Transition
Innovative resilient farming systems in Mediterranean environments

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PRIMA PARTNERSHIP FOR RESEARCH AND INNOVATION IN THE MEDITERRANEAN AREA

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Chapter 1: INTRODUCTION

1.1 History

In 2006, Bertrand Hervieu and Sébastien Abis described the Mediterranean as "*an intimate encounter between history and geography*" (Hervieu & Abis, 2006). How can we address Mediterranean agroforestry systems without mentioning the diversity of Mediterranean landscapes, their biodiversity and its history? The diversity of farming systems varies depending on the territory (from coastal to mid-mountain areas, from humid landscapes to arid or semi-arid zones) and the farming communities occupying it.

Historically, Mediterranean agroforestry systems were based on cereals, olive trees and vines, fruit, and vegetables(Chevalier, 1939). This has continued to this day, with some remaining olive groves and vineyards still being grazed or combined with trees such as in France, Spain, Italy, and Algeria (Pagella et al., 2014; Rosati & Mantovani, 2015) . In Egypt, most farms are mixed crop/livestock systems that include goats, sheep, cattle, and buffalo (Ahmed et al., 2020).

Silvopastoralism, an ancient agroforestry system, is still practised in the forests of south-east France, Greece, Italy and Spain and further afield in the Spanish *dehesa* and Portuguese *montado* covering the largest agroforestry landscape in Europe, a large southwestern quarter of the Iberian Peninsula (Casagrande et al., 2017; den Herder, 2017; Guillerme, 2010; Moreno & Cáceres, 2015; Paris et al., 2019). Spain is also a country where the historical practice of *pomeradas* was being developed on a larger scale. *Pomeradas* are systems where livestock farming was combined with apple production (Guillerme, 2010; Smith, 2010). Oak forests are grazed by goats, sheep, cows, and hogs (Pantera, 2016). Recently, modern agroforestry systems based on intercropping vegetables or aromatic and medicinal plants associated with olive and fruit and timber trees are redeveloping and being studied (Coulon et al., 2000; Cresti et al., 2004; Katsoulis et al., 2022). For example, Italian *coltura promiscua* refers to a traditional system in which grapevines are grown in association with trees (such as olive, mulberry or walnut trees), sometimes together with other crops on the same parcel (Piccirillo et al., 2013).

1.2. Advantages of agroforestry systems

Agroforestry practices are widely recognised as effective strategies for both climate change mitigation and adaptation (Dupraz & Liagre, 2013; Ministère de l'Agriculture, de l'Agroalimentaire et de la Forêt,

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2015; Mosquera-Losada et al., 2018; Pellerin et al., 2013; Terasaki Hart et al., 2023). This recognition is reflected in major EU policy frameworks, including the European Green Deal, the Farm to Fork Strategy, the EU Biodiversity, Forest and Soil Strategies, the Circular Economy Action Plan, and the new Common Agricultural Policy, which identifies agroforestry among the agricultural practices contributing to the EU's climate objectives (European Commission, Directorate-General for Agriculture and Rural Development, 2021). In the Mediterranean basin, where farming systems have historically evolved in close interaction with local climatic and soil conditions (Eichhorn et al., 2006), the adoption of agroforestry is increasingly driven by the structural fragility of landscapes and the intensification of environmental constraints such as drought, water erosion, flooding, salinisation and steep relief (Eichhorn et al., 2006). Water availability constitutes a critical limiting factor for agricultural activity, particularly under current climate change scenarios. Countries along the southern Mediterranean shore allocate 76–82% of their available water resources to agriculture (Hervieu & Abis, 2006; MedECC, 2020; Schilling et al., 2012), while projections indicate declining water resources and increasing drought risk, reinforcing the strategic importance of integrated water management and the growing potential for resource competition (MedECC, 2020; Tanasijevic et al., 2014). Within this context, Mediterranean agroforestry systems provide multiple ecosystem services, including reduced soil erosion, enhanced water infiltration, improved microclimatic regulation, increased biodiversity habitats, support for pollinators and other beneficial organisms, improved animal welfare and fodder availability through shade and windbreak functions, and contributions to forest fire prevention and mitigation (Association Française d'Agroforesterie, n.d.; Ramats de Foc, n.d.).

In Algeria, agroforestry systems are predominantly rainfed. Silvopastoral practices are commonly implemented in mountainous areas to reduce soil erosion and maintain extensive grazing systems, while wetlands are mainly characterised by crop–livestock production systems that benefit from higher soil moisture and water availability (Bessaoud, 2004).In contrast, Egypt shows a limited development of agroforestry systems sensu stricto, but a long tradition of diversified crop production systems—particularly vegetable-based systems—closely linked to irrigation depending on fluvial resources from the Nile.

In France, Italy and Spain, Mediterranean agroforestry systems are also largely rainfed and encompass a wide diversity of configurations, including silvoarable systems (e.g. fruit trees combined with annual crops), silvopastoral systems, and agrosilvopastoral systems integrating trees, crops and livestock within the same land-management unit.

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1.3. TRANSITION project

Moving toward resilient agricultural systems in the Mediterranean Rim is crucial to cope with the effects of climate change. The adoption of agroforestry practices adapted to Mediterranean realities, considering agroforestry (silvoarable, silvopastoral and agrosilvopastoral) systems together with diversified cropping systems and crop–livestock systems , can increase the resilience of ecosystems.

The TRANSITION Project focuses on five heterogeneous study regions, three in the North of the Mediterranean (Catalonia, Spain; Sicily, Italy; Regions Occitanie and PACA, France) and two in the South (Sétif, Algeria; the Behia and Kafr Elsheihk Governorates of Egypt) (Figure 1), representing different pedo-climatic areas, cultures, and agricultural practices.

1.4. TRANSITION and the policy framework

The TRANSITION project aims to strengthen the alignment between stakeholders' resilience-building priorities and the policies of governmental and intergovernmental organisations. By engaging transnational and multicultural partners and stakeholders, the project broadens the exchange and scaling of innovative practices addressing the critical challenge of climate resilience in Mediterranean agricultural systems. Within a common analytical framework, the socio-economic barriers and national agricultural policies of participating countries are systematically examined and compared. This framework functions as a structured knowledge base, enabling the identification of shared challenges and opportunities while enhancing awareness of the potential of agroforestry systems. Such diversity and comparative analysis are particularly relevant from an international policy perspective, as the inherent complexity and multifunctionality of these systems are explicitly recognised by global policy initiatives, including the 2030 Agenda for Sustainable Development.

This goal is mainly addressed by the current white paper on challenges for agroforestry and diversified cropping systems in the Mediterranean Rim and by the creation of basin-wide roadmap for alignment of agricultural policy with societal goals and climate resilience. This White Paper complements recent European-level policy analyses on agroforestry, notably the AGROMIX White Paper (Dauby et al., 2024), by providing a Mediterranean-focused perspective grounded in national and territorial case studies. While AGROMIX proposes a coherent EU-wide policy framework and strategic recommendations, the TRANSITION White Paper highlights how socio-economic barriers, policy implementation challenges and enabling conditions vary across Mediterranean contexts, including both EU and non-EU countries. Together, both documents provide mutually reinforcing insights, linking EU-level policy ambitions with place-based realities and stakeholder experiences.

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1.4.1. TRANSITION participatory approach to the white paper on challenges for agroforestry and diversified agricultural systems in the Mediterranean region

The current white paper aims to guide the investigation of agroforestry and diversified agricultural systems regulations at both regional and national levels in the five demonstration countries (Spain, Italy, Algeria, Egypt, France), incorporating input from local partners. Its purpose is to assess the existing regulatory framework and financial opportunities for these practices in the countries participating in the TRANSITION Project.

Key aspects of agroforestry and diversified agricultural systems regulations were investigated at the regional and national levels in the five demonstration countries (Spain, Italy, Algeria, Egypt, France) by the partners representing the respective regions. To conduct the study on the policy and economic barriers, 138 stakeholders from every studied region were brought together (Annex I). The participatory approach to obtain the information from these actors were divided in two methods: i) semi-structured interviews, ii) semi-structured meetings (Figure 2a). The actors involved in the participatory methods were chosen from different sectors (public research centres, public education, private sector, public administration, farming, Figure 2b), and present different profiles (technician, politician/decision maker, advisor, farmers, students, and researchers, Figure 2c). The involved stakeholders encompass different territorial scopes (supra-national, national, regional, and local, Figure 2d) and gender balance was considered, although cultural, demographic, and socio-economic factors impacted it (Figure 2e).

The information gathered through interviews and meetings was synthesized to pinpoint the legal and regulatory impediments to extension of the agroforestry systems. In addition, an analysis of potential policy or economic tools was carried out in each country. Some of these insights will be used to create a basin-wide roadmap to align agricultural policy with societal goals and climate resilience.

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Figure 1. Map of the studied regions in the TRANSITION project.

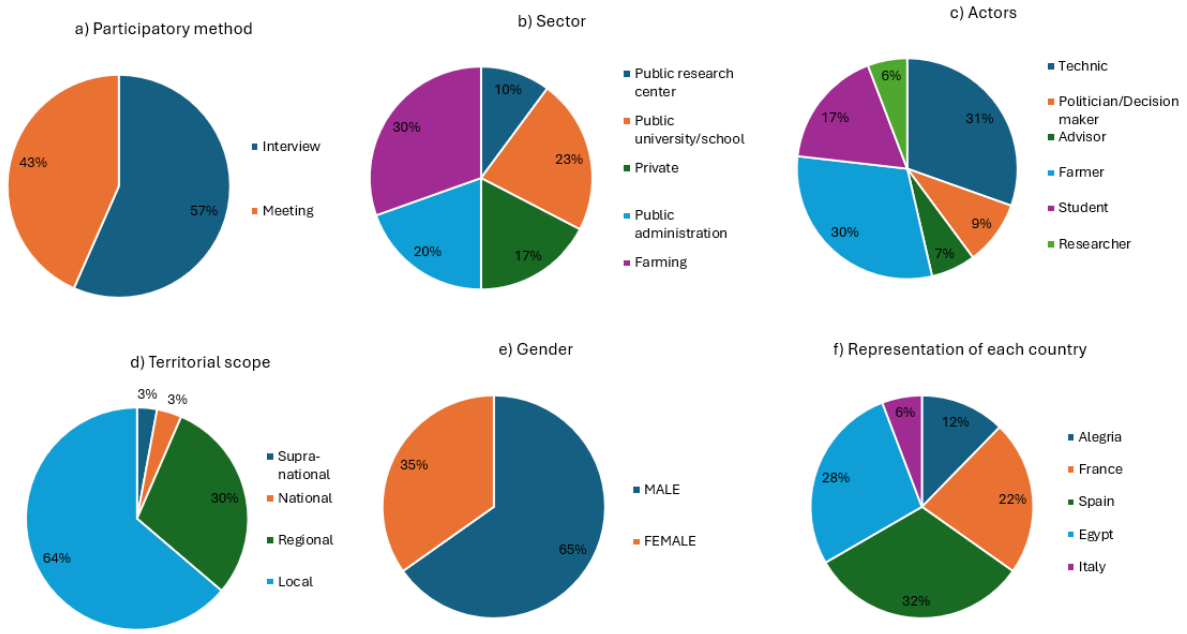

Figure 2. Summary of the participatory approach to the white paper on challenges for agroforestry and diversified agricultural systems in the Mediterranean Rim. Proportion of a) participatory method, b) sector, c) actors, d) territorial scope, e) gender, f) region, is provided.

