, and existing studies related to VET system in each of the SEEDs project country. Special emphasis was placed on identifying at least five best practices per partner that showcase successful examples of agroecological educational framework, curricula or modules that can represent the starting point to integrate agroecological education into VET curricula. These best practices will be properly analysed and selected to meet main educational gaps that were identified within the interviews and included in the Roadmap for participatory Agroecological curriculum.

Primary data collection was conducted through semi-structured interviews (Annex I) with a diverse group of stakeholders in each SEEDs country. A total of five interviews were held per country, targeting key actors such as representatives from public institutions, CSOs, vocational education schools, academics, farmers and other relevant stakeholders. This multi-stakeholder approach ensured a range of perspectives on the challenges and opportunities of integrating agroecology into VET curricula. The interview questions were designed to explore current practices, perceived gaps, necessary competencies and possible recommendations.

2. WHAT IS AGROECOLOGY?

Agroecology is a multidimensional concept that simultaneously operates as a scientific discipline, a social and political movement, and a set of agricultural practices (Wezel et al., 2009)

As a scientific discipline, agroecology integrates ecology, agronomy, environmental science, sociology, economics and cultural studies to understand and manage agroecosystems . Its origins date to the 1930s, when researchers first studied plant, environment relationships. By the 1960s and 1980s, agroecology broadened to include farm- and landscape-level systems, embedding environmental, social, economic, and ethical dimensions (HLPE, 2019).

As a practice, agroecology includes crop diversification, agroforestry, integrated pest management, silvopasture, and farmer-led seed systems, all of which enhance biodiversity, soil health, and resource efficiency. These context-adapted techniques collectively reduce dependency on external synthetic inputs and strengthen system resilience by fostering ecological interactions, such as pest regulation through natural enemies, nutrient cycling via cover crops and organic amendments, and carbon sequestration in both biomass and soils (HLPE, 2019).

As a movement, agroecology gained momentum in the 1990s, especially through grassroots and campesino movements in Latin America advocating for food sovereignty. Movements like La Via Campesina frame agroecology not just in ecological terms, but as a tool for social justice and community empowerment (HLPE, 2019). In this sense, Agroecology, therefore, serves as the political framework through which many social movements and peasant organizations around the world defend their collective rights and advocate for diverse, locally adapted agricultural and food systems practiced by small-scale food producers in different territories (Anderson et al., 2015; Nyéléni, 2015).

Considering agroecology in its triple dimension, as a science, a set of practices, and a social movement, is crucial, as each facet reinforces the others: scientific research grounds its principles, practical application ensures relevance in diverse local contexts, and the movement dimension drives social and political change at global and local level. Together, they form a holistic approach capable of transforming food systems toward greater sustainability, equity, and resilience.

2.1.Role of agroecology in sustainable food systems

Agroecology can contribute significantly to building sustainable, equitable, and resilient food systems by:

- Enhancing biodiversity: polycultures, agroforestry, and diversified cropping systems help mimic natural ecosystems, supporting flora, fauna, and soil microbiota (Global Alliance for the Future of Food, 2024).
- Improving soil and water health: practices like cover cropping and organic amendments enhance soil organic matter, structure, and water retention, facilitating long-term system productivity (Domínguez et al., 2024)
- Ensuring food and nutrition security: a diversified crop portfolio, rich in nutrient-dense species and robust local seed systems reduce vulnerability to input shortages and significantly promote dietary diversity. A global review of 56 agroecological studies found that 78 % reported positive impacts on food and nutrition security, particularly through improved dietary diversity and household resilience (Kerr et al., 2021). Farmers using local seed systems, whether through formal or informal networks, demonstrate greater agility in accessing and incorporating diverse, locally adapted varieties, which enhances both food security and nutritional outcomes (SeedChange, 2020)
- Shortening and localizing supply chains: supporting regional, shorter food systems increases food sovereignty, fair incomes for farmers, and consumer trust (Loconto et al., 2018), a shift championed by organizations such as Slow Food.
- Yields and ecosystem benefits in diversified agroecological systems: a comprehensive meta-analysis synthesizing 50 years of data from 184 other meta-analyses (including 4,260 effect sizes) confirmed that diversified agricultural systems such as intercropping, organic farming, and the use of soil amendments maintain yields comparable to conventional monocultures. Over time, they also yield significantly greater economic returns, richer biodiversity, improved soil health, and increased carbon sequestration (Raveloaritiana et Wanger, 2024). Diversified systems also demonstrate neutral to positive yield effects across a spectrum of ecosystem services. A meta-analysis reviewing 23 studies showed that diversification enhances biodiversity (lnRR = 0.34), pest control (0.23), nutrient cycling (0.18), soil fertility (0.17), and water regulation (0.18), with carbon sequestration showing a slightly positive but not statistically significant effect (lnRR = 0.11). In most cases, these systems achieved a

win-win outcome maintaining crop yields while delivering multiple ecosystem benefits (Tamburini et al, 2020).

- Sustaining family farming: according to the FAO, agroecological approaches help family farmers reduce production costs, secure economic stability, and build resilient livelihoods. These methods enhance ecosystem services, like pest control, pollination, soil health, and erosion management, while producing nutritious and culturally appropriate diets through diversified, locally adapted systems (FAO, 2018).

2.2.Role of agroecology in climate resilience and environmental protection

Agroecology is also recognized as a powerful approach for climate mitigation, adaptation, and biodiversity protection. In particular, the following aspects show how agroecology can foster these positive results:

- Carbon sequestration: agroforestry, silvopasture, and organic soil management enhance carbon storage in biomass and soils, reducing emissions (Montagnini, Nair, 2004)
- Reducing synthetic inputs: reduced reliance on chemical fertilizers and pesticides lowers greenhouse gas emissions and pollution, aligning with sustainability agendas (Bocean, 2025)
- Enhancing adaptive capacity: biodiverse systems offer stability and buffer against climate extremes. For instance, silvopasture provides shade and forage resilience during drought (Ghaffariyan, 2025)
- Protecting water cycles and biodiversity: soil improvement and conservation practices reduce erosion, improve water infiltration, and maintain habitat diversity, from microbes to wildlife (Altobelli et al., 2020)

2.3.Agroecology: increasing relevance in international and EU policy framework

Agroecology has been formally recognized within high-level policy frameworks as central to achieving sustainable and resilient agri-food systems. The EU Green Deal explicitly outlines agroecological and organic farming as integral to its Farm-to-Fork and Biodiversity strategies, aiming to restore ecosystem services while advancing climate resilience across landscapes[2]. Similarly, the FAO's "Governance Learning Series" and related publications underscore the importance of aligning national policies, such as rural development, trade, and nutrition, with agroecology principles to ensure coherent systems transformation (FAO, 2025).

This policy coherence extends into instruments like the EU's Common Agricultural Policy (CAP, Pillar II), which provides funding for rural development programs supporting sustainable land management, biodiversity measures, and carbon sequestration. At the same time, coalitions such as the "Coalition for Food Systems Transformation through Agroecology" have emerged, explicitly promoting agroecology as a scalable, transnational policy approach underpinned by the HLPE's 13 principles and the FAO's 10 elements[3].

Taken together, this policy alignment demonstrates how agroecology is not just a collection of practices but is increasingly embedded and promoted in policy architectures, with funding mechanisms and institutional frameworks enabling its upscaling from farm to territory.

Crucially, this policy momentum must translate into concrete educational reforms, including in the VET systems. For the European Union, integrating agroecology into VET curricula aligns with green skills development goals and supports just transition toward a more sustainable food system. It can empower a new generation of farmers, technicians, and rural entrepreneurs to adopt regenerative practices while responding to EU policy incentives such as those under the Common Agricultural Policy. For the 6-

[2] Wezel, A. (2022, February 21). Agroecology at the heart of the European Green Deal. Groupe d'études géopolitiques. https://geopolitique.eu/en/articles/agroecology-at-the-heart-of-the-european-green-deal/

[3] UN Food Systems Coordination Hub. (n.d.). Coalition for Food Systems Transformation through Agroecology (Agroecology Coalition). United Nations. https://www.unfoodsystemshub.org/food-systems-coalitions/coalition-for-food-systems-transformation-through-agroecology-%28agroecology-coalition%29/en

WB, where rural areas face acute challenges like land abandonment, youth outmigration, and soil degradation, agroecological VET can help revitalize rural economies and bridge gaps between formal education, local knowledge, and labour market needs.

2.4.Framing Agroecology: from FAO 10 elements to 13 principles of HLPE

Today, agroecology is most commonly framed using two widely recognized reference frameworks: the 10 Elements of Agroecology (2018), promoted by the Food and Agriculture Organization (FAO) and the 13 principles of agroecology (2019), developed by the High Level Panel of Experts on Food Security and Nutrition[4] (HLPE) of the Committee on World Food Security.

These two frameworks are the result of broad, inclusive international processes involving scientists, farmers, policymakers, and civil society.

The FAO's 10 Elements (2018) were shaped through years of global dialogue and consultation, and later endorsed by FAO member countries as a guide for developing national agroecological strategies. They were developed through an inclusive, multi-stakeholder process between 2015 and 2019 to serve as a guiding framework for the transformation of food and agricultural systems. Initially structured around five ecological principles—recycling, efficiency, diversity, resilience, and synergies—the framework was later expanded to include five additional social and political dimensions based on regional consultations: co-creation of knowledge, human and social values, culture and food traditions, responsible governance, and circular and solidarity economy.

On the other side, the HLPE's 13 principles were developed through a careful process of synthesis, drawing from three key sources: Nicholls et al. (2016), CIDSE (2018), and FAO

[4] The High Level Panel of Experts on Food Security and Nutrition (HLPE-FSN) of the Committee on World Food Security (CFS) is the United Nations body for assessing the science related to world food security and nutrition. It provides independent, comprehensive and evidence-based analysis, and elaborates its studies through a scientific, transparent and inclusive process.

(2018). The intention was to bring together the most relevant existing frameworks into a single, coherent set of principles, avoiding overlaps while covering all essential dimensions. The HLPE grouped the resulting principles under three overarching goals for transforming food systems:

- Improving resource efficiency;
– Strengthening resilience;
– Securing social equity and responsibility.

These three pillars reflect the essence of agroecology: it's not only about changing farming practices, but about reshaping how food systems function, how food is produced, distributed, governed, and valued. Taken together, the 13 principles offer more than a technical framework, since they present a holistic, value-driven vision for rethinking food systems that takes into account not only ecological regeneration, but also social justice, cultural recognition, and democratic participation.

As follow, a table of the 13 principles of agroecology[5]:

	Principle	**Description**
1	**Recycling**	Preferentially use local renewable resources and close as far as possible resource cycles of nutrients and biomass.
2	**Input reduction**	Reduce or eliminate dependency on purchased inputs and increase self-sufficiency
3	**Soil health**	Secure and enhance soil health and functioning for improved plant growth, particularly by managing organic matter and enhancing soil biological activity.
4	**Animal health**	Ensure animal health and welfare.
5	**Biodiversity**	Maintain and enhance diversity of species, functional

[5] Infographic of the 13 principles og agroecology developed by Agroecology Europe: https://www.agroecology-europe.org/wp-content/uploads/2023/03/Poster-13-principles-of-Agroecology-ENG.pdf

		diversity and genetic resources and thereby maintain overall agroecosystem biodiversity in time and space at field, farm and landscape scales.
6	**Synergy**	Enhance positive ecological interaction, synergy, integration and complementarity among the elements of agroecosystems (animals, crops, trees, soil and water).
7	**Economic diversification**	Diversify on-farm incomes by ensuring that small-scale farmers have greater financial independence and value addition opportunities while enabling them to respond to demand from consumers.
8	**Co-creation of knowledge**	Enhance co-creation and horizontal sharing of knowledge including local and scientific innovation, especially through farmer-to-farmer exchange.
9	**Social values and diets**	Build food systems based on the culture, identity, tradition, social and gender equity of local communities that provide healthy, diversified, seasonally and culturally appropriate diets.
10	**Fairness**	Support dignified and robust livelihoods for all actors engaged in food systems, especially small-scale food producers, based on fair trade, fair employment and fair treatment of intellectual property rights.
11	**Connectivity**	Ensure proximity and confidence between producers and consumers through promotion of fair and short distribution networks and by re-embedding food systems into local economies
12	**Land and natural resource governance**	Strengthen institutional arrangements to improve, including the recognition and support of family farmers, smallholders and peasant food producers as sustainable managers of natural and genetic resources.
13	**Participation**	Encourage social organization and greater participation in decision-making by food producers and consumers to support decentralized governance

		and local adaptive management of agricultural and food systems.

Table 1. 13 principles of Agroecology (HLPE, 2019)

In SEEDs project, the 13 agroecological principles are used as a central reference framework to guide all phases of the work, from mapping best practices to assessing how agroecology is addressed in Vocational Education and Training (VET) systems across the EU and the Western Balkans. These principles provide a shared understanding of agroecology in practical terms and support the analysis of its integration in existing curricula and training programs. They also serve as a basis for identifying key skill gaps and capacity needs, helping to inform the development of targeted educational materials and capacity-building strategies aimed at supporting agroecology-oriented VET pathways.

3. AGROECOLOGY IN SEEDS COUNTRIES

This chapter provides an overview of the status and development of agroecology in SEEDs partner countries: Italy, France, Greece, Albania, Bosnia and Herzegovina, and Kosovo. While agroecology is gaining global recognition among researchers, farmers, civil society organizations, and practitioners, its integration into national legislation and policy frameworks remains uneven and often faces institutional resistance.

The chapter examines how agroecology is positioned within each national context—whether through policy strategies, legal frameworks, or grassroots movements—highlighting both formal recognition and informal practices. It explores how agroecological concepts are understood, interpreted, and implemented locally, taking into account cultural norms, political dynamics, educational systems, and institutional structures.

Country-specific snapshots illustrate the varying levels of agroecological awareness and integration. A comparative analysis between EU and non-EU countries further reveals common challenges, such as the absence of formal agroecological education as well as differing levels of policy support, training infrastructure, and recognition.

3.1.Italy

In the Italian context, historically, Agroecology roots go back to the late 19th and early 20th centuries, when agroecological thinking emerged in academic and scientific circles alongside the early development of organic agriculture (Barberi et al. 2016; Migliorini et al. 2018).

Although agroecology is gaining momentum in Italy, its holistic nature, which combines a set of practices, a science, and a socio-political movement, presents challenges in reaching a shared understanding even among its own practitioners. This conceptual complexity is mirrored, first and foremost, in the absence of a defined institutional and political framework, and secondly, in the lack of consistent statistical data.

Using organic farming as a broad proxy for agroecology, Italy's total organic utilized agricultural area (UAA) grew by 4.5% in 2023. Within the EU, Italy remains a leader in organic farming, with 19.8% of its total UAA under organic management, bringing the country closer to the EU's 2030 target of 25%. This percentage is already surpassed in six Italian regions, including Sicily, where organic farming covers 28.8% of the UAA. The trend also reflects a broader increase in the number of organic operators and, more generally, a steady shift toward more sustainable agricultural models (CREA, 2024).

As mentioned above, today, in Italy agroecology is experiencing increasing attention from farmers, researchers, NGOs, consumers, and regional administrations investing all levels, from practices, education and training and science, till social movements. In this regard, the European project Agroecology for Europe carried out a pioneering initiative to map out agroecological initiatives in several European countries, including Italy - Mapping the development of agroecology in Europe (Volume 1) (Wezel et al., 2023). This mapping aimed at providing an overview of the state and development of agroecology, through the description of some existing agroecological initiatives, according to five main activity categories: Education and Training, Living Labs, Movements, Practice, and Science[6].

In Italy, the mapping brought to identify twenty initiatives throughout the country (including in Sicily), highlighting a lively scenario in which a wide variety of local initiatives apply agroecological principles. Despite this vibrant and positive scenario, the national framework results still incoherent, where, as mentioned, the term "agroecology"

[6] For a deeper description of the different categories, consult the report.

is not yet consistently included into political or institutional frameworks, nor its holistic approach is widely understood including by those who are actually implementing agroecological initiatives.

In particular, at the political level, a notable gap between the objectives of European strategies—such as the "Farm to Fork" and "Biodiversity Strategy for 2030"—and the responsiveness of Italian national and regional policies remains and this reflects also in the underrepresentation of agroecology as a broader, systemic approach in policy frameworks. There are, however, notable legislative efforts (Wezel et al., 2023).

At national level, the bill titled "Provisions for the protection and enhancement of peasant agriculture" (Disposizioni per la tutela e la valorizzazione dell'agricoltura contadina, A.C. No. 165) is currently under evaluation by the Italian Chamber of Deputies. This bill, reintroduced in 2022 after a previous legislative process was interrupted and ultimately halted due to changes in the political and legislative landscape, aims to promote agroecological approaches, soil conservation, biodiversity, and the recognition of small-scale and custodian farmers, whose practices often align with agroecological principles and represent a significant part of the Italian agricultural landscape. It's important to highlight that this bill was proposed by opposition deputies making the legislative process quite hard and not necessarily bringing to the necessary quorum and final success.

At the regional level, in Sicily[7], there are more positive advancements. Indeed, in 2021, the Sicilian regional government approved a pioneering law (L.R. n. 21/2021) titled "Provisions on agroecology, protection of biodiversity and Sicilian agricultural products, and technological innovation in agriculture" (Disposizioni in materia di agroecologia, tutela della biodiversità e dei prodotti agricoli siciliani e innovazione tecnologica in agricoltura[8]).

This law is the first in Europe to explicitly transpose the goals of the EU Farm to Fork Strategy and Biodiversity Strategy into binding regional policy. It introduces a framework for recognizing "agroecological farms," incentivizes the use of native plant varieties and livestock breeds, and promotes training programs in agroecology for farmers (Wezel et al., 2023). In January 2025, the implementation decree (D.D.G. n. 273/2025[9])

[7] Sicily is the Italian region where the Italian partner, CESIE ETS, is based and where semi-structured interviews to local key informants were submitted

[8] Document available in Italian

[9] Document available in Italian

operationalized the law by launching an official registry of native species, establishing criteria for accessing financial incentives, and issuing guidelines for adoption of precision agriculture. In particular, farms will be certified as agroecological by a technical report if they meet a set of criteria; these include producing renewable energy in harmony with farming needs, saving water, and reusing rain or wastewater. They should also manage waste through eco-friendly systems like composting. Selling products through short supply chains or directly to consumers will be highly valued.

The potential for agroecology development in Sicily can be huge, as mentioned by one of the interview respondents, for its ideal mesoclimatic and microclimatic conditions: "Sicily features a variety of microclimates, ranging from the arctic desert of Mount Etna to the sub-Saharan desert of Agrigento's inland", allowing for diverse, context-specific farming models. Despite this potential, and although Sicily is one of Europe's key agricultural hotspots, especially for certain crops, there is a paradox: much of the island's organic produce is exported, while local consumption remains limited, reflecting issues of accessibility and a limited food culture. In this context, agroecological education could play a vital role in addressing this gap.

In summary, these developments suggest that, while agroecology remains marginal in national legislation, regional experiments like that of Sicily can provide practical models for integrating agroecological principles into broader territorial and policy frameworks. They also signal the potential of local action to influence national and European discussions on sustainable agriculture and food systems. In this regard, the first Mediterranean Agroecology Congress organized in Agrigento in June 2025, has represented a unique opportunity not only to foster dialogue between farmers, researchers and actors in the agroecological sector from across the Mediterranean region but also to outline policy recommendations at national and EU level.

3.2.Greece

Agroecology is a relatively new term in Greek society and is rarely used in political or societal debates. The introduction of the term was made through the appearance of organic farming in the country during the 1980s, but it has not become widely known to this day (Gouta et al., 2025). There is not a cohesive regulatory framework or a set of national policies focused on the practice of agroecology, but some aspects of it are

covered through the integration of the EU Common Agricultural Policy (CAP) in the national legislative system.

Greece's CAP Strategic Plan for 2023-2027 (in accordance with the EU Green Deal) aims to promote sustainable development and transition to a more resilient agricultural model and agri-food system. In this framework, Greece aims to contribute to the mitigation of the effects of climate change, the effective use of natural resources, and the protection of biodiversity. To achieve this, one of the main policies that will be put into use will be that of the "ecological schemes". These are annual environmental programmes that farmers can participate voluntarily in order to implement indicative and practical measures in their crops to make them more sustainable. For this reason, Greece will allocate 25% of its national financial agricultural aid. The "ecological schemes" will encourage, among others, the use of resistant and adapted species and varieties to climate change, support for producers to implement precision agriculture methods using input management tools/applications and monitoring of environmental parameters that will reduce pollution from spraying, and the conservation of organic farming and livestock farming methods (Υπουργείο Αγροτικής Ανάπτυξης & Τροφίμων, 2022).

A second focus of the Greek programme is state funding to encourage farmers to adopt alternative plant protection methods in order to reduce the use of conventional plant protection products, to transition to organic agriculture practices and to contribute to the preservation of the natural landscape and the protection of biodiversity in agricultural land. Public investments in agricultural areas are foreseen to dramatically reduce the consumption of water and energy used in agri-food production. This will be done through the construction of reservoirs to retain water and the modernization of irrigation networks to reduce water losses (ibid).

As part of the CAP, Greece promotes the sustainable development of agricultural land through the adoption of Good Agricultural and Environmental Condition Standards 5 and 6. Particularly, Condition 5 provides guidelines to farmers concerning good practices of land management to reduce land degradation and erosion. It takes into consideration the slope percentage and defines the appropriate farming methods to be implemented by farmers in order to ensure soil health and fertility. On the other hand, Condition 6 sets standards regarding the minimum soil cover to avoid bare ground during critical periods of the year (November to March). It is suggested to farmers that they use winter crops, crop residues, and other organic materials (Υπουργείο Αγροτικής Ανάπτυξης & Τροφίμων, 2023).

As can be understood, Greece implements national policies regarding sustainable agriculture, covering this way some important aspects of agroecology. This is being done mainly through incorporating the basic values and goals introduced in the CAP framework.

3.3.France

France has positioned itself at the forefront of agroecological transition in Europe. Agroecology, seen as both a scientific discipline and a political movement, aligns with national goals of climate resilience, biodiversity conservation, food sovereignty, and rural revitalization. French authorities have gradually mainstreamed agroecology into national policy frameworks, institutional strategies, and educational reforms, making it a foundational element in the country's agricultural development model.