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Chapter 2: DEFINITIONS, REGULATIONS, AND FINANCIAL OPPORTUNITIES FOR AGROFORESTRY AND DIVERSIFIED AGRICULTURAL SYSTEMS

2.1. Definitions

Agroforestry is a well-established concept referring to land-use systems that deliberately integrate woody perennials with agricultural production. While technical definitions may vary in operational details—such as tree density, spatial arrangement or management practices—the core concept of agroforestry is broadly shared across scientific and institutional frameworks.

The Food and Agriculture Organization of the United Nations (FAO) defines agroforestry as "a collective name for land-use systems and technologies where woody perennials are deliberately used on the same land-management units as agricultural crops and/or animals, in some form of spatial arrangement or temporal sequence"(Food and Agriculture Organisation of the United Nations, n.d.). Similarly, the European Agroforestry Federation (EURAF) defines agroforestry as the association of trees with crop and/or animal production within the same agricultural parcel (EURAF, 2012).

Importantly, while the general concept of agroforestry is relatively well defined, its interpretation for policy and regulatory purposes often requires legal definitions, which may differ across countries depending on national agricultural, forestry and environmental frameworks. These legal definitions can influence eligibility for support schemes, land-use classification, or compliance with agricultural policies. In this context, differences between countries often relate not to the concept itself, but to how agroforestry is operationalised and recognised within policy instruments (Torquebiau, 2000).

Within agroforestry, systems are commonly classified according to the components integrated: silvoarable systems (trees and crops), silvopastoral systems (trees and livestock grazing), and agrosilvopastoral systems (trees, crops and livestock combined within the same land-management unit). These categories exclusively refer to agroforestry systems and do not include diversified agricultural or crop–livestock systems without trees. In the TRANSITION Project, several systems were identified through participatory methods with farmers and stakeholders (Annex II Table 11). Although forest silvopastoral systems represent an important type of agroforestry, it was not the purpose of the TRANSITION project to study them thoroughly, therefore they were not addressed.

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2.2. Regulation and financial devices

The agricultural sector is determined through sets of legislation, practices, socio-economic barriers, and opportunities. The current study aims to clarify the regulation affecting agroforestry systems in the Mediterranean Rim. The analysis is divided into two groups: north Mediterranean countries under the European Common Agricultural Policy (CAP) framework combined with national laws and south Mediterranean countries, ruled by national laws.

2.2.1 The context in the North Mediterranean countries

The European Union and its member states put climate change at the top of its development agenda. In 2019, they presented European Green Deal aiming to become the first climate-neutral continent (European Commission, n.d.-b). This agreement is part of the 2050 long-term strategy developed by the Union (European Commission, n.d.-a). Henceforth, the agricultural field is a central part of this climate strategy. In 2023, the adopted text of the 2023-2027 CAP made a step further toward more action against climate change, making more efforts to promote agroforestry and diversified agricultural systems.

Actions are divided into two pillars. Pillar I concerns direct payments to farmers based on farm size, subject to statutory management requirements and basic standards for environment and climate, known as Good Agricultural and Environmental Conditions (GAECs), collectively referred to as “conditionality”. This conditionality is based on nine GAECs, three of which especially relevant for agroforestry and diversified agricultural systems: GAEC 1 – permanent grassland, GAEC 8 – non-productive areas and features, GAEC 9 – ban on converting and ploughing permanent grasslands in Natura 2000 sites. Farmers receiving CAP income support must comply with these nine conditionalities. GAEC 8 is particularly designed to protect biodiversity through the maintenance of non-productive areas and landscape features. It ensures the retention of landscape features through a ban on cutting hedges and trees during the bird breeding and rearing season for instance. In other words, farmers receiving CAP subsidies must maintain the existing woody landscape of their land and are also encouraged to develop the woody vegetation present on their farm.

Besides GAECs, the 2023-2027 CAP has budgeted a new element within Pillar I: the Eco Schemes. It supports farmers who voluntarily adopt or maintain farming practices that contribute to EU environmental and climate goals. Through Eco Schemes, the EU rewards farmers for preserving natural resources and providing public goods that benefit society but are not necessarily reflected in

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market prices. Some Eco Schemes involve the maintenance and planting of the woody vegetation on farms, thus encouraging farmers to develop agroforestry systems (European Union, 2023). Pillar II consists in supporting various types of measures aiming to rural development (e.g. Agri-environmental and Climate Measures; Invest measures) and is co-financed by the EU and national or regional funds. To allow flexibility to member states, the general CAP Plan is set out at national level through the "National Strategic Plans 2023-2027". The CAP strategic plan of each country describes: i) how the GAECs are fine-tuned in the country (Pillar I), ii) which Eco schemes (Pillar I) are eligible on their territory, iii) which Pillar II measures are activated at national level, iv) in some countries the regions decide which Pillar II measures will ultimately be adopted in each particular region.

FRENCH CASE STUDY

In France, the Eco Schemes that potentially support agroforestry systems are the "landscape features elements" pathway, which targets farmers who maintain or create agro-ecological infrastructure or set aside fallow land on their farms. To get financial retributions, farmers should demonstrate that at least 7% of their land is covered by agro-ecological infrastructure. In addition, within the Eco Schemes, the "hedge bonus" rewards the presence and sustainable management of hedges; this bonus can be combined with the "practices" or "certification" pathways to improve the overall effect on biodiversity (combination of hedges and crop mosaic, or hedges and grasslands, or hedges and organic land management). The presence of hedges is linked to a requirement for sustainable management of these hedges verified by certification (e.g. the existing "Label Haie"). Another key measure to promote the development of agroforestry systems in the French Strategic Plan of the CAP 2023-2027 is the "IAE1: maintenances of agro-ecological infrastructures". This measure supports farmers in the sustainable management of their on-farm woody vegetation. In addition to the CAP measures, in 2023 the French government adopted a "Pact in favor of hedgerows" to finance the planting of 50 000 km of hedgerows from 2024 (*Approved French National Strategic Plan*, n.d.; Gouvernement Français, n.d.; Ministère de l'Agriculture, de l'Agroalimentaire et de la Forêt, 2015).

ITALIAN CASE STUDY

In Italy, the Eco schemes that potentially support agroforestry systems are Eco scheme 3 "Preservation of the olive tree of a particular landscape aspect" and Eco scheme 5 "Specific measures for the pollinating insects within the woody crops"(*Approved Italian National Strategic Plan*, n.d.). Italy's National Strategic Plan of the CAP 2023-2027 includes the measure SRD05, which provides subsides

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for investments in forestation/afforestation and agroforestry systems on agricultural land. Within this measure, the third action (SRD05.3) is the most relevant, considering the establishment of agroforestry systems such as silvoarable and silvopastoral systems. In addition, action SRA28 supports the maintenance of forestation, afforestation, and agroforestry systems. At the regional level, the regions of Sicily, Piedmont, Umbria, Veneto, Puglia and Tuscany are willing to commit themselves to these measures (*Approved Italian National Strategic Plan*, n.d.).

SPANISH CASE STUDY

In Spain, there are six Eco schemes that potentially support agroforestry systems. Eco Scheme 1: "Carbon farming and agroecology: extensive grazing, mowing and biodiversity in wet pastures", Eco Scheme 2: "Carbon farming and agroecology: extensive grazing, mowing and biodiversity on Mediterranean pastures", Eco Scheme 6: "Carbon farming: vegetative covers and inert covers in woody crops on flat lands", Eco Scheme 7: "Carbon farming: Vegetative and inert covers in woody crops on medium slopes", Eco Scheme 8: "Carbon farming: vegetative covers and inert covers in woody crops on steep slopes", and Eco Scheme 9: "Agroecology: biodiversity areas on arable land and permanent crops". In the Spanish Strategic Plan for the CAP 2023-2027, there are 13 measures that could promote agroforestry, some of which are specifically aimed at maintaining forestry and agroforestry systems. For example, INVEST 6881.1 in Catalonia, which supports non-productive forest investments in reforestation and agroforestry (*Approved Spanish National Strategic Plan*, n.d.; Bertomeu et al., 2024). In addition, in the Spanish region of Catalonia, the CAP measures are complemented by strong regional strategies such as Catalan Rural Agenda 2030 or the Bioeconomy Strategy of Catalonia 2030, among others.

In summary, the 2023–2027 CAP has taken a step forward in terms of environmental measures and protection. Today, agroforestry and diversified agricultural systems are recognised by European CAP stakeholders for their environmental benefits. While the policy framework provides an important basis for their development, the extent to which these measures are effectively taken up by farmers remains difficult to assess, as comprehensive quantitative data is not yet available. National CAP plans and the regional and local programmes derived from them therefore represent a necessary but not sufficient condition for the widespread development of agroforestry and diversified agricultural systems.

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2.2.2. The context in the South Mediterranean countries

In the Southern Mediterranean region, Algeria and Egypt were studied. In these countries, the Ministries of Agriculture remain the main interlocutor and financial supporter for the development of agroforestry and diversified agricultural systems, and regulation is also made at a national level.

In Algeria and Egypt, the term agroforestry is not established, while agricultural practices are often described in terms of crop–livestock systems. Consequently, funding priorities in both countries mainly focus on crop–livestock systems, through measures supporting rural development, agricultural production and national climate change resilience objectives. In these contexts, the combination of cereal production and livestock grazing is currently considered one of the most effective ways to achieve these national objectives.

ALGERIAN CASE STUDY

The Algerian government has drawn up a plan to develop a more sustainable agriculture. It has been published by the Ministry of Agriculture and Rural Development. The “Roadmap for the sustainable transformation of agricultural systems by 2030” presents a series of programmes and actions to be implemented by the Algerian Ministry of Agriculture to improve the agricultural production chain and the quality of food production in Algeria (MINISTERE DE L’AGRICULTURE ET DU DEVELOPPEMENT RURAL ALGERIE, n.d.).

In Algeria, the Ministry of Agriculture and Rural Development is responsible for administering key agricultural support instruments, including the Fonds National de Développement Rural (FNDR) and the Fonds National de Régulation et de Développement Agricole (FNRDA), which provide financial support for rural development, agricultural modernisation and sectoral regulation (Ministère de l’Agriculture et du Développement Rural, n.d.). These two funds mainly support country’s farmers by providing them with plants, trees, and livestock. They also support farmers with infrastructure investments, loans, the development of sustainable projects and specialised training. The Ministry of Agriculture also supports farmers and rural communities by subsidising milk production, fertilizer, cereals seeds, access to markets and facilitating access to a professional credit. The Algerian government is also partner with a national programme led by the United Nations Development Programme (UNDP) for Algeria 2023-2027. This programme dedicated to Alegria has 3 pillars, and one of these pillars is towards adaptation to climate change and sustainable development, which could

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potentially favour the adoption of agroforestry and diversified agricultural systems (UNDP Algeria, 2023).