National Policy and Legislative Context

- Projet Agroécologique pour la France (2012): this pivotal policy initiative framed agroecology as central to France's strategy for the future of agriculture. It emphasized reducing dependency on external inputs, promoting biodiversity, encouraging farmer autonomy, and scaling up sustainable practices through farmer networks and research collaborations.
- Loi d'Avenir pour l'Agriculture, l'Alimentation et la Forêt (2014): legally institutionalized agroecology as the national reference for agriculture. The law also restructured agricultural education to support agroecological thinking, establishing new missions for agricultural high schools, apprenticeships, and extension services.
- Ecophyto II+ Plan: a strategic program to reduce synthetic pesticide use by 50% by promoting Integrated Pest Management (IPM), crop diversification, and non-chemical methods of pest and weed control. It is aligned with the EU Farm to Fork Strategy and underpinned by farmer training.
- CAP 2023–2027 Strategic Plan: France's national implementation of the EU's Common Agricultural Policy includes agroecology as a major focus. Eco-schemes

support practices such as cover cropping, agroforestry, and organic transition, while complementing training programs under Pillar II (Rural Development).

Regional Adaptations and Innovation Hubs

- Occitanie Region: it launched a regional Green Pact (Pacte Vert) that funds agroecological pilot farms, citizen science platforms, food councils, and territorial agroecology charters. The region works closely with INRAE and CIVAM to embed agroecology in local food policy.
- Nouvelle-Aquitaine: it offers technical assistance and funding to farms transitioning to agroecology and organic production. The region supports collaborative projects involving vocational schools, food cooperatives, and territorial food strategies (PAT).
- Pays de la Loire: it leads regional efforts in developing territorial food plans and promoting agroecological zoning. Local authorities support integration of school canteens with agroecological farms and promote biodiversity corridors through agricultural land planning.
- Région Sud (Provence-Alpes-Côte d'Azur): it has launched dedicated initiatives to restore degraded soils and support Mediterranean agroecosystems. It promotes agroecological tourism, heritage olive farming, and silvopastoral systems adapted to climate stress. Vocational schools such as the Lycée Agricole de Valabre act as demonstration sites.
- Île-de-France: despite being an urbanized region, Île-de-France is actively promoting urban agroecology. The region supports peri-urban farming, agroecological market gardening, and roof-top cultivation. Partnerships with research institutes (AgroParisTech, INRAE) and urban communities foster pilot training projects that integrate agroecology, food justice, and circular economy principles.

These regional adaptations create decentralized innovation ecosystems, empowering local actors and customizing national policy to local ecological and socio-economic realities.

3.4.Albania

In Albania, agroecology is largely overlooked, both in institutional frameworks and educational systems. Currently, there is no specific policy for agroecology, nor is it formally included in the national agricultural strategy or rural development programs. The lack of regulatory frameworks or incentives for adopting agroecological practices highlights a significant policy gap. Additionally, agroecology has not gained traction in public debate or political discussions, which limits its visibility and prioritization in national planning.

This neglect extends to the VET system, which plays a crucial role in preparing the future agricultural workforce. Despite Albania's ongoing efforts to align with European Union standards and modernize its education and training systems as part of the EU accession process, the VET sector remains underdeveloped. Although sustainability topics occasionally appear in agricultural curricula, there is no specific module dedicated to agroecology. This situation indicates a lack of strategic integration between educational planning and rural development policies.

3.5.Bosnia and Herzegovina

Agroecology in Bosnia and Herzegovina is still insufficiently known, recognized, and formalized. There is currently no dedicated policy, regulation, or national database explicitly addressing agroecology at any administrative level. This absence of a legal or strategic framework reflects broader systemic challenges, including fragmented governance structures and a historically limited focus on green transitions in agriculture.

While agroecological principles, such as biodiversity conservation, low-input farming, and circular practices, are sometimes included in broader environmental or organic agriculture policies, these references are indirect and unsystematic. The country’s agriculture sector largely operates under entity-level strategies (Federation of BiH and Republika Srpska), with partial alignment to the EU Green Deal and CAP 2021–2027 priorities. The Federation’s Strategy of Agriculture and Rural Development (2021–2027) mentions sustainability and ecological considerations, but does not define agroecology as a distinct field or policy priority. Likewise, there is no evidence of consistent policy debates or public discourse focused specifically on agroecology as a transformative approach.

In the Federation of Bosnia and Herzegovina, the Federation Agriculture Law enables the adoption of agricultural strategies, frameworks, and coordination mechanisms per cantonal and municipal administrations. The *Law on Agricultural Organic Production* (FAOLEX) in the Federation partially advances agroecological principles through standards and objectives for organic farming[10]. However, like other legislation, it remains focused on technical specifications rather than holistic system redesigns or embedded agroecological goals. Moving forward, explicit adoption of agroecology would require targeted legislative changes, potentially in conjunction with VET curriculum reforms, to align education, rural development, and ecological objectives.

3.6.Kosovo

Agroecology is still in its infancy in Kosovo. In practice, most farming remains conventional. As one recent graduate observed during an interview, "in Kosovo, agroecology is still quite new". Most farmers still use conventional methods. Traditional practices (like crop rotation or organic manure) exist, but the formal concept of agroecology has only begun to spread. National dialogues (such as Kosovo's participation in the 2021 UN Food Systems Summit) reflect growing awareness, but concrete programs or public understanding remain limited (INDEP and Konrad-Adenauer-Stiftung, 2021). Field research participants consistently noted that while grassroots knowledge (e.g. indigenous seed saving) is rich, the academic notion of agroecology is rarely taught. In short, Kosovo's current agricultural system is at a transitional stage: interest in sustainability is rising, but institutional and curricular support are minimal.

3.7 Agroecology in SEEDs countries: EU vs non-EU comparison - Similarities and differences

A comparative analysis between EU and non-EU SEEDs countries reveals both common challenges and significant differences in the institutionalization and policy recognition

[10] Federation of Bosnia and Herzegovina. (2004). Law on Organic Agricultural Production [Official Gazette of the Federation of Bosnia and Herzegovina, No. 72/04]. Food and Agriculture Organization of the United Nations (FAOLEX). https://www.fao.org/faolex/results/details/es/c/LEX-FAOC197413/

of agroecology. Among EU countries, France, Italy, and Greece, there is a varying but more advanced degree of policy engagement.
France has achieved the most comprehensive integration, having formally recognized agroecology within its national legislation and long-term strategic planning, starting with the Projet Agroécologique pour la France (2012) and followed by the Loi d'Avenir pour l'Agriculture, l'Alimentation et la Forêt (2014). These frameworks have positioned agroecology as a core reference for the national agricultural model and have been operationalized through multi-level programs, eco-schemes under the CAP, and regionally-adapted initiatives.
Italy presents a more fragmented scenario. While national legislation still lacks a coherent agroecological framework, regional experiments—most notably Sicily's Regional Law 21/2021—have pioneered the institutional recognition of agroecological farms, biodiversity protection, and incentive-based schemes. These bottom-up developments highlight a growing political interest and practical application of agroecology at local levels, even as national alignment remains limited.
Greece, in contrast, does not yet formally recognize agroecology as a policy field. While elements of sustainable agriculture are present in the national CAP Strategic Plan (2023–2027), particularly through eco-schemes and climate-oriented measures, the term "agroecology" is not explicitly referenced, and a systemic policy approach has yet to emerge.

In non-EU countries—Albania, Bosnia and Herzegovina, and Kosovo—agroecology remains marginal in both political discourse and institutional frameworks. None of these countries currently have specific legislation, national strategies, or regulatory instruments dedicated to agroecology. Where references exist, they are indirect and usually embedded within broader organic farming or sustainability narratives. In Albania, agroecology is largely absent from policy documents and lacks visibility in public debates. Bosnia and Herzegovina faces structural barriers due to fragmented governance and a lack of coordination mechanisms across administrative entities. Kosovo has shown initial awareness through participation in international dialogues, such as the UN Food Systems Summit, but no formal measures or policy tools have been adopted to date.

Across all SEEDs countries, a shared challenge lies in the absence of a unified and holistic understanding of agroecology as a systemic approach. The term often lacks clear

institutional anchoring, and even where grassroots or regional initiatives are flourishing, their formal recognition remains inconsistent. However, while EU countries benefit from the enabling framework of the EU Green Deal, Farm to Fork Strategy, and CAP, which offer leverage for agroecological transitions, non-EU countries remain highly dependent on external projects, civil society efforts, and international cooperation to initiate similar pathways.

In conclusion, EU SEEDs countries demonstrate a gradual, albeit uneven, trajectory toward institutionalizing agroecology, with France leading through comprehensive national legislation and Italy advancing regionally. Non-EU countries, meanwhile, are still in a preliminary phase, where agroecology is not yet embedded in official policies, highlighting a substantial need for targeted legislative efforts, cross-sectoral coordination, and enhanced political commitment.pathways to link agroecological education with labor market opportunities.

4.VET SYSTEM GOVERNANCE IN SEEDS COUNTRIES

4.1.Italy

The Italian VET system is characterized by multilevel governance, involving national ministries, regional authorities and local institutions. The Ministry of Education and Merit and the Ministry of Labour and Social Policies jointly define the strategic framework, while regions and autonomous provinces are primarily responsible for programming, managing, and delivering VET services in their territories. This governance model is grounded in Article 117 of the Italian Constitution, which allocates legislative authority over education and training between the State and the regions based on their type and scope (CEDEFOP and INAPP, 2023).

VET in Italy is accessible through several formal pathways. At the upper secondary level, learners can choose between five-year programmes at technical and vocational institutes (ISCED 354, EQF level 4), or Initial regional VET (IeFP) programmes lasting three or four years (ISCED 353), which lead to a professional qualification or diploma (EQF levels 3 and 4). Notably, the system is permeable, allowing learners to move between education pathways and access higher education or post-secondary VET.

Post-secondary options include one-year Higher Technical Education and Training (in Italy “Istruzione e Formazione Tecnica Superiore” or IFTS) courses (ISCED 453, EQF level 4)

and two- to three-year Higher Technical Institutes (Istituti Tecnologici Superiori or ITS, ISCED 554), which provide tertiary non-academic qualifications at EQF level 5 or, under the 2022 reform, also at level 6. These institutes collaborate closely with businesses and are key players in Italy's strategy to align training with labour market needs, especially in high-tech and green sectors.

The dual system, combining school-based learning with workplace training, is being expanded, particularly in regional VET and Higher Technical Institutes programmes, supported by apprenticeship contracts. Apprenticeships are considered a strategic instrument for fostering the school-to-work transition and are regulated through cooperation between the national government, regions, and social partner.

Moreover, in all upper secondary education pathways students are required to participate in *Pathways for Transversal Skills and Career Guidance* (PCTO). These are compulsory educational activities introduced by Law 107/2015 and redefined by Law 145/2018. PCTOs aim to develop transversal competences (soft skills), support career orientation, and foster engagement with real-world environments such as companies, public institutions, universities, or non-profit organizations. These activities do not involve an employment contract but are an integral part of the school curriculum, helping bridge classroom learning with practical experience.

VET for adults is delivered by various public and private institutions. It includes programmes that lead to upper secondary VET qualifications, aimed at providing upskilling opportunities for low-skilled individuals. These programmes are offered by provincial centres for adult education (Centri Provinciali per l'Istruzione degli Adulti, CPIA), which operate under the authority of the Ministry of Education.