These policies are also combined with local programmes within specific regions to improve the living conditions of the rural population (Chaib & Baroudi, 2014). The main trend is a general fight against poverty in the rural areas. These programmes focus on access to water and electricity, food security, as well as specific programmes dedicated to the development of trees such as almond, the Atlas pistachio, walnut, etc. (Guerine & Hadjadj, 2019; le matin d'algerie, 2020). Although not a specific programme for agroforestry, these measures might help the rural population to diversify their production. In addition, the Algerian government has a specific reforestation programme, called the "National Reforestation Programme" (Portail algérien des énergies renouvelables, 2019). This programme is aimed at restoring forested areas and combating soil erosion by planting 43 million of trees from 2019. It also includes help for private forest owners to plant fruit trees on their private lands. This national programme is also coordinated with part of the UNDP programme for Algeria 2023-2027 (United Nation Development Program, n.d.).

In Algeria, as in Egypt, the government also aims to develop agricultural research. It is dynamic in terms of national and international grants such as PRIMA.

As a summary, although there is no clear strategy for agroforestry and diversified agricultural systems, the Algerian government is committed to developing its rural areas through the development of sustainable agriculture. The country is also actively working to restore its forests and is committed to a long-term development strategy with the UNDP.

EGIPTIAN CASE STUDY

In Egypt, agricultural policy is primarily framed within the Egypt Sustainable Development Strategy to 2030 and Egypt Vision 2030, with a strong focus on economic development, food security and rural livelihoods (*Egypt Vision 2030*, n.d.). The overarching objectives emphasise poverty reduction, job creation, improved productivity and the development of agricultural value chains, rather than the explicit promotion of agroforestry or diversified farming systems.

The Egypt Sustainable Development Strategy 2030 aims to modernise Egyptian agriculture by increasing productivity, improving land and water-use efficiency, and ensuring food security for strategic crops. The strategy highlights programmes such as Agriculture Vertical Development

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(increasing productivity per unit of land), the Integrated Agricultural Guidance Programme for Agricultural Villages, and the Smart Climate-Change Strategy, which focus on improved crop management, the adoption of new varieties, technical recommendations and productivity gains. Overall, these programmes emphasise productivity improvements and resource-use efficiency as key pathways to agricultural development and rural livelihood enhancement.

Egypt Vision 2030 places agriculture within its economic development pillar, notably through programmes focused on the development of agricultural areas, agro-industrial value chains, storage and logistics infrastructure, fisheries, and livestock and poultry production. Measures such as the establishment of collection points, storage facilities and agro-logistics hubs aim to reduce inefficiencies in agricultural supply chains and improve market access, but do not explicitly promote agroforestry or crop–livestock integration.

While issues related to climate change and water scarcity are addressed at a strategic level, particularly through water management and land expansion policies, agriculture is not explicitly framed as a key component of environmental or climate mitigation strategies within Vision 2030. As a result, Egypt's current policy framework does not articulate a dedicated strategy for agroforestry or diversified agricultural systems, but rather prioritises productivity, value-chain development and food security objectives.

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Chapter 3: TECHNICAL, SOCIAL, ECONOMIC, AND POLITICAL CHALLENGES FOR MEDITERRANEAN AGROFORESTRY AND DIVERSIFIED AGRICULTURAL SYSTEMS ADOPTION

The adoption and development of agroforestry and diversified agricultural systems implies profound changes in the rural communities. Despite the benefits and the increasingly favourable regulatory context (chapters 1 and 2), the adoption of agroforestry and diversified agricultural systems faces very relevant challenges, which are analysed in this chapter. In order to obtain valuable information for this analysis, 138 semi-structured interviews or meetings were conducted at regional, national and supranational levels in the five countries studied. The information was obtained through private meetings conducted by the different partners of the TRANSITION project. Each meeting was structured by the same questionnaire, jointly developed by the consortium. As a result, the main technical and social challenges in terms of access to knowledge and technical advice, culture, time scale, lack of agroforestry model systems, and seedling supply are analysed in this chapter. In addition, economic challenges such as the high cost of investment and the uncertainty of funding over time, the difficulty of understanding the legal framework and the complexity of bureaucratic processes, access to the market and price fluctuations, the difficulty of knowing and accessing existing financial subsidies, and access to land tenure are also addressed together with the political challenges including the timing of political agenda, lack of knowledge and recognition, involvement of the private sector, and the challenge of bureaucracy.

3.1. Technical and social challenges

3.1.1. The access to knowledge and access to quality technical advice challenge

Difficulties in accessing technical advice on diversified agricultural systems and agroforestry were identified in all the countries studied for the TRANSITION project. Public institutions involved in agriculture usually lack advisors specialised in diversified agricultural systems and agroforestry. In many cases, farmers have to seek information themselves or through local associations.

In Algeria, for example, there is no specific training and knowledge programme dedicated to agroforestry or diversified agricultural systems. However, there is a programme initiated by the Ministry of Agriculture for farmers and managers of agricultural administrations and young investors to improve and update their knowledge in agriculture, this programme is called PRCHAT (human capacity building and technical support programme) (Ministère de l'Agriculture et du Développement Rural Algerie, n.d.). In addition to this programme, other technical or research institutes, as well as

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the Chamber of Agriculture, also organise technical or demonstration days in the field for farmers, focusing on different areas of expertise. Unfortunately, the concept of agroforestry is not yet widely disseminated within the farming community. The aim of the training is to raise awareness and to teach farmers to follow the appropriate technical route to improve their yields and the profitability of their farms.

In the case of Egypt, a major challenge facing the Egyptian agricultural ecosystem is its reliance on traditional knowledge and practices. Due to the difficulties in accessing technical knowledge on agroforestry and diversified agricultural systems, farmers often prioritise their own experience and economic constraints over adopting new or different techniques. This can slow down the adoption of more sustainable and efficient farming practices. In addition, the information on the definition of agroforestry is scarce. Within TRANSITION, addressing knowledge gaps and improving access to technical advice on agroforestry in Egypt has been explored through efforts to strengthen knowledge transfer and build trust with farmers. This includes the development of trust-based connections between research institutions, universities and farmers, notably through small thematic networks linked to platforms such as Landfiles in Spain (Landfiles, n.d.). At their current scale, these networks should be regarded as a pilot initiative and a potential pathway for knowledge exchange rather than as an established knowledge hub. Experiences from other Mediterranean countries, such as Spain, suggest that thematic networks can support the dissemination of agroforestry practices; however, their relevance and effectiveness in the Egyptian context require further assessment, particularly regarding cultural appropriateness, trust-building processes and existing advisory structures.

In the northern Mediterranean region, France has become increasingly active in the field of agroforestry over the last decade, with the involvement of independent technicians and numerous local associations. This interest was already reflected at policy level with the launch of a national plan by the French Ministry of Agriculture in 2015 (Plan de développement de l'agroforesterie), demonstrating early political awareness of the potential benefits of agroforestry (Ministère de l'Agriculture, de l'Agroalimentaire et de la Forêt, 2015). However, the fact that this plan has not fully achieved its objectives after nearly ten years also illustrates that policy recognition alone is not sufficient to ensure widespread implementation.

At operational level, networks such as the AFAC Agroforestry Network have brought together around 400 local associations working on agroecology and agroforestry projects across France (*AFAC Agroforesteries*, n.d.). In parallel, the RMT (Resau mixte technologique, mixed technology network)

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AgroforesterieS, established in 2014 and renewed in 2025 for an additional four years, has played an important role in strengthening national-level networking among advisors, researchers and agricultural educators through regular meetings and exchanges, although it was not specifically targeted at farmers.

Despite these initiatives, the analysis highlights persistent fragmentation among actors, with many local associations and independent structures operating in parallel rather than in coordination. This makes it difficult for farmers to identify appropriate interlocutors and access tailored technical advice. Interviews conducted for this study also confirm a shortage of technical advisors specialised in agroforestry in France. To address this gap, the French Agroforestry Association (AFAF) has established a dedicated training school for agroforestry technical advisors (EFA), aimed at strengthening skills, facilitating data and practice exchange, and improving territorial coordination (*Ecole Française d'Agroforesterie*, n.d.). In addition, AFAF has recently launched a national network of independent agroforestry technicians to enhance professional networking and increase the visibility of agroforestry among public authorities. Nevertheless, limited public funding for technical support—compared to higher levels of support for inputs and supplies—continues to constrain the development and agronomic impact of agroforestry systems.

In Italy, there is a considerable gap between the northern and southern regions. In Sicily, the region involved in the TRANSITION project, knowledge of agroforestry systems was found to be limited, and the public sector did not seem to be aware of them. In the north, on the other hand, these systems are more widespread, with many productive farms and even more support from local extension services and institutions. An important role is assumed by the Italian Agroforestry Association (AIAF), which aims to provide guidelines and general information for the assessment, design and management of agroforestry systems (*Associazione Italiana Di AgroForestazione (AIAF)*, n.d.). In December 2023, the association organised the 1st National Agroforestry Forum with the aim of bringing together farmers, researchers and associations involved in agroforestry.

Over the years, Spanish actors have experienced difficulties in accessing detailed knowledge for a successful plantation management over the years. In the Spanish case, there are some measures under the CAP for technical assistance and assessment of climate change adaptation and mitigation in some sectors (such as fruit and vegetables or wine), but not specifically for agroforestry training. There are measures for knowledge transfer (not specific to agroforestry) as well as for machinery investments. However, these measures do not address the feeling of many farmers that they are alone

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in making the ecological transition on their farm. In Spain, there is no public institution dedicated to technical advice or training on agroforestry systems. However, there are some vocational agricultural schools that offer training courses in agroforestry systems, and various research and transfer institutions involved in agroforestry projects that seek to promote the knowledge exchange in this sector (*Escola Agraria de Manresa*, n.d.). In addition, the TRANSITION project has created a thematic social network group that promotes the networking of agroforestry farmers in the Iberian Peninsula. This group is called "Community of Agroforestry Systems and Mixed Farming" (Comunidad de Sistemas Agroforestales y Cultivos Mixtos) and has been created on the Landfiles platform. Access is open and free. The platform allows members to post, react, comment, and share information, questions and challenges about their land and farms, including research, studies, images, reports, and experiments. The group has 142 members (17/06/2024) including a wide variety of geographical areas and agroforestry system configurations. In addition to functioning as a thematic social media, this platform organises a quarterly webinar with all members. Since May 2024, it has been the representative member of Spain in the European Agroforestry Federation.

In conclusion, the lack of sufficient technical advice to help farmers implement new sustainable agricultural practices is observed across all studied countries. Some countries have established national agroforestry associations or structured networks, including France, Italy and Spain (currently not active at operational level), although their level of institutionalisation and capacity to provide widespread technical support varies. Strengthening coordination mechanisms and advisory capacity remains a key issue for scaling up agroforestry and diversified agricultural systems.

In the near future, strengthening advisory capacity will require the development of specialised training programmes for technicians working on agroforestry systems. In parallel, improved coordination and networking among existing advisory services and technical units is needed to facilitate the wider implementation of agroforestry practices and to reduce territorial inequalities in access to technical support within the same country. In addition, integrating technical advisory services into public programmes that already support agroforestry practices would help ensure consistency between policy incentives and on-farm implementation. Providing practical examples, validated technical guidelines and policy-endorsed information through recognised institutions could further support farmers' decision-making and adoption processes.

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3.1.2 Cultural challenges

One of the main challenges identified in the five countries studied relates to the cultural environment of the rural communities. Changing farming practices to a new model is seen as a risk by many farmers. Changing from monoculture or low-diversity systems to diversified agricultural systems or agroforestry means adopting a new model that contrasts with prevailing agricultural practices, which can lead to incomprehension from neighbouring farmers. Conversely, there is also a cultural judgment from society towards many farmers who are aware that their practices could be improved and are willing to change but are still marginalised because of their intensive agricultural practices.

For example, in the region of Catalonia (Spain), literature and field work confirm the growing interest in agroforestry systems but reveal that such systems are not well known by local farmers, which partly explains why their development is not yet mature at regional level (Coello Gómez et al., 2019; extensius.cat, 2022). As another example, in France, pilot farms have been set up in many areas to pioneer agroforestry, but farmers are not aware of their existence.

In summary, the cultural environment poses significant challenges to the adoption of new agricultural practices mainly due to cultural judgement and limited knowledge of agroforestry and diversified agricultural systems. Limited knowledge sharing seems to be at the heart of this challenge.

Several options and proposals can be considered to address this challenge. First, raising awarenessand education about the benefits and practices of agroforestry and diversified agricultural systems is crucial. This can be achieved through targeted information campaigns, farmer workshops, and demonstration projects that showcase successful transitions. Establishing farmer-to-farmer networks can also facilitate the exchange of experiences and best practices, helping to reduce the perceived risks associated with new farming models. Second, fostering community support and understanding is essential. Encouraging dialogue within rural communities about the long-term benefits of sustainable practices can help mitigate cultural resistance. Local governments and agricultural organisations can play a key role in facilitating these conversations and providing platforms for community engagement.

3.1.3. Time scale challenges

Time also represents a major challenge in all the five countries studied. The introduction of diversified agricultural systems and agroforestry takes several years to produce its first positive effects, while

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trees and soils mature. Nevertheless, farmers and most sectors involved in the food supply chain are dealing with short-term urgencies.

For example, most people interviewed in Egypt said that the main concerns of farmers were short-term perspective and related to the unpredictability of incomes and the effects of climate change. These immediate challenges have hindered their ability to take a longer-term perspective. The short-term needs of Egyptian rural communities have forced them to resort to using mineral fertilisers and biostimulants for their crops, rather than being able to embrace a more sustainable approach to farming. When assessing the impact of climate change on agriculture, it's essential to consider the additional challenges faced by Egyptian rural communities. These challenges include a lack of government-provided information, coordination with farmers, and guidance on adapting to climate change, among other factors. These limitations reduce their adaptive capacity and have implications for the agricultural sector and its workforce (Hafez, 2020).

This short-term focus and related challenges do not only seem to appear in Egypt but are also prevalent in the other countries studied. Farmers in different regions face similar pressures and constraints, suggesting that the issue is more related to the immediate needs and economic pressures faced by farmers than to specific national contexts.

Providing short-term financial incentives can help farmers cope with the initial costs and risks associated with switching to sustainable practices. In addition, strengthening government and institutional support by providing reliable information, coordination, and guidance on climate adaptation and sustainable practices is also essential to promote long-term sustainability.

3.1.4. Lack of agroforestry and diversified agricultural systems model systems

The development and dissemination of agroforestry model systems face significant challenges. While progress has been made in implementing these sustainable practices, lack of visibility and awareness remains a major barrier. Many farmers are unaware of the existence and benefits of agroforestry, limiting its widespread adoption. This challenge has been identified in Algeria, France, Italy and Spain

In France, for example, pilot farms have been set up in many areas to pioneer agroforestry, already 20-25 years ago. However, they are few and do not receive much publicity from public institutions. Many farmers living nearby are not even aware of the existence of different agricultural models near their farm.

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Many actors from the research sectors are involved in producing accessible knowledge, and easy-to-understand technical guides including the economic aspects of agroforestry and diversified agricultural systems model. An example is the "Adaptation measures to climate change in the middle mountain Mediterranean: a practical guide" published by the MIDMACC LIFE project and aimed directly at farmers. This guide develops a clear set of adaptation measures for farmers in order to mitigate climate change. It goes from a medium- term climate forecast to an economic analysis with direct expected results of implementing new agro-ecological practices (MIDMACC Project, 2023). French Agroforestry Association is also committed to popularizing agroforestry knowledge. To this end, it regularly publishes technical publications aimed directly at farmers. The latest one, published in May 2024, is about "agroforestry poultry routes". It presents a complete analysis and concrete examples of farms that have already made the transition to agroforestry, with concrete results in terms of productivity, biodiversity and animal welfare (Agroforesterie Association Francaise, 2024).

In conclusion, the successful development and implementation of agroforestry model systems depend on overcoming challenges related to visibility and awareness. While progress has been made, much work remains to be done to make these sustainable practices widely known and understood.

Increasing visibility and providing accessible knowledge through research and technical guides can encourage more farmers to switch to these efficient and sustainable farming systems. Efforts to popularise agroforestry practices and demonstrate their economic and environmental benefits are essential to encourage wider adoption and implementation.

3.1.5. The seedling supply challenge

Another challenge faced for the development of agroforestry and diversified agricultural systems is the tension in the seedling supply market. Access to quality and affordable seedlings is not always easy and limits many farmers from taking action.

In Algeria, France and Italy the study shows that the development of diversified agricultural systems and agroforestry is partly limited by the shortage of plants produced by nurseries. The demand for plants for agroforestry systems is not met at local level in Algeria, France and Italy.

In France, farmers even buy plants from other countries while the number of nurseries is still decreasing over the years. The reason for this situation is a 22% decrease in the production of the forest plants between 2017 and 2021 (valhor.fr, n.d.).

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For its part, Algeria has launched a national forest plantation programme and a programme for the development of fruit trees aiming to reach 350.000 ha of indigenous fruit trees (pistachio, almond, apricot, plum, cherry, pomegranate, and fig) by 2024 with the planting of 515.000 trees. At the same time, however, members of the Algerian Chamber of Agriculture and Agricultural Services testify to the lack of plants available to farmers.

The situation in Italy is also varied. There are some tensions in the supply market for forest trees, but the demand for fruit trees is always met. This is explained by the fact that the region of Sicily has a long history of fruit tree nursery production and is able to meet the demand in the country.

Overall, constraints related to plant material, nursery supply, and market pricing mechanisms emerge as critical issues in four of the five regions studied.

To ensure the quality and quantity of seedlings, the supply market may need to adapt rapidly to meet the growing demand. Farmers and agricultural stakeholders need to work together with nurseries to match supply with growing demand. In addition, self-propagation of plants could be encouraged to avoid extreme dependence on suppliers.

Table 1. Technical and social challenges for the adoption of agroforestry and diversified agricultural systems in the Mediterranean. Coloured cells indicate that the country has identified the challenge as relevant for its context.

TECHNICAL AND SOCIAL CHALLENGES	COUNTRY				
	Algeria	Egypt	France	Italy	Spain
Difficulty in accessing to a technical knowledge and support to implement agroforestry and diversified agricultural systems					
Cultural acceptance of new practices					
Time scale					
Lack of agroforestry and diversified agricultural systems model to farmers and lack of demonstration and experimental plots					
Not enough plants produced to meet the demand					

3.2. Economic challenges

3.2.1. High cost of investment and uncertainty of the financial opportunities toward times

Implementing an agroforestry or a diversified agricultural system on a farm always requires an initial investment by farmers. This is one of the main economic challenges faced by farmers in all five

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countries. There are different costs considered by the participants in the current study: the cost of planting trees (seeds or plants, protection, mulching), the cost of maintaining the trees (weeding, pruning), the cost of technical support and sometimes the cost of various machines to prepare the soil or the farm environment and to manage two or more different productions, in addition to the cost of time or labour.

In France, for example, a study carried out by the National Chambers of Agriculture shows that the cost of a tree in an agroforestry project lies between €14 and €40, including technical support. Considering an average density of 30–50 trees per hectare, the total number of trees per farm depends on the area converted to agroforestry and can represent a substantial upfront investment. (Chambres d'agriculture, 2015). This is a high initial investment compared to traditional monoculture systems. As another example, in Algeria, the high cost of seeds was highlighted as a challenge in the adoption of agroforestry and diversified agricultural systems. In summary, the high investment costs and financial uncertainties associated with implementing agroforestry or diversified agricultural systems pose significant challenges for farmers worldwide. These systems require initial investment in tree planting, maintenance, technical support, and sometimes specialised machinery, as well as considerable labour. The financial burden is exacerbated by uncertainties about returns to investment over time. This problem is widespread across various countries and highlights the need for targeted strategies to reduce costs and improve financial viability for farmers exploring sustainable agricultural practices.

To address this challenge, governments and agricultural institutions should provide financial incentives, such as subsidies, grants, and low-interest loans, specifically tailored to the implementation of sustainable agricultural practices. These incentives can help offset initial costs and reduce financial risks for farmers. In addition, promoting cooperative initiatives and farmer networks can facilitate resource sharing, bulk purchasing of materials such as seeds and machinery, and collective bargaining for technical support services, thereby reducing individual financial burdens.

3.2.2. Difficulty in understand the legal framework and complexity of bureaucratic processes

Legal frameworks tend to mix general concepts and views with technical approaches and specific concepts, making them difficult to understand for many farmers and civil society in general. In addition, legal frameworks and economic opportunities are managed by different levels of public authorities from local, regional, national, and supranational perspectives, adding to their complexity. This challenge was identified in all countries studied.

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Stakeholders interviewed in France, Italy and Spain emphasise that the complexity and limited accessibility of the Common Agricultural Policy (CAP) framework hinder the uptake of diversified agricultural systems and agroforestry practices. The national strategic plans for the CAP 2023-2027 are estimated to be at least 700 pages long. It is understandable that within such a large programme there are many modalities to get financial support for farmers who want to implement diversified agricultural systems and agroforestry, both in Pillar I and Pillar II. Meanwhile, it is also understandable that many farmers get lost in such a large programme. To respond to these fears, AFAF has published a detailed brochure which synthetizes the CAP 2023-2027 opportunities and explains how a farmer can add value from trees of his farm while doing his CAP annual declaration in May (Agroforesterie Association Francaise, 2022). In the same way, a joint study of the Spanish Agroforestry Policy working group, in which the TRANSITION project participated, published the "Agroforestry systems in the Spanish CAP Strategic Plan: analysis and reflections", which explains in detail the situation of agroforestry systems in the Spanish CAP Strategic Plan (Bertomeu et al., 2024).