In Sicily, as elsewhere in Italy, the regional government holds exclusive competence over vocational training. Sicily has developed its own training strategies aligned with national priorities, including programmes within the dual system, support for ITS Academy development, and investment in reskilling and upskilling under the National Recovery and Resilience Plan (PNRR). Sicilian VET centres and training agencies accredited by the Region play a crucial role in implementing these initiatives locally, with a growing emphasis on green skills (Regione Siciliana, 2021).[11]

[11] Regione Siciliana – Fondo Sociale Europeo. PR sfc2021 v.1.1. Retrieved from https://www.sicilia-fse.it/files/media/documents/PR%20sfc2021%20v.1.1%202022.07.29%20.pdf

4.2.Greece

The VET system in Greece is state-regulated. The main responsibility lies with the Ministry of Education, Religious Affairs and Sports (MERAS) in cooperation with the Ministry of Labor and Social Security. National education policies are prepared by the Ministry of Education, Religious Affairs and Sports while social partners, such as trade unions, play an advisory role (needs analysis, design phase of educational programs or educational regulations) in the creation and implementation of legislative work on VET education. The most famous and powerful Greek trade union is the General Confederation of Greek Workers (GSEE). National education policies are proposed by the Ministry of Education, Religious Affairs and Sports, and approved by the central government (Cedefop and EOPPEP, 2024). State-owned VET centres are controlled by the Ministry.

The state, through the General Secretariat for VET and Lifelong Learning (LLL) of the Ministry of Education, Religious Affairs and Sports, is responsible for the monitoring and evaluation of the public and private VET organisations, and the monitoring of the implementation of policies in these fields (Cedefop and EOPPEP, 2024).

The National Organisation for the Certification of Qualifications and Vocational Guidance (EOPPEP) has the responsibility of certifying or recognizing the qualifications of the VET alumni, among a diverse set of actions and responsibilities not limited to VET education (ΕΟΠΠΕΠ. ΕΡΓΟ-ΔΡΑΣΕΙΣ, 2024).

The Central VET Council (KSEEK) is the main Greek advisory body since 2021 and consists of several state, association, and chamber representatives (General Secretariat for Vocational Education, Training, Lifelong Learning and Youth, a Central Council for Vocational Education and Training, n.d.). It is responsible for "monitoring labor market developments, adjusting VET programmes to labor market needs, and reorganizing the spatial distribution of VET sectors and specialties in order to fine-tune the VET offer" (Cedefop and EOPPEP, 2023). As an advisory body, its main objective is to participate in policymaking by providing proposals and suggestions to the MERAS (Betziou, N. et al, 2022).

In order to support the work of KSEEK, councils of 12 members that link VET with the local labor market (SSPAE) exist in each geographical region of the country. These Labor Market Association Councils have as their main objective the alignment of VET programmes with the labor market needs tailored to local contexts (General Secretariat

for Vocational Education, Training, Lifelong Learning and Youth, a Central Council for Vocational Education and Training, n.d.).

VET institutions in Greece can be either state-owned or private. There are 122 state-owned VET schools which offer 95 professional paths ranging from paramedical, pedagogical and administration to pc software/hardware, security and hairdresser studies (Alfavita, 2024). The schools are located throughout Greece, with only 4 being in Athens. Except for these schools, there are also 6 public agriculture VET schools under the ELGO-DIMITRA organization. These schools offer educational programs in Gardening Applications & Green Works, Greenhouses & Covered Crops, Dairy and Cheese Making, Livestock Farming Systems/Maintenance & Repair of Agricultural Machinery, Viticulture & Oenology, and Woodcarving & Woodwork Applications. They are also spread in different locations in Greece, with only 1 being in Athens.[12]

On the other hand, there is not a coherent catalogue of the existing private VET providers. Despite that, there are more than 80 private VET Institutions across Greece. They offer professional paths ranging from Technological Applications, Communication and hospitality studies to electricians and gastronomy studies.[13]

4.3.France

The French VET system is governed through a multi-actor framework involving national ministries, regional authorities, public institutions and social partners. This layered structure ensures that national priorities and regional needs are accounted for in designing, delivering, and reforming educational programs, particularly in sectors such as agriculture and rural development.

Governance structure is as follow (OECD, 2023):

- Ministère de l'Agriculture et de la Souveraineté alimentaire. This ministry holds a distinct mandate for agricultural education and vocational training in rural sectors. It is responsible for developing national curricula for agricultural VET, funding public agricultural schools, accrediting private institutions, and ensuring that training responds to national policy goals including

[12] ΕΛΓΟ-ΔΗΜΗΤΡΑ. ΑΓΡΟΤΙΚΗ ΕΠΑΓΓΕΛΜΑΤΙΚΗ ΕΚΠΑΙΔΕΥΣΗ. https://www.elgo.gr/index.php?option=com_content&view=category&layout=blog&id=295&Itemid=1352

[13] Future Generation. Ιδιωτικά και δημόσια Ι.Ε.Κ.: https://futuregeneration.gr/lista-iek/

agroecological transition and climate adaptation (Ministère de l'Agriculture et de la Souveraineté Alimentaire, 2025).

- Ministère de l'Éducation nationale et de la Jeunesse. Manages general and technical VET education, contributing to the foundational structure for interdisciplinary approaches relevant to agroecology such as environmental science, technology, and civic engagement.
- Regional Councils (Conseils Régionaux). Play a pivotal role in the implementation of VET at the territorial level. They co-finance infrastructure, teacher recruitment, and program innovation while adapting national strategies to local agro-ecological and economic contexts. Many regions have created "green training" portfolios with special budget lines for agroecology, organic farming, and territorial food projects.
- France Compétences acts as the national governance agency for VET certification and quality assurance. It ensures coherence between labor market needs and educational qualifications. Through consultation with agricultural unions, employers, and civil society, it aligns agroecological competences with nationally recognized credentials.
- Professional Bodies and Sector-Based Committees (e.g., Chambers of Agriculture, APCA) provides feedback loops from practitioners and offer on-the-ground knowledge that helps shape responsive training content. They also support continuing education for professionals already working in the field.

France's agricultural VET ecosystem includes a range of institutions offering formal qualifications and lifelong learning (France Compétences, 2021):

- Lycées Agricoles. Public and private agricultural high schools offer multi-level vocational tracks (CAPA, BAC PRO, BTSA). Many of these schools maintain school farms that operate on agroecological principles, providing hands-on experience in permaculture, rotational grazing, and low-input horticulture. They often serve as hubs for experimentation and outreach.
- Centres de Formation d'Apprentis Agricoles (CFA Agricoles). These centers facilitate apprenticeship-based training programs that combine theoretical instruction with real-world experience on partner farms. Many CFA programs incorporate agroecological themes in collaboration with regional farmers' networks and innovation clusters.

- Maisons Familiales Rurales (MFRs). These community-embedded institutions offer alternating learning systems where students spend half their time in local enterprises and the other half in classroom settings. MFRs are often pioneers in integrating agroecology through bottom-up innovation, especially in disadvantaged or remote rural areas.
- Higher Agricultural Institutions. Engineering and postgraduate schools such as AgroParisTech, Institut Agro (including campuses in Rennes, Montpellier, Dijon), and UniLaSalle provide advanced education in agroecology, territorial food systems, and environmental governance. These institutions collaborate with international partners through EU-funded research and Erasmus+ mobility schemes.
- Non-formal Training Providers and NGOs. Increasingly, agroecology education is also being delivered by grassroots organizations, agricultural cooperatives, and rural development NGOs. These actors fill gaps left by formal institutions and often cater to non-traditional learners such as adults in transition, refugees, or social entrepreneurs.

Together, these diverse institutions form a national network capable of diffusing agroecological innovation, supporting local food system transformation and responding to evolving labor market and environmental needs. capable of diffusing agroecological innovation and responding to evolving labor market needs.

4.4.Albania

The VET system in Albania is governed by a structured institutional framework defined by the Law on Vocational Education and Training (15/2017) and its sub-legal acts (Assembly of The Republic of Albania, 2002)[14]. The main institution responsible for VET system in Albania at the central level is the Ministry of Economy, Culture and Innovation (MEKI). It is responsible for formulating national policies, developing and enforcing the legislative framework, as well as supervising the implementation of regulations. Furthermore, MEKI is in charge of approving national VET qualifications, managing the

[14] Law No. 8872, dated 29.3.2002, on Vocational Education and Training in the Republic of Albania. https://www.acce.al/sites/default/files/download/laws/Education%20and%20vocational%20training-law%20no.8872%2C%282002%29.pdf

establishment and closure of VET providers and ensuring the provision of infrastructure and human resources. MEKI collaborates with the Ministry of Education and Sport particularly in areas such as the recruitment and continuous professional development of teachers for general subjects and the organization of Matura Exams for secondary VET students.

Two key national agencies operate under the authority of MEKI to support the VET system (Swiss Development Cooperation, 2020). The National Agency for VET and Qualifications (NAVETQ) was established in 2006 to develop a unified national vocational qualification system aligned with the Albanian Qualifications Framework (AQF) and meet labour market needs. NAVETQ is responsible for the development and revision of the National Classification of Occupations, creation of occupational and assessment standards, and the design of national curricula for AQF. It also oversees the accreditation of VET providers, organizes continuous professional development programs for teachers and instructors, and serves as the Technical Secretariat for the Sector Skills Committees.

The National Employment and Skills Strategy (NAES) manages all public VET providers, including vocational schools and training centres and is responsible for improving their service provision through regular monitoring and results-based management. It is also responsible for the issuance of VET certificates, tracking graduates to assess employment outcomes, and conducting the skills needs analysis every two years. Additionally, NAES oversees the administration of ten public VTCs that provide occupational and short-term training programs.

The actual provision of VET in Albania takes place mainly through public institutions, including 35 VET schools and 10 VTCs. These institutions deliver vocational education and occupational training, with the new VET law granting them increased autonomy in program design, cooperation with businesses, and income-generating activities. Although private sector representatives and social partners, such as chambers of commerce, business associations, and trade unions, are not legally mandated to govern the VET system, they play an advisory role. Their contribution is mainly voluntary and occurs through various committees and boards, including the National VET Council, Sector Skills Committees, and VET Providers' Steering Boards. This institutional framework ensures a structured and collaborative approach to VET in Albania, balancing

governmental oversight with input from educational institutions and the private sector to meet the evolving needs of the labour market.[15]

4.5.Bosnia and Herzegovina

Bosnia and Herzegovina's education system is deeply decentralized, shaped by the country's post-war administrative structure. No single state-level education law governs the sector. Instead, education is regulated at multiple levels:

- The state level (Ministry of Civil Affairs of BiH)
- Entities (Federation of BiH and Republika Srpska)
- Brčko District
- Cantons within the Federation (10 cantonal ministries)

Responsibility is distributed across 12 competent educational institutions, each adopting and implementing specific laws, strategies, and standards. As a result, curricula are inconsistent, and reform efforts often progress unevenly.

In 2008, the Framework Law on Vocational Education and Training was adopted to set common principles. This law, together with the Strategy for VET Development in BiH (2007–2013), aimed to modernize vocational education and align it with European practices. Important outcomes included:

- Development of modular curricula for 79 occupations
- Training for over 3,000 teachers
- Equipment delivery to 96 pilot schools
- Establishment of the Agency for Preschool, Primary and Secondary Education (APOSO) to oversee standards and curricula

Despite these achievements, implementation has been fragmented. VET is still challenged by:

- Limited funding
- Outdated school infrastructure
- Weak connections between schools and labor markets
- Low attractiveness of VET pathways for young people

[15] UNESCO (n.d.). National Agency for Vocational Education, Training and Qualifications. Retrieved from https://unevoc.unesco.org/home/Explore+the+UNEVOC+Network/centre=519

In the agricultural sector, VET education is provided mainly by specialized secondary schools and technical schools offering programs such as Agricultural Technician and Phytopharmacist. However, these profiles typically focus on conventional agricultural practices.

4.6.Kosovo

Kosovo's VET system is overseen by the Ministry of Education, Science and Technology (MEST) and related agencies. In 2014, MEST issued Administrative Instruction No.14/2014 to establish the Agency for Vocational Education and Training and Adult Education (AVETAE) (Aliu et al., 2019). This agency along with the Council for Vocational Education and Training (CVETA) coordinates curriculum development and school accreditation. VET schools operate at the municipal level, with oversight by Municipal Education Directorates (as defined by Law 03/L-068 on Education in Municipalities).

The 2020 Vocational Education Law (04/L-183) provides the legal backbone, aligned with Kosovo's National Qualifications Framework (NQF). Governance is multi-tiered: MEST (national policies), AVETAE/CVETA (standards), municipal directorates (implementation), and individual school boards (local adaptation) (Aliu et al., 2019). One implication is that curriculum changes requires coordination across several levels. Currently, the system favors centralized standards, and there is limited mechanism to introduce cross-cutting themes such as agroecology without top-down initiative.

4.7.EU vs. non-EU comparison: similarities and differences in VET system governance

The governance of VET systems differs between EU and non-EU countries, impacting policy coordination and responsiveness to labour market needs.

EU countries such as France, Italy, and Greece have applied a multi-level governance approach. For example, France responsibilities are split between the Ministry of Agriculture and the Ministry of National Education, with regional councils adapting national strategies locally.

Common features in the EU systems include strong ministerial leadership, established qualifications frameworks, and active participation from social partners. Agencies such as France Compétences and EOPPEP in Greece ensure the quality of qualifications and align education with labor market needs through the involvement of trade unions, chambers of commerce, and professional bodies.

In contrast, countries like Albania, Kosovo, and Bosnia and Herzegovina face different governance challenges, often lacking the structured involvement seen in EU countries, which affects their VET systems responsiveness to labor market demands. The below table shows the main features of the governance of the VET system in EU and non-EU countries.

Dimension	**EU countries**	**Non-EU countries**
Decentralization and autonomy	Structured decentralization, with clearly defined roles for regional authorities (e.g., Italy's constitution, France's regional councils).	Decentralization often results in fragmentation (especially BiH), limiting policy coherence and standardization.
Main governing body	Typically involves Ministry of Education plus another relevant ministry (Labor, Agriculture, etc.) to ensure coordination with labor market needs.	Similar dual-ministry or multi-agency setups, e.g., Kosovo's Ministry of Education and Ministry of Finance/Labor; in case of Albania is responsible MEKI.
National Agencies	Established bodies for quality assurance and qualifications frameworks.	Similar national agencies, e.g., NAVETQ (Albania) , NQA (Kosovo).
Non-public actors engagement	Stronger formal involvement of social partners, trade unions, and employer bodies.	Advisory role only, with limited formal decision-making influence.

Policy implementation and monitoring	Structured implementation via specialized secretariats or councils.	Often less coordinated, with implementation depending heavily on donor support or lacking integrated monitoring.

Table 2. VET system governance in SEEDs countries: EU vs non-EU (source: authors based on the literature review)

EU countries show more mature, coordinated VET governance structures, integrating national and regional policymaking with formalized non-public stakeholder engagement and strong quality assurance systems. Non-EU countries, while showing important efforts toward consolidation, continue to face challenges in institutional coordination, social dialogue, and system coherence. These differences have important implications for regional cooperation and EU accession processes. EU countries could play a supporting role in sharing best practices and frameworks, while non-EU countries may benefit from building stronger institutional arrangements, particularly in areas like qualifications recognition, regional policy adaptation, and multi-stakeholder governance.

5. INTEGRATION OF AGROECOLOGY INTO VET CURRICULA

This chapter explores how agroecology is integrated into VET systems across SEEDS partner countries. The analysis begins with a review of each country's current level of the integration of agroecology in their educational programmes and curricula. Following the individual assessments, a comparative analysis will identify common patterns and differences between EU and non-EU countries.

5.1. Italy

The current state of VET in Italy in the field of agroecology reveals a significant gap, an issue already identified during the development of this project proposal. In the report of Wezel at al. (2023) on mapping the development of agroecology authors included training pathways among the potential initiatives, ranging from university programs to training courses promoted by any type of organization. However, due to the difficulty of

identifying initiatives aimed at citizens or schools, often tied to very specific local contexts, these were given less attention.

Overall, the mapping process revealed that in Italy, although agroecology is not yet formally recognized as a standard academic discipline, it is increasingly and explicitly included in some Master's degree programmes, sometimes through related subjects such as *agricultural ecology* and in doctoral programmes. The same cannot be said, however, for vocational and technical training opportunities outside the academic system. Such initiatives are usually very fragmented and led by no-profit organizations or small associations, targeting farmers interested in launching or converting their agricultural operations toward more sustainable models. Yet, official training courses, either for farmers or agronomists, are lacking, even within the main agricultural associations (Wezel at al., 2023). This gap was also highlighted by local actors interviewed.

As for the technical and vocational education system, agroecology is not officially included among the teaching units, neither in agricultural, food, and hospitality-oriented programmes, nor in other types of schools and programmes.
That said, both educational institutes interviewed reported great efforts to include agroecology into their teaching. One of the two institutes has introduced a dedicated course on *Sustainable and Organic Agriculture* where the diverse agricultural models are explored, from organic and biodynamic to permaculture and now agroecology.

In both cases, the inclusion of topics and activities related to agroecology, such as labs, lectures, or field visits, depends largely on the initiative and sensitivity of school leaders and teachers. As there is no national mandate requiring these subjects to be addressed, students' access to agroecological education remains uneven and discretionary. All actors interviewed highlighted the lack of a common educational framework which grants agroecology proper priority and which guides all educational institutes toward the same direction.

As for the absence of agroecology in the curricula of institutes other than agro-food ones, it is important to note that while the latter could be targeted by a revision of subject-specific programmes, either by integrating agroecology into existing courses or by introducing dedicated modules, the former (such as general upper secondary schools or vocational institutes with different specializations) could also benefit from agroecological education, particularly within the frameworks of civic or global citizenship education. Indeed, the holistic nature of agroecology, encompassing a set of

practices, a scientific approach and a social movement, has been repeatedly highlighted. As a result, all individuals, as both citizens and consumers (or, more broadly, as universal rights-holders to food), are inherently concerned with and implicated in agroecology.

In contrast with the lack of formal VET programmes, the mapping process (ibid) identified several agroecological training initiatives promoted by associations or no profit organizations. One example is the Itinerant Experiential School of Organic Agriculture in Veneto, active since 2006. This practical training programme aims to support a new generation of farmers by providing mentorship from experienced technicians, including during the initial design phase of new agricultural projects. Deafal, an NGO active throughout Italy, offers training and technical support in Organic and Regenerative Agriculture, explicitly framed within agroecological principles. In Tuscany, the APAB Centre provides courses in biodynamic agriculture and agroecological practices, including online materials. In Viterbo, Schola Campesina promotes agroecology through popular education and horizontal learning methods.

Finally, in Sicily, the Valdibella Practical School of Agroecology, launched by Valdibella Farmers Cooperative, is dedicated to reviving sustainable and traditional agronomic practices linked to local productions through a structured training pathway in response to the loss of traditional agroecosystem knowledge among farmers, as a direct effect of the Green Revolution.

5.2.Greece

In Greece, there is currently no dedicated agroecology curriculum within the VET system, whether in state-owned or private institutions. Although agroecology is not explicitly incorporated into VET curricula, some private organizations have initiated educational programs that integrate its principles into various courses and materials.

There is a program on *Biological/Organic Agriculture Technician* certification offered by SAEK Alto[16], based in Patras and IIEK Praxis which which operates in Athens, Halkida, and Aliveri. [17] . This program includes courses that cover central themes and objectives of

[16] For further consultation visit: https://iekalto.gr/technikos-viologikis-organikis-georgias

[17] I.I.E.K. Praxis. Τεχνικός Βιολογικής/Οργανικής Γεωργίας. https://www.iekpraxis.gr/eidikothta/viologiki-georgia/#1616487402299-1d79a856-4e01

agroecological theory, such courses are indicatively *geology and environment*, *soil science and environment*, *new biotechnology and environmental crops*, as well as pollution and environment. The first program has a duration of 2 years, while the second has a duration of 2,5 years including a six-month paid internship.

Another educational program available in the Greek VET sector is the *Ecological and Biological Agriculture Studies* program offered by IEK DELTA 360, based in Thessaloniki. The program focuses on similar topics as the aforementioned programs, such as principles and methodologies of *biological agriculture*, *beekeeping*, and *introduction to the basic principles of ecology*.[18] These indicative programs include concepts of agroecology such as soil health, biodiversity and sustainable farming methods in their curriculums, but they do not focus explicitly or provide in-depth classes on agroecology.

When it comes to state-owned VET centres, they do not include any programs directly relevant to agroecology or sustainable agriculture. Despite that, there is one VET provider under the name ELGO-DIMTRA, which is under the auspices of the Ministry of Rural Development and Food. It is organized through 6 VET centres across different locations in Greece that are mainly focused on agriculture studies. The provider's closest program to agroecology is *Viticulture and Oenology Technician*, which offers courses in *organic chemistry and biochemistry*, *plant production* and *elements of biological agriculture*. It is taught in the agriculture school of Nemea in Korinthos.

As it is evident, agroecology is not being directly incorporated in the Greek VET educational system. Some of its main concepts and ideas are being covered in the framework of programs focused on biological and organic agriculture, while agroecology is even rarely mentioned in the educational material in VET education in Greece.

5.3.France

Agroecological education is rapidly evolving within the VET landscape in France. Curricula have been updated to include agroecological thinking, ranging from technical soil regeneration methods to participatory governance and food justice frameworks. The shift towards agroecology in VET is driven by a blend of top-down policy mandates and bottom-up innovations from educators, civil society and regional authorities.

[18] (ibid)

French VET institutions offer multi-level agroecological education pathways that respond to diverse learner profiles and regional needs:

- CAPA Agricole (Certificat d'Aptitude Professionnelle Agricole) provides foundational knowledge of agroecological principles, emphasizing ecosystem services, polyculture systems, organic matter management, and biodiversity.
- BAC PRO Agroécologie is a professional degree program that introduces holistic farm management practices, including agroforestry, integrated pest management, crop-livestock integration, and rural sustainability strategies.
- BTSA APV (Agronomie: Productions Végétales) and DATR (Développement et Animation des Territoires Ruraux) focuses on advanced concepts in ecological agronomy, territorial food planning, water management, and stakeholder facilitation within rural development projects.
- BP REA (Brevet Professionnel Responsable d'Exploitation Agricole) is designed for adults and aspiring farm entrepreneurs, this program links agroecological strategies with business management, farm succession planning, and cooperative structures.

Many institutions are moving towards modular and hybrid formats, incorporating both classroom instruction and experiential learning in living labs, incubators or cooperatives. Some programs offer micro-certifications in permaculture, seed saving, animal welfare and sustainable irrigation.

The examples from table 3 highlight the diversity of pedagogical formats, learning environments and institutional adaptations driving agroecological transitions from the ground up. They also reflect a growing emphasis on contextual learning, place-based innovation, and learner autonomy.