In addition, the excessive and slow bureaucratic procedures for obtaining the CAP funding were highlighted as one of the main barriers to agroforestry and diversified agricultural systems. In Italy for example, the delay in obtaining a public subsidy to invest in the agroforestry programme can take months or years, discouraging some farmers from starting to develop their project. In Spain, the study shows that in the CAP programme, even some of the staff applying it have doubts about how to apply it, as some measures could be contradictory (e.g. support for maintaining or installing hedges could lead to reduced eligibility).

The complexity of the public legal frameworks in the European countries and the difficulties associated with the bureaucratic systems are barriers for farmers to develop agroforestry and diversified agricultural systems. Nevertheless, there are many existing financial opportunities in these countries, and the challenge will be to make them known and to make it easier to apply for funding.

In Algeria, there are support schemes for agriculture in general through several support programmes under the FNRDA (National Fund for Agricultural Regulation and Development). In this case, it supports some crops that are considered strategic (cereals, milk, apples, hardy trees, etc.). However, the bureaucratic apparatus and the banking system are the main obstacles for farmers. In addition, the distance of farmers living in rural areas from the cities (headquarters of administrative structures) is a concrete obstacle for Algerian rural communities to be aware of the government's national programme and to have access to technical information and knowledge. The isolation of the Algerian

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farming community and the weak cooperation between public agricultural structures and the farming community is the main problem to be addressed in this country.

The Egyptian agricultural system has always faced challenges in navigating the complex legal framework and identifying relevant economic opportunities. Legal documents and regulations often combine general concepts with technical terminology, making them difficult for the average farmer to understand. Interviews with a wide range of stakeholders revealed a worrying gap between the existing legal framework and the real challenges faced by farmers and the agricultural ecosystem. The focus is primarily on credit schemes and access to water, neglecting crucial areas such as sustainable practices, market access and technological advances.

In summary, the complexity of the regulatory frameworks and bureaucratic processes poses significant challenges to farmers worldwide and hinders the development of agroforestry and diversified agricultural systems. Regulatory frameworks often mix general concepts with technical intricacies, making them difficult for farmers to understand and navigate effectively. Furthermore, these regulations and economic opportunities are managed at different levels of government, from local to international, further complicating the landscape.

Within the TRANSITION project, the participatory approach implemented offers a potential contribution by connecting farmers with agri-tech and ecosystem management start-ups, environmental policy developers, and research institutions. This 'helix of engagement' promotes collaboration and knowledge sharing, potentially leading to more practical solutions for farmers. By facilitating this collaboration and promoting a more transparent regulatory framework, TRANSITION could empower farmers to navigate the complexities of the system and capitalise on economic opportunities.

3.2.3. Market access and price fluctuations

Access to markets and price fluctuations create medium-term uncertainty that can discourage some farmers from changing their practices. In the case of agroforestry and diversified agricultural systems, this uncertainty is linked both to delayed or progressive production during the transition phase and to difficulties in accessing stable or differentiated markets capable of valorising these systems. As a result, farmers may face several years of adaptation before reaching productivity levels comparable to conventional systems, while lacking guaranteed market outlets or price premiums. This challenge was directly identified in Algeria, Egypt, France and Spain.

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This can be seen in Egypt and Algeria where farmers do not have the guarantees by the CAP programme and are directly dependent on a globalised market supply chain. In Egypt, the main problem is the uncertainty of market prices. They suffer from a large price fluctuation, also linked to the global market for crops destined for export. Climate change and variations in the rainy season also affect productivity, so that supply does not always match demand, leading to price fluctuations and speculation. In Spain, the study shows that the short-termism of markets and large food distributors are identified as obstacles to the development of this type of agriculture. Short-termism and the uncertainty of prices in the long term can prevent some actors from entering diversified agricultural systems and agroforestry practices, which require a medium-to-long-term perspective before becoming productive.

Furthermore, agroforestry and diversified agricultural systems are still perceived within some farming communities as unprofitable for farmers. This perception was reported by several stakeholders interviewed, particularly in Spain and France, and is also shared by some farmers themselves. Such perceptions can negatively affect the image of agroforestry and diversified agricultural systems as viable options for agricultural production. However, this view appears to be gradually changing, supported by a growing body of studies indicating that, under certain conditions, diversified agricultural systems and agroforestry can achieve comparable or improved performance in terms of productivity and overall system outcomes (Beillouin et al., 2021; Bolinder et al., 2020; Gracia et al., 2021).

In summary, a key issue to motivate farmers to make deeper changes is the access to and guarantee of good stable market prices. It is also important to make it easy for farmers to understand that diversified agricultural systems and agroforestry can be as productive as conventional systems. The challenge for public and private actors is to make this knowledge accessible.

To address these challenges, the establishment of market stabilisation mechanisms or price insurance programmes can provide farmers with more predictable and stable incomes, reducing uncertainty and incentivising transitions to sustainable practices. Governments and agricultural organisations should work together to develop policies that mitigate the impact of global market fluctuations on local agricultural economies. Investing in research to quantify and communicate the environmental and economic benefits of these systems, together with the development of clear branding and labelling strategies, could help differentiate products from agroforestry and diversified agricultural systems and enable access to higher value markets and price premiums.

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3.2.4. Difficulty to know and get access to existing financial subsidies

In the context of agricultural policies and funding frameworks, the availability and allocation of financial resources for agroforestry projects emerge as a critical issue in different regions. Within the European Union, variability due to territorial scope can lead to uncertainties in public support for agroforestry initiatives over time, as budgets may be reallocated based on changing priorities. Similarly, in Algeria and Egypt, stakeholders note a lack of public and private funding opportunities for agroforestry, leaving farmers dependent on loans, which often exclude smaller farms and perpetuate financial dependency.

For the European countries, the CAP 2023-2027 has opened budget lines for productive and nonproductive investments through the EAFRD (European Agricultural Fund for Rural Development). Nevertheless, the approval of financial instruments remains at the discrepancy of national and regional decision-makers. Moreover, this regional decision on the eligibility of European funds also makes public support for investment dependent on local political decision-makers. For example, a regional authority may open a budget for programmes supporting agroforestry, but in the following government period this may disappear. Overall, the long-term perspective and public support from European funds are not guaranteed within the European territories.

As another example, Algerian and Egyptian stakeholders interviewed confirm that public and private funds to support farmers in agroforestry systems are almost non-existent. The only way for the farmers to invest is to obtain a loan from public or private institutions. This method essentially limits the smallest farms with lower incomes and promotes financial dependency for the farmers.

In summary, the low level of incentives and development funds for agroforestry in the study areas is a key factor in understanding why these agricultural systems struggle to reach a wider range of actors. In addition, the short-term nature and uncertainty of funding for agroforestry projects further limit their development and scaling over time.

The challenge to be addressed is to integrate agroforestry practices into the set of public and private funding programmes that farmers use to develop their farms. In addition, these subsidies need to include several years of monitoring and include technical advice in order to develop quality projects and positive long-term impacts.

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3.2.5. Access to land tenure

Access to land tenure is a major challenge for farmers exploring diversified agricultural systems and agroforestry. In Spain and Algeria, farmers face barriers related to land tenure and management. For those working on rented land, uncertainty about long-term benefits and the landlord's commitment to sustainable practices can deter investment in agroforestry systems. Meanwhile, acquiring new land to expand agricultural operations remains prohibitively expensive and can generate local conflicts over land access and competing land uses.

The Spanish study highlights structural constraints related to land tenure. Farmers operating on rented land report limited capacity to invest in agroforestry systems, as the long-term nature of these practices contrasts with the uncertainty of short-term lease arrangements. This creates tension between landowners and tenants, particularly when landowners are not directly involved in the implementation of agroforestry systems. Given that current lease contracts often have a minimum duration of seven years, stakeholders indicate that longer lease periods would be necessary to enable tenants to implement and benefit from agroforestry practices.

In another example, in Algeria, the study highlights that the high cost of accessing land is a major challenge for many farmers. In this region, the average farm size remains small (around 8 ha), with the persistence of family-based and traditional agriculture. Limited land availability constrains farmers' capacity to experiment with new practices that require longer-term planning and spatial flexibility, such as agroforestry systems. In some cases, expanding the cultivated area or gaining access to additional land could facilitate the integration of trees or diversified practices, but this is strongly limited by investment capacity.

In addition, in Algeria, conflicts within communities over access to land have been reported, as only around 19% of the national territory is currently used for agricultural production, while the remaining land is largely occupied by desert areas, rangelands, forests, urban zones or protected areas. In this context, land tenure security and access to land remain major challenges to be addressed in order to support the development of new agricultural models, including agroforestry and diversified agricultural systems (Algerie Eco, 2021).

These challenges highlight the need for policies and initiatives that facilitate secure land tenure arrangements, promote sustainable land management practices, and support farmers in accessing and effectively using land over sufficiently long timeframes to implement innovative agricultural practices.

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To address the challenges posed by limited access to land ownership and insecure tenure arrangements, governments and stakeholders should prioritise policies that promote secure land tenure and encourage longer-term lease agreements conducive to sustainable agricultural practices. In contexts where minimum lease durations are limited (e.g. five to seven years in the Spanish case), such timeframes may be insufficient for the establishment and economic viability of agroforestry systems, which require longer planning horizons. Incentives such as tax breaks or subsidies for landlords and tenants engaged in agroforestry and diversified agricultural systems could encourage greater participation and investment. In addition, promoting dialogue and mediation processes within communities can help resolve conflicts over access to ensure a fair and equitable distribution of agricultural resources. Promoting farmers' access to abandoned land could also help to address this challenge.

Table 1. Economic challenges for the uptake of agroforestry and diversified agricultural systems in the Mediterranean. Coloured cells indicate that the country has identified the challenge as relevant for its context.

ECONOMIC CHALLENGES	COUNTRY				
	Algeria	Egypt	France	Italy	Spain
High investment costs					
Difficulty to understand the legal framework and complexity of bureaucracy					
Market access and price fluctuations					
Difficulty in understanding and accessing existing financial support					
Access to land ownership					

3.3. Political challenges

3.3.1. The timing of the political agenda

The development of a new agricultural model requires a long-term vision and needs therefore to be placed at the centre of the political agenda. This means facing short-term priorities that are sometimes contrary to the interests of adopting agroforestry and diversified agricultural systems. This is a challenge identified in the five countries studied. In many cases, public decision-makers do not take into account the long-term agenda that the implementation of diversified agricultural systems and agroforestry would require.

A clear example is the 2021 French programme "plantons des haies" (let's plant some hedges) which aims to plant kilometres of hedges throughout the French territory. This programme will be complemented in 2024 by the "Pact in favor of hedgerows" which aims to plant 50.000 km of hedges

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(Ministère de l'Agriculture et de la Souveraineté alimentaire, 2023). The idea is clearly a step forward for agroforestry. However, the specification does not require any technical monitoring. As a result, some farmers have been subsidised to plant some hedges but are not obliged to monitor the planting. This situation has led to a high percentage of dead bushes after the summer heat of 2022. In addition, the payment of such subsidies has been also slowed down by administrative inertia, which has led to some fraud within the agricultural sector. The idea of a massive, subsidised plantation is a real step forward for the development of agroforestry in France, but the programme needs to be more specific and stricter in its requirements in order to be more efficient and to have a real impact, rather than showing some big numbers for communication purposes. To tackle this problem, the full payment of the grant could be made dependent on the tree survival rate a few years after planting.