Lycée Agricole de Valabre (PACA). This school integrates agroecology into all levels of education, from CAPA to BTSA, and engages students in community-supported agriculture schemes and water-saving trials. Collaborations with INRAE offer learners exposure to applied soil biology research.

Lycée Agricole de Montmorillon (Nouvelle-Aquitaine) maintains an experimental agroecological farm that implements intercropping, animal rotation systems, and hedgerow planting as part of a whole-farm ecological strategy.

Adalia Formation (Hautes-Alpes) specializes in short-cycle training for new entrants to farming, migrants, and job-seekers. Their curriculum covers seasonal production planning, organic certification processes, and agroecological market logistics.

Centre Forestier de la Région PACA offers a unique curriculum that merges forest management and agroecology, focusing on silvopastoralism, soil conservation, and ecological restoration of degraded landscapes.

Lycée Agricole de Nérac (Lot-et-Garonne) is notable for its strong ties with local wine producers and pastoralists, this institution co-develops agroecology modules tailored to semi-arid viticulture and transhumance systems.

École d'Horticulture et du Paysage de Roville-aux-Chênes (Grand Est) provides project-based learning in ecological landscape design, compost systems, and food sovereignty initiatives in urban-rural fringes.

Table 3. Local case studies and institutional models on agroecology integration from VET school

The diversity of pedagogical formats, learning environments and institutional adaptations is driving agroecological transitions from the ground up.

5.4.Albania

In Albania the concept of agroecology is not formally embedded in the curricula, but its principles quietly present through various modules and practices across agricultural education. The flexibility within the modules allows for this integration, though it relies

heavily on the initiative of the teaching staff and the school's internal culture, rather than an institutional approach by the governing institutions of the VET sector. While agroecology is not officially named or treated as a foundation, teachers are encouraged to embed green skills, recycling principles, and sustainable practices wherever relevant.

Though agroecology is not treated as a stand-alone subject, several existing modules, like organic agriculture, environment and sustainable development, basics of agriculture have references of agroecological principles. The organic agriculture module resulted to be more relevant in including agroecological principles. This elective module was developed as part of a donor-supported project implemented by COSPE Albania and is now formally approved by the NAVETQ and implemented in all vocational schools with an agricultural focus. Interestingly, the curriculum that includes this module was adapted from A.Ve.Pro.Bi (Veneto Association of Organic and Biodynamic Producers, Italy) and tailored to fit the Albanian system. Some of agroecology principles, such as reduced chemical use, biodiversity, soil and water conservation, are present in this module, which spans 32–34 teaching hours.

Although the term "agroecology" itself was deliberately left out due to its perceived complexity, the decision to center the curriculum around organic farming rather than agroecology tells about the institutional willingness in fully embracing the broader, interdisciplinary nature of agroecology. The flexibility within the modules allows for this integration, though it relies heavily on the initiative of the teaching staff and the school's internal culture.

While integration in the theoretical part of the VET systems is nearly missing it is quite the opposite when it comes to the practice part. The specialization in agrotourism, for example, offers a practical platform where agroecological practices can be applied and appreciated especially in modules that are developed in the same time with production cycles.

The VET school in northern Albania has access to a 10-hectare didactic farm, where students actively engage in crop rotation and implement good agricultural practices. Similarly, the Mihal Shahini VET school in central Albania features a 400 m² greenhouse, which exclusively uses organic fertilizers and biological pest control methods. This setup provides students with hands-on experience in sustainable production systems. These practices are not just theoretical; they are integrated into everyday teaching and learning, making agroecology practical, relevant, and achievable.

At both schools, students are exposed to the 0-kilometer model, meaning food is produced and consumed within the same locality. As a result of initiatives like Mrizi i Zanave and BioZadrima, farmers benefit from a guaranteed local market. This arrangement not only eliminates transportation costs and reduces the carbon footprint but also allows producers to receive fair prices for their products, key principles of agroecology.

5.5.Bosnia and Herzegovina

In BiH there isn't a formal integration of the agroecology in the VET education curricula. However there are some initiatives that are trying to integrate its principles in different educational modules.

The Framework Program for Agriculture at SSK School in Livno focuses on the field of phytopharmacology, aiming to equip students with essential knowledge and skills related to good agricultural practices. This comprehensive program covers several critical areas, including the understanding of plant disease agents, as well as the identification and management of common plant pests and weeds. Students learn about plant protection products, including their proper application and the potential effects they may have on human health and the environment. Additionally, the program introduces students to the basics of agricultural computing, emphasizing the role of technology in enhancing farming practices. It also explores agroecological farming techniques, promoting sustainable methods that work in harmony with the ecosystem to support biodiversity and soil health. Students gain insights into food systems, which encompass the broader context of food production, distribution, and consumption, highlighting the importance of sustainable agricultural practices.

Also in 2012, the Agency for Preschool, Primary, and Secondary Education established vocational standards for various professions, including agricultural technician, that is a program that has space for integrating agroecology. Therefore agroecology is not yet offered as a standalone field of study in Bosnia and Herzegovina, but its principles are indirectly embedded within certain agricultural vocational profiles.

However, it is important to note that VET in the country is not standardized at the national level. This lack of uniformity results in a complex and varied landscape, reflecting the diverse structure of the state. Such complexity brings both challenges and opportunities integrating agroecology in VET curricula.

5.6.Kosovo

Formal agroecology courses are not offered in Kosovo's VET or university system. While a few higher educational institutions provide electives in organic agriculture or environmental science, these options are scarce and not yet considered mainstream.

The University of Prishtina has discussed integrating sustainability principles into its agriculture faculty, but a dedicated agroecology track has not been established. In the VET sector, curricula remain focused on conventional agronomy and technology. Field interviews confirm this gap, with VET schools teacher stating that they face difficulties having agroecological related content, as well as practical capacities. They revealed that agroecology concepts are taught at all; when agroecological concepts are introduces, they come from donor projects or CSOs workshops rather than the national curriculum.

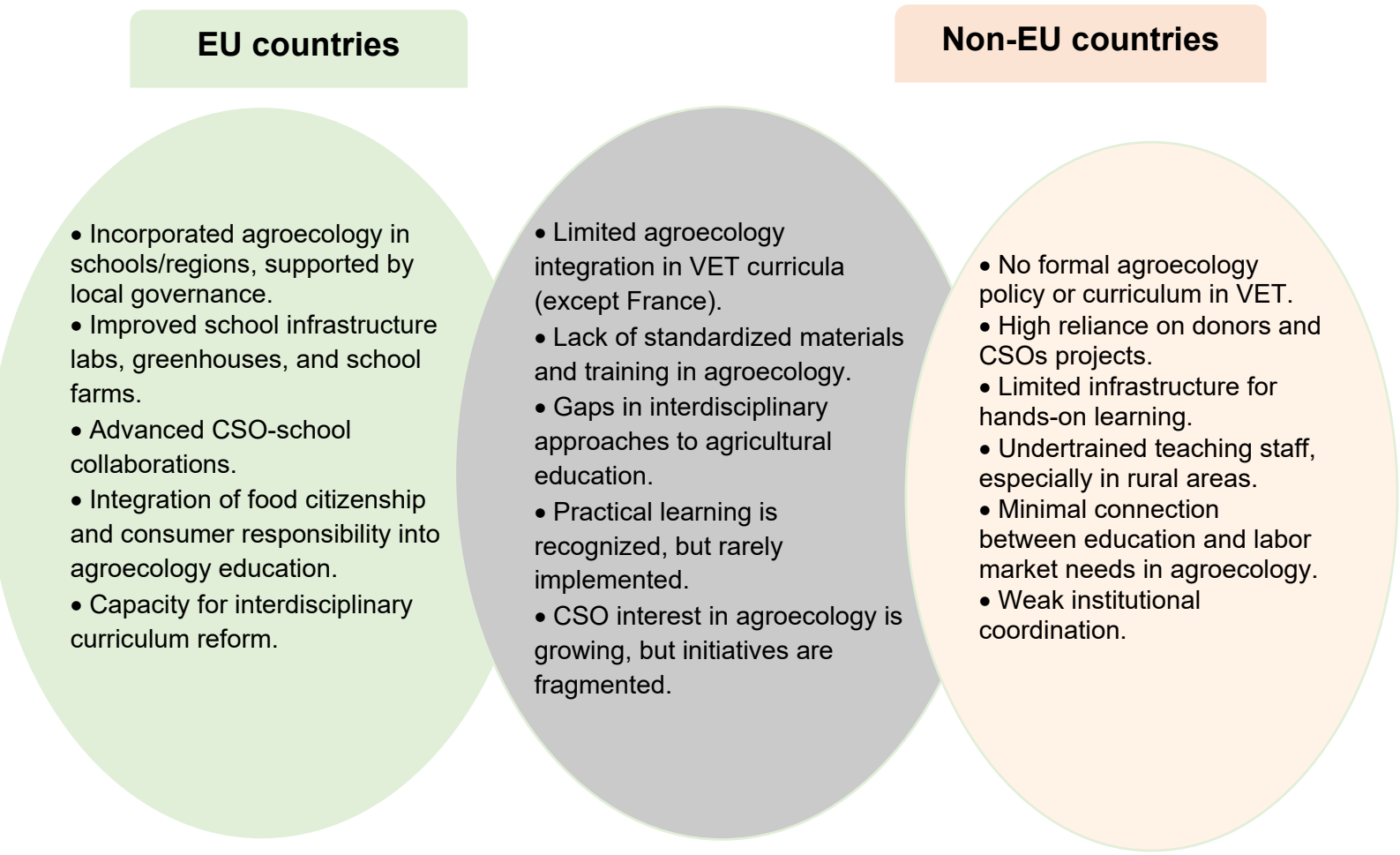
Another challenge in integrating agroecology in VET curricula remains the outdated skills of teachers and capacity building opportunities. The main agroecology education that does occur happens through non-formal channels. CSOs (and international projects like SEEDS itself) run occasional workshops, pilot trainings, or rural youth camps that introduce agroecological principles. For example, a recent training program offered by a regional project leaded by ANRD, that included organic farming drew interest from VET teachers. However, these remain ad hoc. Without an official program, each initiative must re-create basic content.

5.7.EU vs. non-EU comparison: similarities and differences on agroecology integration in VET systems

Agroecology integration into VET in EU countries, especially France, is structured and policy-supported. Italy shows strong local momentum despite lacking a national framework, while Greece lacks institutional engagement, but benefits from project-based exposure. In contrast, non-EU countries such as Albania, Kosovo and Bosnia and Herzegovina are at a formative stage, with fragmented efforts driven largely by CSOs and external funding. Common challenges across all countries include inadequate

teacher training, missing infrastructure, and weak student engagement, but the intensity and root causes vary by context.

Figure 1. Agroecology integration in SEEDs countries-similarities and differences



Source: Authors based on the literature review

To bridge the gap, non-EU countries need stronger policy frameworks, investments in teacher capacity, infrastructure and mechanisms to link education with emerging sustainable labor markets. At the same time, EU countries can benefit from adopting systemic interdisciplinarity and inclusive curricular models that view agroecology as both a scientific and civic discipline.

6.CHALLENGES AND OPPORTUNITIES OF THE VET AGROECOLOGICAL EDUCATION IN THE LOCAL CONTEXT

This last chapter of the manual provides an overview of the main challenges and opportunities related to the integration of agroecology within VET systems in each SEEDs country. This analysis lays the groundwork for identifying skills and competences gaps, which will be addressed through the mapping of best practices and the development of a shared roadmap for more inclusive and sustainable agroecological education across the EU and Western Balkan partner countries. Each country-based analysis was drawn from semi-structured interviews to key informants.

6.1.Italy

In Sicily, the region where interviews to local actors were conducted for the Italian context, the integration of agroecology into curricula is still a fragmented process but is showing a good dynamism. Interviews conducted with educational institutions (ISS Pareto, ISS Danilo Dolci) and key agricultural stakeholders (Le Galline Felici, Valdibella, Coordinamento Agroecologia Sicilia) reveal growing interest in agroecology, though it remains marginal in current educational programmes.

The first challenge identified is the absence of a clear national educational framework that prioritizes agroecology. Without it, according to the respondents, there is no coherent long-term direction for integrating agroecological principles into curricula. As one interviewee noted: “the biggest problem is that the educational sector is not even addressing the issue of introducing topics advanced by agroecological movements into the education system”. This lack of awareness is directly reflected in existing curricula. Agricultural education remains rooted in a conventional model that promotes one-size-fits-all solutions. By contrast, agroecology relies on locally adapted practices that emerge from ecosystem and landscape design, rather than on the application of standardized external inputs like synthetic fertilizers and pesticides. A meaningful national strategy should therefore promote diverse, territorially grounded curricula, supported by diverse expertise in fields such as ecology, zoology, and geology.

Another major challenge is the lack of a systemic approach in education, including agricultural and food-related education: as a representative from Le Galline Felici points out “the real challenge is connecting multiple subjects, not only scientific ones, but also the humanities”, overcoming an educational approach that remains overly specialized and fragmented, lacking a comprehensive vision and interdisciplinary connections. This underscores the need for genuine interdisciplinarity, where ecological, technical, economic, socio-political, and cultural dimensions are addressed holistically.

Closely linked to these structural issues are two additional barriers: the shortage of qualified trainers and the inadequacy of educational materials. The lack of dedicated training opportunities for educators prevents the development of the necessary expertise to teach agroecology effectively. At the same time, most teaching materials continue to promote the conventional industrial model shaped by the Green Revolution, while content on organic, regenerative, and agroecological approaches is often limited to brief, marginal sections.

On the other side, some schools despite being isolated initiatives, are showing institutional commitment toward agroecology. For example, ISS Danilo Dolci has established a partnership to create a school-run agroecological farm and offers modules on Organic and Sustainable Agriculture from the third through fifth years. Furthermore, thanks to a principal who strongly supports the approach of “learning-by-doing”, students are regularly engaged in workshops, conferences, and field trips, with the aim to complement theoretical lessons with practical experience. Meanwhile, teachers from ISS Pareto have introduced agroecology principles in their teaching courses for some years, while the institute has also invested in agricultural greenhouses and laboratories.

Regarding the skills and competences, the interviews revealed a broad, structural educational void. Lacking competencies identified by all stakeholders range from ecological soil management (including soil chemistry), functional biodiversity, and regenerative agronomic practices, to ecological understanding of territories and agroecosystems. Emblematic of this knowledge gap, the LGF representative recalls that during his own university studies in Agricultural Science and Technologies, ecology was not mandatory although he believes such knowledge should be foundational for any agronomist. Other knowledge gaps identified were the functioning of European agricultural policies (Common Agriculture Policy, Rural Development Programmes) and Food Science notions from food chemical composition and nutritional value to its

production, processing, preservation, and health impacts. The representative from the association Sicilian Agroecological Coordination focused its attention on the need for "a holistic understanding of environmental components and their interactions at territorial level" especially in a region like Sicily, which is highly vulnerable to desertification. Additionally, hybrid skills are considered essential, combining technical, operational, and administrative abilities with ecological awareness and teamwork capacity.

From an entrepreneurial standpoint, Valdibella points to the need to develop collaboration skills, shared management, and optimization of local resources, as opposed to the individualistic competitive model which tends to isolate farmers. This need is echoed by other local actors (ISS Danilo Dolci), who note that many local farmers tend to work in isolation and are hesitant toward consortia or cooperatives. Such organizations could help overcome structural challenges in agriculture by increasing farmers' bargaining power and improving market access through representative entities managing marketing and logistics. This aspect deserves more emphasis in training programs for future agricultural professionals.

Practical activities are confirmed as central to agroecology education. At ISS Danilo Dolci, students regularly participate in field visits organized in collaboration with local associations and farms. These include trips to organic farms, beekeeping operations, inclusive gardens, and workshops focused on processing products such as wine, oil, and cheese. These experiences help students build technical competencies and deepen their understanding of the interconnections between agriculture and the environment.

In contrast, ISS Pareto faces challenges in organizing similar activities due to two main constraints: limited funding and a general reluctance among local farms to host students. On this second constraint, it was interesting to find farmers cooperatives like Valdibella, manifesting their openness to collaborating with schools by offering "experiences, spaces, and experimental activities". This imbalance highlights the urgent need to build active local networks, especially between schools and farms: indeed, many potential synergies could remain untapped, often due to a lack of mutual awareness, which could otherwise foster collaborative, co-designed educational programs.

6.2.Greece

Agroecology as a term is almost absent in the public discourse and very rarely present in state documents, regulations, the legislative system, or governmental plans. It is only

natural that Greek society is very unfamiliar with the notion of agroecology. This includes not only what it is, but also why it matters. Most people have heard about organic or biological products, but never about agroecology. The concept of agroecology is missing not only from post-secondary education but from the entire formal educational system. Students do not get a sense of agency on agri-food related issues, such as food citizenship, as the system fails to go deeper than just a description of these concepts. Regarding some of the skills that are missing from VET programs, these can be soft skills like teamwork, leadership, communication, adaptability, flexibility, crisis management, and technical skills such as the integration of technology in the farming systems.

One of the reasons behind the VET system's inability to offer programs focused on agroecology lies in professors themselves. In many cases, they are unwilling due to a lack of time, interest or even capability to be involved in such programs. Even when such programs exist, the lack of advertisement and informational campaigns leads to low demand and participation, as not too many people are aware of the program.

Greek society does not rank environmental sustainability as one of its primary concerns, which in turn results in limited social interest and demand to integrate agroecology into the educational system. In fact, many farmers are not interested in adopting sustainable agriculture practices because of both economic and cultural reasons. The economic reasons include the high financial investment and risk that they would take in transitioning to agroecological production methods, and that they are very focused on the short-term results and lack the time or motivation to adopt sustainable practices. The cultural reasons are related to the social belief that a person who wants to be a farmer does not need to be educated or specialized in this field. Many people believe that self-learning or coming from a farming family is sufficient to become a farmer without the need to participate in any educational program as the educational system will demand time and -in some cases- money.

The political system's responsibilities should not be overlooked, as it provides little motivation and poor infrastructure. Over the years, the Greek political scene has failed to recognize and integrate some of the best practices of other European countries into the national VET system. As a result, farmers cannot combine the practice of new agroecological methods and a decent quality of life in rural areas of the country.

Despite the various challenges the Greek VET system faces in providing agroecological education, there are some opportunities for improvement in the near future. First of all, the Greek government must hold regular consultation meetings with relevant

stakeholders, such as farmers and farmers' associations to give them the chance to reflect and provide their input on existing and future developments around sustainable agriculture in the country. This should be a coherent part of a national strategy involving VET and higher education institutions, civil society organizations, producers, the supply chain, and consumers. Through encouraging knowledge exchange and partnerships among different stakeholders, the government would have a solid basis to transform the educational system and provide a holistic plan to integrate agroecology into existing or new VET curricula.

A second approach is that the Ministry of Education, Religious Affairs and Sports should promote scientific synergies through the organization of lectures, workshops, seminars, and study visits to highlight both the theoretical and the practical implementation of agroecological practices. This could also involve NGOs already involved in projects that promote the adoption of agroecological methods across the country.

The final suggestion proposes not only the introduction of agroecological concepts and educational curricula to the Greek educational policies but also focuses heavily on the dissemination of the new programs. Greek citizens interested in studying agroecology should only have the right to participate in a VET program, but first and foremost they should have the chance to learn about the existence of such programs. For this reason, it is suggested that promotional material should be produced and distributed in electronic formats (social media, advertising on websites, television, etc.) following the creation or reform of VET educational programs.

6.3.France

France is among the countries that have achieved the highest level of integration of agroecology within its VET system compared to other SEED countries. However, several challenges still hinder the full potential of this integration.

Although agroecology is formally endorsed at the policy level, translating the Curriculum Reform Lags frameworks into fully updated and practical curricula remains a slow process. Many institutions still rely on outdated course structures that do not adequately reflect the interdisciplinary and systemic nature of agroecology. This leads to fragmented learning experiences and undermines the transformative potential of agroecological education.

Another challenge is related to the capacities of VET schools to implement agroecological principles in their classes. Teachers and trainers often lack formal training in agroecological principles, which limits their capacity to deliver complex, cross-cutting content that bridges agronomy, ecology, sociology, and economics. Professional development opportunities in agroecology are scarce, and many educators struggle to move beyond traditional pedagogies towards more participatory, experiential methods.

Geographic and socio-economic disparities is another issue that limit access to agroecological education. Rural areas, especially in mountainous and peri-urban regions, often lack the infrastructure, trained personnel, and financial resources needed to deliver quality programs. Marginalized youth, including NEETs and those from immigrant backgrounds, may find agroecological VET inaccessible due to entry barriers, lack of awareness, or mobility constraints.

Lastly, agroecological training outcomes are not always aligned with prevailing labor market structures, which are still dominated by conventional agribusiness models. Graduates may face difficulties in securing employment or starting viable enterprises unless they are integrated into alternative food networks or supported by incubator programs. This misalignment discourages enrollment and raises concerns about the economic viability of agroecological careers. Agroecological graduates may encounter limited employment pathways in conventional agribusiness settings.

In addition to the challenges mentioned above, there are developments and contextual factors that can serve as opportunities to enhance the integration of agroecology into the VET system. Amongst these:

- Strong policy backing: agroecology enjoys institutional legitimacy and cross-party support, translating into funding and visibility;
- Youth engagement: surveys show increasing youth interest in agroecology due to its alignment with climate action, ethical consumption, and meaningful work.
- Digital and hybrid tools: virtual farms, e-learning modules, and participatory simulation tools enable flexible and interactive training formats.
- Transnational collaboration: EU projects like Erasmus+, Interreg, and Horizon Europe support joint curriculum development, staff mobility, and learning innovation.
- Local food systems: VET can play a pivotal role in territorial food planning, community-supported agriculture, and ecological entrepreneurship.

6.4.Albania

In Albania, CSOs have taken a leading role in promoting agroecological approaches, while public institutions show low engagement. Structural biases toward industrial, high-input farming, combined with gaps in education, shifting demographics, and limited market recognition, continue to marginalize agroecological practices. These challenges highlight the need for more inclusive policies, stronger institutional support, and increased public awareness to ensure that agroecology can reach its full potential.

The mindset and preparedness of teachers represent a deeper issue that hinders the integration of agroecology into the VET system. Many teachers are nearing retirement, lack exposure to modern concepts like agroecology, and struggle to adopt or teach new methodologies. Even when green skills or sustainability topics are included in the curricula, the successful integration often depends on whether teachers have received adequate training and support. Without systemic investment in capacity building and pedagogical renewal, these gaps are likely to persist.