In spite of programmes that run until 2027 or 2030, there is a need to adopt and follow a long-term policy. For the large-scale adoption of diversified agricultural systems and agroforestry, decision-makers need to draw a line in the sand and stick to it despite changes in government and administration. In France, for instance, the national agroforestry development plan (Plan de développement de l'agroforesterie) was launched in 2015 under the Ministry of Agriculture, reflecting early political ambition in this field; however, this momentum progressively weakened under subsequent administrations, with shifting priorities such as food sovereignty.

More recently, farmers' demonstrations in the spring of 2024 led the French government to drop some legal measures originally adopted in the French CAP National Strategic Plan targeting on-farm biodiversity. These mobilisations also underline that the agricultural sector can be reluctant to change in some cases, but that a stable and long-term vision led by public authorities could help to overcome this challenge.

The Spanish study also highlighted the need for funded projects with a long timeframe (more than one or two years) and more fundings for monitoring these specific projects. However, there are some regionally funded projects with a long-term approach, such as the "Resilient Agroforestry Landscapes" in Catalonia (Generalitat de Catalunya, n.d.), which aims to restore the mosaic of agroforestry landscapes that allow for environmental, social, and economic balance and resilience to global change. This objective involves promoting local natural resources and supporting a rural development model that integrates the needs of the territory. This programme is derived from some Catalan strategies that promote agroforestry systems and are long-term strategies (e.g., the Bioeconomy Strategy of

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Catalonia 2030, the Rural Agenda 2030, the Catalan Strategy of Adaptation to Climate Change 2030, etc.).

In Italy, the complexity of the measures related to agroforestry in the previous CAP programmes might have led to the lack of interest of farmers in many regions. There is a need for a clearer policy agenda with a better framework of subsidies and a precise explanation of the meaning of agroforestry.

In Algeria, diversified agricultural systems are widely practiced, particularly in the Sétif region, historically recognised as a major cereal-producing area. In this region, diversification is already structurally embedded in farming systems and therefore does not constitute a current policy priority. However, this situation contrasts with other parts of the country where such systems remain poorly developed. This territorial imbalance highlights that the need for policy support is not uniform across Algeria: while Sétif illustrates the feasibility and consolidation of diversified practices, other regions would require targeted institutional incentives and technical support to foster their development.

A major challenge in Egyptian agriculture is the tension between short-term political agendas and the need for a long-term vision. The current political agenda prioritises food security, particularly wheat production. This focus translates into policies and credit programmes that are heavily skewed towards wheat production. While wheat security is undoubtedly important, this focus creates a narrow vision and needs to include the potential of more sustainable and resilient farming systems. Agroforestry and diversified agricultural systems, with their environmental benefits and potential to improve soil health and water management, should be included in national plans. The need for pathways and support structures for these practices hinders their adoption by farmers.

In summary, addressing the complexities of implementing agroforestry and diversified agricultural systems requires a shift from short-term political agendas to sustained, long-term commitments across countries. In some cases, the pressure to ensure immediate food security or prioritise conventional agricultural practices often overshadows the potential of more sustainable approaches such as agroforestry and diversified agricultural systems. This dichotomy is evident in the fluctuating support for agricultural diversification initiatives, which face hurdles ranging from bureaucratic inertia to inconsistent funding allocations.

To overcome this challenge, initiatives that advocate for the integration of agroforestry and diversified agricultural systems into national plans are essential. In addition, linking ongoing projects with policy makers for maximum impact can help balance the critical objectives of food security, water

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sustainability, and environmental resilience. Through consultation and planning efforts, different stakeholders can push for the inclusion of these sustainable practices in national agricultural strategies. This strategic alignment of food security goals, water budgets, and environmental considerations can pave the way for a more balanced and long-term vision for agriculture, demonstrating the compatibility of food security and sustainable practices.

3.3.2. Limited knowledge and recognition of agroforestry and diversified agricultural systems

Despite a recent and growing development, in some cases diversified agricultural systems and agroforestry are not recognised by policy makers as an agricultural concept, a proper field of study that requires specific attention. This challenge has been identified in Algeria and France.

This situation has two main consequences. The first is the limited availability of specialised expertise within agricultural institutions, from local to European level. In France, for example, there are 14 regional Chambers of Agriculture, some of which rely on only one or two technicians with specific expertise in agroforestry. While this represents an initial capacity, such limited staffing constrains the ability to provide widespread technical support and to scale up agroforestry practices.

A further consequence of the limited institutional structuring and formal recognition of the agroforestry sector is the absence, in some contexts, of a clearly identified and authoritative representative body to engage with policy makers on agroforestry and diversified agricultural systems. As a result, policy discussions are often dominated by government authorities and long-established agricultural organisations, whose priorities and expertise may not systematically encompass the specific technical, economic and regulatory challenges associated with agroforestry.

Despite recent progress, the recognition of diversified agricultural systems and agroforestry as distinct agricultural concepts requiring specific attention remains insufficient in many policy circles, as observed in France and Algeria. This situation has two main consequences. Firstly, agricultural institutions at local and regional levels often lack the necessary expertise and capacity to support the development of these practices. At European level, dedicated organisations such as EURAF play an important role in policy advocacy; however, this level of structured representation is not consistently mirrored at national and sub-national levels.

Secondly, the lack of dedicated focal points for agroforestry and diversified agriculture within many policy-making bodies hinders effective policy development. As a result, initiatives involving tree

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planting often fall under forestry programmes rather than being integrated into agricultural strategies, perpetuating a disconnect between agricultural and environmental policies.

To gain greater institutional recognition, the agroforestry sector would benefit from stronger and more coordinated representation, comparable to that of other agricultural subsectors. While European and national organisations already exist, their visibility and influence within mainstream agricultural and forestry policy frameworks remain limited in some contexts. Strengthening sectoral organisation could help clarify that tree-based actions in agricultural landscapes should not be confined to afforestation *programmes but* also encompass agroforestry systems as productive and multifunctional land-use models.

3.3.3. Involving the private sector

A society is always composed of actors from both the public and private sectors. While public policy makers define regulatory frameworks and incentives, action on the ground is largely driven by private actors, from processing to distribution. The challenge of effectively involving the private sector in the adoption of agroforestry and diversified agricultural systems was explicitly identified in France, Italy and Spain.

In Algeria and Egypt, although this challenge was less explicitly articulated by stakeholders, it appears to be implicitly present, particularly in contexts where public subsidies and support schemes are more limited and where private actors play a central role in shaping production and market dynamics.

An important part of the agricultural sector is partly driven by private-sector actors, including companies, industries, seed suppliers and production cooperatives. It is important to orient all actors towards the introduction of agroforestry and diversified agricultural systems. Developing coordination and finding synergies could accelerate the ongoing process involving individual farmers, the agro-industry and finally the markets. The agro-industry is a large chain of production from the raw material, then industrial transformation and finally the distribution channel. For the private sector too, a commitment to transforming production through a more sustainable agriculture can create a win-win situation.

Some private sector actors interviewed in France, Italy, and Spain emphasise the need to develop carbon markets, carbon farming schemes and biodiversity markets. In France, some actors regret that only a limited number of private companies currently provide financial support for agroforestry

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projects. Nevertheless, developing these emerging markets can represent an opportunity to encourage greater private-sector engagement in the transition of agricultural practices.

Within the French territory, AFAF has led several development projects over the last five years in collaboration with major agri-business companies, including major international agri-business groups (e.g. large dairy and food-processing companies). These companies seek AFAF's expertise to develop agroforestry models on their suppliers' farms, with the objective of creating scalable models that can be extended to other actors within the agro-industry. Since 2020, AFAF has also developed the AFTER fund, dedicated to financing on-farm agroforestry projects in France and supported by private companies and foundations. Despite these initiatives, such private financing mechanisms remain marginal within the broader landscape of agricultural subsidies in France.

In summary, the study shows that public institutions need to work with the private sector to promote the adoption of diversified agricultural systems and agroforestry. Fortunately, many of the actors interviewed for this study show their interest in getting involved to help farming communities change their practices. There is a need to create links between the private and public sectors to encourage private companies to become more involved and to finance on-farm change.

3.3.4. The bureaucracy challenge: a need for administrative simplification

The slowness of bureaucracy is a difficulty identified in each of the five countries surveyed. This challenge was more pronounced in the European countries (France, Italy, Spain) than in Algeria and Egypt. Despite the few integrative policies in the five countries studied, farmers and technical structures have difficulties in obtaining support from public bodies involved working in agriculture in terms of the administrative process.

For European farmers, most of the public subsidies are the CAP measures, which require several administrative procedures. In addition, many funds for the introduction of agroforestry are administered by local and national public structures, which adds complexity and difficulty to the administrative process. In order to receive public subsidies, farmers have to go through a series of administrative procedures that can take a lot of time and effort, and in addition, the reimbursement of payments can take several months.

Stakeholders interviewed in France, Italy, and Spain have explained that many farmers are confused by all the possibilities they can or could apply for, but each subsidy has its own eligibility rules and its

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own rhythm of administrative and financial support. This complexity discourages many of them from applying for a support programme.

Interviews made with Algerian and Egyptian actors, on the other hand, tend to complain about the lack of support that farmers can receive from public institutions. In addition, bureaucratic processes are complex for the farmers to understand and to follow in the long term with public support.

As a recommendation, public support programmes for agroforestry and diversified agricultural systems need to become more effective and reach a larger number of farmers. Strengthening public advisory services, with more trained technicians supporting farmers in navigating complex administrative procedures, would be crucial to achieving this objective. This difficulty in accessing public programmes has been clearly expressed by stakeholders in northern countries (France, Italy and Spain).

In addition, while simplification of administrative procedures remains a key priority, digitalisation alone does not necessarily reduce administrative burden. Without adequate technical support and guidance, digital tools may even increase complexity for some farmers. Therefore, digital solutions should be combined with human support mechanisms if public programmes are to effectively reach farmers on a larger scale.

Table 2. Political challenges for the uptake of agroforestry and diversified agricultural systems in the Mediterranean. Coloured cells indicate that the country has identified the challenge as relevant for its context.

POLITICAL CHALLENGES	COUNTRY				
	Algeria	Egypt	France	Italy	Spain
The timing of political agenda					
Lack of knowledge and awareness					
Private sector involvement					
The challenge of bureaucracy					

Chapter 4: INITIATIVES AND STRATEGIES TO PROMOTE AGROFORESTRY AND DIVERSIFIED AGRICULTURAL SYSTEMS IN THE MEDITERRANEAN RIM

Interest in agroforestry and diversified agricultural systems has increased in recent years in the five areas studied. Each year, new initiatives and public and private support efforts are undertaken to promote these systems. This chapter outlines the initiatives and policies that promote agroforestry

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systems, based on a comprehensive literature review and interviews conducted in each of the countries participating in the TRANSITION project.

Table 3 highlights key policy frameworks and existing initiatives in different regions to promote agroforestry and diversified agricultural systems. Each region uses specific strategies to promote sustainable agriculture, ranging from educational programmes and financial incentives to legislative measures and community-based projects.

The number of initiatives reported varies from region to region, including those under the CAP umbrella. In the northern Mediterranean regions surveyed, opportunities, and initiatives are reported at the regional, national, and supranational levels. In the southern regions, on the other hand, only national policies and initiatives were reported. Algeria did not report any initiatives currently in place which highlights the need for action by policy makers.

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Table 3. Main opportunities (policies) and existing potential initiatives to support the agroforestry and diversified agricultural systems adoption at each of the five study regions.

Country (region)	Main opportunities (policies)	Main existing initiatives with potential to support the agroforestry and diversified agricultural systems adoption
Algeria (Sétif region)	FNDA (National Fund for Agricultural Development) FNDR (National Fund for Rural Development)	n/d*
Egypt (Beheira and Kafr El Sheikh Governorates)	The Egypt Strategy 2030 National Irrigation Management Plan Ministry of Agriculture development loans National Strategy for Agriculture Waste Management Smart Farmer Card	Smart Farmer Card 1 million palm tree initiative in new developed communities The Climate Smart Agriculture Presidential initiative with startups
France (PACA Occitanie)	FEADER MEASURE 4.4 FEADER MEASURE 8.2 Pact in favor of hedgerows for PACA Region Pact in favor of hedgerows for Occitanie Region Hunting Federation Occitanie and PACA for hedgerows financing AFTER fund from AFAF TREE FUND (fond pour l'arbre) from AFAC SAFER PACA fund	French School of Agroforestry (EFA) Verdon Regional national Parc activities toward agroforestry ALVEOLES pilot Farm in Drôme Association CIVAM PACA activities Association AD MED activities
Italy (Sicily)	Regional law 21/2021 for provisions on agroecology, protection of biodiversity and Sicilian agricultural products Rural development programme (CAP) for Sicily, action SRA28	Italian Agroforestry association (AIAF) actions on the territories University of Padova activated a course of study in "Agroforestry systems" April 2024 birth of label "Programme for the Endorsement of Forest Certification (PEFC)" Farming for Future Foundation, Action 8 – Agroforestry
Spain (Catalonia)	Food Strategy of Catalonia 2016-2026 Bioeconomy Strategy of Catalonia 2030 Sustainable Agricultural Production Strategic Plan of Extensive Livestock of Catalonia	Network of Agricultural Test Spaces (national level) Herds of Fire** Registration of disused agricultural and livestock plots (promoting the leasing of disused agricultural and livestock plots for agricultural/livestock activity)

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	National Plan for the Implementation of 2030 Agenda in Catalonia Rural Agenda of Catalonia 2030 Strategy for the Sustainable Development of Catalonia Catalan Strategy for the adaptation to climate change General Plan of Forestry Policy Strategy to promote the energy utilization of forest and agricultural biomass Natural Heritage And Biodiversity Strategy Of Catalonia 2030	

*n/d: No existing initiatives reported.

** This refers to forest pastoralism. This type of system is not studied in the project.

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Chapter 5: POLICY PRIORITIES FOR PROMOTING AGROFORESTRY SYSTEMS AND DIVERSIFIED AGRICULTURAL SYSTEMS

This chapter focuses on proposing and detailing priorities for the promotion of agroforestry systems. Table 4 summarises the 21 proposals identified through stakeholder interviews and the research carried out by all project partners. Most of these proposals (18 out of 21) are shared between the northern and southern study regions, while only two were specifically selected by northern countries and one by the southern region. The proposals address a wide range of topics, including knowledge dissemination, economic viability, technical support, networking, financing, market development, land management and research.

Overall, the proposals highlight the importance of collaboration between different stakeholders—such as farmers, technical advisors, public authorities and private-sector actors—to promote sustainable agricultural practices. They cover actionable recommendations related to market access, economic sustainability, knowledge transfer, technical support, access to finance, bureaucratic simplification, networking and collaboration, private-sector involvement, research programmes and land tenure issues.

Table 4. Strategies and initiatives to support agroforestry and diversified agricultural systems Adoption Across Different Regions and at different levels (regional, national, supranational). Colored cells indicate that the proposal was identified as relevant for both (north and south), only for northern or only for southern studied regions of the Mediterranean basin.

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N°	Proposal	Territorial scope	supporting region
1	Promote diversified agricultural systems and agroforestry through existing public institutions that already have links with many farmers	Regional	N-S
		National	N-S
		Supra-national	N-S
2	Popularise models demonstrating that diversified agricultural systems and agroforestry are economically viable and sustainable over the long term	Regional	N-S
		National	N-S
		Supra-national	N-S
3	Guarantee direct market access and price stability for production	Regional	Nd*
		National	N-S
		Supra-national	N-S
4	Publish and disseminate practical and technical knowledge on diversified agricultural systems and agroforestry models at a larger scale, strengthening synergies between local actors, farmers and technical advisors	Regional	N-S
		National	N-S
		Supra-national	N-S
5	Develop technical advice and professional training for the farmers in diversified agricultural systems and agroforestry	Regional	N-S
		National	N-S
		Supra-national	N-S
6	Promote networking and synergies between and among technical advisors, and farming communities	Regional	Nd
		National	N-S
		Supra-national	N-S
7	Improve relations between technical actors in agroforestry and diversified agricultural systems and public bodies/policy makers	Regional	Nd
		National	N-S
		Supra-national	N-S
8	Promote and showcase existing pilot farms and innovative agroforestry and diversified agricultural system sites as demonstration hubs for peer-to-peer learning	Regional	N-S
		National	N-S
		Supra-national	N-S
9	Develop locally adapted public support programmes for farmers' transition to agroforestry and diversified agricultural systems	Regional	N-S
		National	N-S
		Supra-national	N-S
10	Expand public and private funding sources beyond CAP programmes to support agroforestry and diversified agricultural systems	Regional	Nd
		National	N
		Supra-national	N
11	Establish a GAEC dedicated to agroforestry systems within the future CAP	Regional	Nd
		National	N
		Supra-national	N
12	Condition fertiliser and irrigation subsidies to practices compatible with agroforestry and diversified agricultural systems	Regional	N-S
		National	N-S
		Supra-national	Nd
13	Integrate long-term technical support into subsidy programmes	Regional	N-S
		National	N-S
		Supra-national	Nd
14	Reduce bureaucracy for the subsidies and public programs	Regional	Nd
		National	N-S
		Supra-national	Nd
15		Regional	S

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	Open public loans and self-financing tthrough banks other than the national banking system	National	S
		Supra-national	Nd
16	Involve the private sector by encouraging them to develop agroforestry and diversified agricultural systems among their suppliers/producers	Regional	Nd
		National	N-S
		Supra-national	N-S
17	Improve the supply of seedlings and homogenise the nursery supply market in all areas	Regional	N-S
		National	N-S
		Supra-national	Nd
18	Improve access to land ownership and/or land expansion for small farms	Regional	N-S
		National	N-S
		Supra-national	Nd
19	Develop territorial projects involving municipalities, farmers, rural actors and local citizens	Regional	N-S
		National	N-S
		Supra-national	Nd
20	Continue to develop international and national research programmes around the Mediterranean	Regional	Nd
		National	N-S
		Supra-national	N-S
21	Development of carbon farming and carbon market	Regional	Nd
		National	N-S
		Supra-national	N-S

*Not determined

Chapter 6: CONCLUSIONS

The aim of this study was to analyse the current situation and the overall panorama of agroforestry and diversified agricultural practices in five territories of the Mediterranean basin. The TRANSITION White Paper shows that the large-scale uptake of agroforestry and diversified agricultural systems remains limited by a combination of technical, socio-economic and political barriers.

Generally, farmers in all regions perceive agroforestry and diversified systems as complex, long-term investments requiring significant knowledge, financial commitment and institutional support. While interest is growing, perceived risks, delayed returns and uncertainty about economic performance often outweigh expected benefits in short-term decision-making.

The regulatory framework affecting agroforestry and diversified agriculture in the northern Mediterranean Rim (France, Italy and Spain) is governed by the CAP 2023–2027, which differs structurally from the southern regions (Algeria and Egypt), where agricultural systems are regulated primarily at national level by Ministries of Agriculture. In the northern Mediterranean countries, agroforestry and diversified agricultural systems are formally recognised within the CAP architecture

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through GAEC conditionalities, eco-schemes and rural development measures. However, the main limitation in these countries is not the absence of policy instruments, but rather their complexity, administrative burden, and the uncertainty associated with regional implementation and political cycles. The multiplicity of funding channels and the technical complexity of National Strategic Plans often discourage farmers from engaging with available support mechanisms.

In contrast, in the southern Mediterranean countries, agroforestry as a distinct concept is not yet structurally embedded within national agricultural strategies. Policies are primarily oriented toward food security, rural poverty reduction, irrigation expansion and productivity of strategic crops. While some programmes in Algeria (such as rural development and reforestation initiatives) and national development strategies in Egypt could indirectly support agroforestry and diversified systems, dedicated instruments remain limited. Therefore, in the southern Mediterranean, the constraint is less administrative complexity and more the structural orientation of agricultural policy priorities.

This cross-country comparison highlights a fundamental difference: in the North, agroforestry is institutionally recognised but operationally constrained; in the South, agroforestry and diversified practices are often present in farming systems but remain institutionally under-recognised.

From a technical standpoint, the adoption of agroforestry and diversified agricultural systems is strongly conditioned by the availability and quality of specialised knowledge and advisory services. Across the five regions, stakeholders reported limited access to technical expertise specifically tailored to agroforestry and diversified production systems. Existing extension services are often structured around conventional monocropping paradigms and may lack the interdisciplinary capacity required to design, manage and monitor more complex systems. The scarcity of locally adapted technical references, the limited number of demonstration farms and pilot experiences, and the insufficient visibility of successful business models further constrain knowledge transfer. In some regions, practical constraints such as restricted access to quality planting material and seedlings also represent a bottleneck.

Socio-economic constraints represent a central limitation to the large-scale adoption of agroforestry and diversified systems across all countries. High upfront investment costs for tree establishment and infrastructure, combined with delayed financial returns compared to annual crops, increase perceived economic risk. Price volatility, weakly structured value chains and limited mechanisms to reward ecosystem services further reduce incentives to invest in long-term system transformation. Land tenure insecurity, short-term leases and fragmented landholdings discourage farmers from

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committing to multi-year investments such as tree planting. In addition, limited access to credit and risk-management instruments particularly affects small and medium-sized farms with reduced financial buffers.

Social dynamics also influence adoption capacity. Generational renewal, labour availability and the attractiveness of farming as a profession shape farmers' openness to experimentation. Although younger farmers often show greater interest in innovative and diversified systems, they frequently encounter structural barriers in accessing land, finance and institutional support. Consequently, in many contexts, short-term income stability prevails over long-term resilience objectives, reinforcing conservative production choices.