One of the most pressing concerns raised by educators and CSOs is the erosion of agroecological knowledge due to population displacement and demographic shifts. These practices are not easily replaced, particularly as the younger generation shows diminishing interest in pursuing agriculture as a livelihood. The gap between generations presents a significant challenge. Many of today's farmers are over 50 years old, and their children are increasingly choosing other careers. Even in schools that offer agriculture or veterinary tracks, student enrollment has declined sharply, in one case, from 300 to 120 students in just five years.

Many consumers are unaware of the value of agroecologically grown food, preferring visually appealing supermarket produce over locally grown alternatives. This perception gap is exacerbated by the lack of legal protection or certification for agroecologically produced products. As a result, these products are often undervalued and underpriced, forcing producers to conform to industrial standards merely to survive. Support for organic agriculture has only materialized in response to persistent pressure from civil society organizations, highlighting the absence of proactive government strategies for sustainable farming.

Local context plays an important role in successfully integrating agroecological principles in VET system. This is demonstrated in regions where stakeholders have

identified a strong support network of local actors that together create an enabling environment for agroecology to flourish.

The Zadrima region in northern Albania stands out as a good practice. Once a degraded area, it has been transformed into one of Albania's most dynamic models of rural revitalization, largely due to its strong social capital and cohesive community spirit. Farmers in this region are deeply committed to their land and dedicated to preserving native seed varieties. With the support of CSOs, an active informal communication network of around 60 farmers has been created, through which knowledge and information are exchanged frequently. The area also has two points of sale for organic agricultural inputs.

In Cerrik, located in central Albania the region has seen a rise in the use of digital tools and are open-minded to new ideas, and a strong collaboration between schools and the farming community reinforces this. Together with local farmers and in collaboration with the Genetic Bank, students assist in collecting and preserving native seeds.

The close cooperation between schools and communities continuously aims to make parents aware that studying agriculture doesn't solely mean becoming producers. It also opens pathways into processing, marketing, and export. This evolving mindset is essential for maintaining student interest and ensuring the continued relevance of VET system.

6.5.Bosnia and Herzegovina

In Bosnia and Herzegovina, agroecology remains an unfamiliar and underdeveloped concept. While some actors associate it with sustainable, biodynamic, or organic agriculture, the term "agroecology" is rarely used in formal contexts. Nevertheless, many respondents demonstrated a shared understanding of it as farming that respects nature, preserves biodiversity, and avoids the overuse of natural resources. Despite this, systemic implementation remains very limited. Some isolated efforts exist—mainly within higher education or project-based activities—but there is no national strategy, legal framework, or financial support to promote agroecology in education or practice.

As noted in paragraph 5.5, the VET system remains poorly aligned with the evolving needs of the agroecological sector. Curricula are still centered on conventional agriculture, offering little to no exposure to ecological principles or practices. Practical

training opportunities are limited, as most VET schools lack school farms, greenhouses, or partnerships with agroecological producers. Teachers face multiple systemic barriers, including outdated resources, lack of training in innovative methods, and minimal intersectoral collaboration. In most cases, agroecology is either absent or reduced to a vague environmental value, rather than being integrated as a concrete vocational direction.

Stakeholders from regions such as Livno, Grahovo, and Sarajevo highlighted a significant gap between education and labor market needs. Employers noted a shortage of practice-ready graduates with competencies in low-input systems, soil health, and traditional farming techniques. The example of Livno cheese, protected by geographical indication, demonstrates how traditional agricultural practices can be linked to agroecological education and market innovation—provided there is alignment with education policies and support infrastructure.

Across interviews, a lack of institutional coordination and trust was repeatedly cited as a major obstacle to systemic change. In Canton 10, ministers acknowledged the need to revise VET curricula to reflect the needs of the agricultural sector, though input from employers is still rarely integrated. In Sarajevo, some university-level programs have started to include agroecological elements within agriculture and food studies, but these remain disconnected from the VET system. Youth interest in agriculture is low, due to its image as outdated and economically insecure.

To address these challenges, interviewees proposed multi-level solutions: targeted teacher training, investment in school infrastructure, co-designed curricula with local producers, and the integration of flagship products (e.g., Livno cheese, Glamoč potatoes) to root learning in local identity and agroecological relevance. Strengthening communication and collaboration between ministries, schools, and employers—as well as promoting internships and field-based learning—was seen as essential to increase student motivation and ensure VET becomes more relevant to both the market and the ecological transition. With the right support, Bosnia and Herzegovina holds untapped potential to connect its agricultural traditions with future-oriented, sustainable practices through education.

6.6.Kosovo

Nearly all interviewees pointed to the lack of institutional backing as the main challenge limits the integration of agroecology in VET system. There is no dedicated funding that support production that is oriented toward agroecological principles . In the most of the cases the government programs tend to favor conventional outputs that aim at increasing the competitiveness in national and international markets. Also, there are no fundings to support schools to introduce new courses such as agroecology.

On the other hand, schools in rural areas often lack even basic resources for practical learning. Interviewees reported an absence of equipment (e.g., composters, greenhouses) and educational aids. Small farmers stated that they have limited resources available to experiment with longer-term practices. In short, financing is tight on both sides, teachers struggle for classroom materials, and farmers struggle for inputs, hindering any agroecological transition.

Also, there is a significant disconnect between VET training and current job needs. Educators stated that while students are learning outdated methods, employers seek integrated farming techniques and green skills. On the other hand, often, they graduate without the practical knowledge or skills needed for the current market needs. This gap discourages youth from pursuing agriculture, as they see no clear pathway to employment.

The mindset of farmers is another factor that limits the ability to move toward integration of agroecology in VET systems. Many farmers follow inherited methods and are skeptically about the agroecology. Mostly, elders aren't open to trying new methods. At the same time, this traditional knowledge can be a double-edged sword as it contains agroecological elements (crop diversity, seed saving), but is often tacit and not formally recognized.

Despite the challenges mentioned in the above paragraphs there are several emerging opportunities for integrating agroecology in VET system. Some of the opportunities are as follow: VET teachers and local organizations recognize the value of working together. For example, respondents suggested creating model farms and linking schools with sector associations. One interviewee emphasized that bringing NGOs and associations into schools can help create more practical lessons. Sector actors (agricultural chambers, rural development NGOs) expressed willingness to co-host workshops and

mentor students. Formalizing these partnerships could jump-start to update the curricula with the principles of agroecology.

Kosovo's rural communities retain traditional practices that align with agroecological principles. Although not formally taught, local farmers' use of organic fertilizers, crop rotations and mixed cropping provides a foundation. Field interviews suggest that leveraging this existing knowledge (for instance, through ethnographic curriculum projects) could make agroecology more tangible to students.

Kosovo's engagement in regional sustainability initiatives is growing. Representatives from Kosovo, participated in the 2021 UN Food Systems Summit dialogue. EU Green Agenda priorities and Western Balkans green funds may open new resources. Also, information gathered through interviews show that there is a rising activity of CSOs projects on organic farming or climate-smart agriculture have sporadically engaged youth.

Some indicators suggest that young consumers are increasingly interested in sustainable food. Several interviewees noted a rising demand for organic produce in urban markets. On the other hand, businesses expressed that they will seek graduates who possess an "ecological perspective" and an entrepreneurial mindset. Although this market shift is still in its early stages, it indicates a future demand-driven incentive to educate students in agroecological methods.

7. CONCLUSIONS

Agroecology represents a transformative framework for shaping resilient, sustainable and just food systems by integrating scientific inquiry, practical innovation, and grassroots social action. Despite this potential, most VET systems across SEEDS partner countries remain inadequately equipped to integrate agroecology in a coherent and holistic approach. The conclusions from our comprehensive analysis showed that the SEEDS project has the potential to bridge this gap by promoting curriculum development, participatory teaching methodologies and institutional capacity, building to integrate agroecological principles into VET structures in both EU and Western Balkan contexts.

The analysis of agroecology across SEEDS countries reveals unequal levels of integration into education, practice and awareness between EU and Western Balkan countries. In France and Italy, agroecology is increasingly embedded in training, local initiatives, and public discourse, with good examples of school-based programs and regional experimentation, despite varying level of recognition at legislative level. Greece shows limited but emerging exposure, mostly through sustainability measures linked to EU programs. In contrast, Albania, Kosovo, and Bosnia and Herzegovina exhibit low levels of integration, with agroecology largely absent from formal education and rarely understood as a holistic approach. Overall, while the concept is gaining ground in some contexts, its full educational and practical integration remains limited and fragmented across the region.

Results showed that a clear distinction emerges between EU and non-EU countries in terms of VET governance as well. EU countries such as France benefit from established policy frameworks that support agroecological education at multiple levels, including national curricula, regional initiatives and stakeholder-driven innovation. Italy demonstrates vibrant local experimentation, though it lacks a national strategy. Greece, while formally detached from agroecology, allows for sporadic educational activity driven by projects and private actors. In contrast, non-EU countries, including Albania, Kosovo, and Bosnia and Herzegovina, are at an early stage of integration, with efforts relying heavily on donor-funded programs and civil society initiatives.

Western Balkan countries often face systemic barriers such as limited institutional coordination, under-resourced teaching infrastructures, and weak connections between education and green labor markets. On the other hand, all SEEDs countries face similar challenges. One key issue is the lack of teacher training in agroecology. Moreover, the subject is rarely taught as a unified discipline; instead, it’s scattered across different modules without a clear or cohesive structure. This makes it harder for students to stay engaged and to build the skills they need in sustainability and ecological thinking.

However, local initiatives led by schools, cooperatives and civil society organizations are emerging as key drivers of agroecological education and practice, especially in contexts where institutional support is weak. These grassroots efforts often foster experiential learning through school farms, community gardens, and short food supply chains, strengthening student engagement and community ties. Furthermore, growing public awareness of climate challenges, soil degradation and food system vulnerabilities give agroecology a broader recognition. These opportunities suggest a strong potential to

scale agroecological education through participatory methods, localized action and cross-country knowledge exchange.

The SEEDS manual offers a situational analysis and will be the basis for identifying competency gaps and assist in creating a shared roadmap to be used in SEEDs countries. This roadmap will foster an inclusive and agroecological oriented education across the EU and Western Balkan countries.

ANNEX I - SEEDS QUESTIONNAIRE ON AGROECOLOGICAL EDUCATION IN NATIONAL CONTEXTS

1. Have you ever heard about agroecology and how you would you define it? (If the answer is not, provide its definition)	
2. Can you briefly describe the current state of agroecology and sustainable agriculture in your country/region?	
3. What are the key challenges faced by the education sector in integrating agroecology and sustainable agriculture into curricula?	
4. What role does the education system currently play in preparing individuals for careers in agroecology or sustainable agriculture?	
5. Are there any specific competencies or skills related to agroecology that you feel are lacking in the current vocational education and training (VET) programs?	
6. What are the most important skills and competencies that employers in the agriculture sector are seeking, especially regarding sustainable practices and agroecology?	
7. From your experience, how well does the education system align with the current	

demands of the agriculture and agroecology sectors, including developing skills for entrepreneurship?	
8. From your experience, how well does the education system promote the development of skills able to develop a sense of agency on food-related topics in future students (eg. workshops on food citizenship, introduction to social movements, etc.)?	
9. What are some of the key local and national peculiarities (cultural, economic, policy-related) that influence the adoption of agroecological practices and curricula in your country/region?	
10. How can sector associations and stakeholders like yourself contribute to improving the relevance of agroecological training and education in vocational programs?	
11. What strategies or initiatives would you recommend to better integrate agroecology into VET curricula and ensure it addresses local and national needs?	

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