Political and institutional challenges were also identified in all five countries. At the political and institutional level, there is a gap between high-level narratives that recognise the role of agroforestry and diversified systems for climate and biodiversity, and the concrete, stable and user-friendly instruments needed to foster their development. The timing of political agendas often prioritises short-term food security or immediate socio-economic pressures over long-term resilience strategies. In Algeria, rural development and poverty alleviation dominate policy frameworks, while in Egypt food security and strategic crop production strongly shape national priorities. In the EU countries, although multifunctionality and environmental objectives are formally embedded within the CAP, political shifts and administrative inertia may weaken long-term commitments. Existing regulations and support measures are often complex, dispersed and difficult to navigate for farmers and local actors, while land-use classifications or administrative rules may unintentionally penalise tree-based or mixed systems.

Despite these limitations, most policy proposals identified through stakeholder engagement are shared across northern and southern regions. Eighteen out of twenty-one proposed priorities were common to both areas, including strengthening advisory systems and professional training, simplifying administrative procedures, developing stable and long-term funding schemes, promoting pilot farms and demonstration sites, improving seedling supply chains, enhancing market access and price stability, increasing coordination between public and private actors, and supporting research and innovation across the Mediterranean. This convergence suggests that, despite different institutional starting points, Mediterranean countries face similar structural challenges in transitioning toward resilient agricultural systems.

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As a conclusion of our study, agroforestry and diversified agricultural practices are increasingly recognised for their multiple environmental and socio-economic benefits across the Mediterranean basin, and interest is growing among farmers, technicians and policy makers. Across the Mediterranean basin, agroforestry and diversified agricultural systems are coherent with ecological conditions and historical land-use patterns but their expansion depends on aligning political priorities, simplifying governance mechanisms, strengthening advisory capacity and ensuring stable, long-term support structures. The Mediterranean transition toward resilient agriculture will not depend solely on introducing new policy instruments, but on improving coherence between existing frameworks, territorial initiatives and farmers' practical realities.

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Chapter 8. ANNEX INFORMATION

ANNEX I: Actors involved in the study of political and economic challenges for the introduction of agroforestry and diversified agricultural systems

Annex 1.1. Distribution and origin of the actors involved in the study of policy and economic challenges for the adoption of agroforestry and diversified agricultural systems

A database of actors involved in the study of policy and economic challenges for the adoption of agroforestry and diversified agricultural systems in the Mediterranean. To facilitate the data consult, the whole database is shown by country (Tables A1, A2, A3, A4, and A5). The database was generated through participative activities (meetings or interviews) linked to different work packages of the project.

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Algeria

Table A 1. Actors involved in the study of policy and economic challenges for the introduction of agroforestry and diversified agricultural systems in Algeria (INRAA).

Participation type (WP)*	Actor type	Gender **	Institution	Position	Level	Work area	Sector	Actors number
Meeting (1)	Farmer	M	Farmers association	Leader	Local	North Sétif	Farming	2
Meeting (1)	Technician	F	ITMAS training institute	Teacher	Local	Central Sétif	Public education	1
Meeting (1)	Advisor	M	ITMAS training institute	Training assistant	Local	Sétif	Private	1
Meeting (1)	Technician	M	ITGC technical institute	Director	Local	Sétif	Private	1
Meeting (1)	Technician	M	ITGC technical institute	Technician	Local	Sétif	Private	1
Meeting (1)	Technician	M	CNCC technical institute	Director	Local	Sétif	Private	1
Meeting (1)	Researcher	F	INRAA research institute	Engineer	Local	Sétif	Public research center	2
Meeting (1)	Researcher	M	INRAA research institute	Researcher	Local	Sétif	Public research center	2
Meeting (1)	Technician	M	University Ferhat abbas (Sétif)	Teacher	Local	Sétif	Public education	2
Interview (4)	Politician/ decision maker	M	Directorate of agricultural services	Head of production regulation and technical support service	Regional	Sétif	Public administration	1
Interview (4)	Politician/ decision maker	M	Directorate of agricultural services	Head of rural development service	Regional	Sétif	Public administration	1
Interview (4)	Politician/ decision maker	M	Forest conservation	Head of management of resources, programs and studies service	Regional	Sétif	Public administration	1
Interview (4)	Politician/ decision maker	M	Chambre of agriculture	Head	Regional	Sétif	Public administration	1

*WP: Work package

**M: male; F: female

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Egypt

Table A 2. Actors involved in the study of policy and economic challenges for the introduction of agroforestry and diversified agricultural systems in Egypt (SRTA-City).

Participation type (WP)*	Actor type	Gender **	Institution	Position	Level	Work area	Sector	Actors number
Meeting (1)	Student	F	Alexandria University	Student in soil and water science dep, faculty of agriculture	Local	Mutubas, Kafr El-Shikh	Public education	15
Meeting (1)	Student	M	Alexandria University	Student in soil and water science dep, faculty of agriculture	Local	Mutubas, Kafr El-Shikh	Public education	9
Meeting (1)	Researcher	M	SRTA-City research farm	Executive director	Local	Mutubas, Kafr El-Shikh	Public administration	1
Meeting (1)	Researcher	M	Alexandria University	Chairman of soil and water science department, faculty of agriculture	Local	Mutubas, Kafr El-Shikh	Public administration	1
Meeting (1)	Advisor	M	Egyptian Khalej company for land reclamation	Chair of the board	Local	Mutubas, Kafr El-Shikh	Private	1
Meeting (1)	Politician/ decision maker	M	Mutubas agricultural cooperation	Coordinator	Local	Mutubas, Kafr El-Shikh	Public administration	1
Meeting (1)	Politician/ decision maker	M	El-Bangar agricultural cooperation	Coordinator	Local	Mutubas, Kafr El-Shikh	Public administration	1
Meeting (4)	Technician	M	Agriculture research center	Governmental consultant	Regional	Nile delta and valley, northwestern coast	Public research center	1
Meeting (4)	Technician	F	Soil and water science dep., faculty of agriculture, Alexandria University	Professor	Regional	North and northwestern coast	Public research center	1
Meeting (4)	Technician	F	Food architect	Researcher	Regional	North and northwestern coast	Public research center	1
Meeting (4)	Technician	F	Bioprocess	Dean	Regional	National	Public research center	1

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Participation type (WP)*	Actor type	Gender **	Institution	Position	Level	Work area	Sector	Actors number
Meeting (4)	Technician	F	Environmental management	Dean	Regional	National	Public research center	1
Meeting (4)	Technician	M	Research farm of SRTA-City	Executive director	Regional	Northwestern coast	Public research center	1
Meeting (4)	Technician	M	Mutubas agri. Cooparation	Executive director	Regional	North delta	Public research center	1
Meeting (4)	Technician	M	El-Bangar agri. Cooparation	Executive director	Regional	West delta	Public research center	1
Meeting (4)	Technician	M	Egyptian Khalej compny for land reclamination	Director	Regional	Western delta Frienge	Private	1

*WP: Work package

**M: male; F: female

France

Table A 3. Actors involved in the study of policy and economic challenges for the introduction of agroforestry and diversified agricultural systems in France (INRAE and AFAF).

Participation type (WP)*	Actor type	Gender **	Institution	Position	Level	Work Area	Sector	Actors number
Interview (1)	Farmer	M	N/a	Farmer	Local	Provence-Alpes-Côte d'Azur	Farming	12
Interview (1)	Farmer	F	N/a	Farmer	Local	Provence-Alpes-Côte d'Azur	Farming	6

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Meeting (1)	Technician	M	Public administration	Project manager	Regional	Provence-Alpes-Côte d'Azur	Public administration	1
Meeting (1)	Advisor	M	Chamber of agriculture	Adviser	Regional	Provence-Alpes-Côte d'Azur	Public administration	1
Meeting (1)	Technician	F	Association	Project manager agriculture specialized in organic agriculture and agroforestry	Regional	Provence-Alpes-Côte d'Azur	Private	1
Meeting (1)	Technician	M	Regional natural park	Project manager in agriculture	Regional	Provence-Alpes-Côte d'Azur	Public administration	1
Interview (4)	Technician	M	PNR Sainte-Baume	Project manager	Regional	PACA	Public administration	1
Interview (4)	Politician/ decision maker	M	DDT Gers	Chief officer	Regional	Occitanie	Public administration	1
Interview (4)	Technician	F	DDT Gers	Executive	Regional	Occitanie	Public administration	1
Interview (4)	Technician	M	DRAAF PACA	Executive for the "plantons des haies" program	Regional	PACA	Public administration	1
Interview (4)	Technician	M	Agricultural Chamber (33)	Project manager	Regional	PACA	Public administration	1
Interview (4)	Researcher	F	Independant	Doctorate student	Regional	PACA	Public education	1
Interview (4)	Technician	M	Livelihood	Project manager	Regional	PACA	Private	1
Interview (4)	Technician	M	Independant	Historian	Regional	PACA	Public education	1
Interview (4)	Technician	M	Alveoles association	Director	Regional	PACA	Private	1

*WP: Work package

**M: male; F: female

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Italy

Table A 4. Actors involved in the study of policy and economic challenges for the introduction of agroforestry and diversified agricultural systems in Italy (UNICT).

Participation type (WP)*	Actor type	Gender **	Institution	Position	Level	Work area	Sector	Actors number
Interview (1)	Farmer	F	N/a	Farmer	Local	Sicily	Farming	3
Interview (1)	Farmer	M	N/a	Farmer	Local	Sicily	Farming	2
Interview (4)	Technician	M	CREA - research center for policies and bioeconomy	Researcher	Regional	Sicily	Public research center	1
Interview (4)	Advisor	M	Canaccord Genuity	Agtech analyst	Supra-national	Europe	Private	1
Interview (4)	Advisor	M	TEP renewable energy Ltd.	Agronomist	Supra-national	Sicily	Private	1

*WP: Work package

**M: male; F: female

Spain

Table A 5. Actors involved in the study of policy and economic challenges for the introduction of agroforestry and diversified agricultural systems in Spain (CTFC and Uvic-UCC).

Participation type (WP)*	Actor type	Gender **	Institution	Position	Level	Work area	Sector	Actors number
Interview (4)	Politician/ decision maker	F	Catalan dep. Of climate action, food, and rural agenda	Vice-director of rural planning	Regional	Catalonia	Public administration	1
Interview (4)	Technician	F	FEDEHESA (Spanish federation of dehesa) + livestock manager	President	National	Spain	Private	1
Interview (4)	Politician/ decision maker	M	Catalan dep. Of environment and sustainability	General director of environmental policies	Regional	Catalonia	Public administration	1

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Interview (4)	Technician	F	Bosquerols SCCL (co-operative)	Partner	Regional	Catalonia	Private	1
Interview (4)	Politician/ decision maker	F	Catalan dep. Of climate action, food and rural agenda	Director general of forest ecosystems and environmental management	Regional	Catalonia	Public administration	1
Interview (4)	Technician	F	WWF-Spain	Head of food programme of WWF Spain	National, supra-national	Spain and EU	Private	1
Interview (4)	Advisor	M	N/a	Self-employed	Regional	Central Catalonia	Private	1
Interview (4)	Advisor	M	Espigall (consulting company)	Coordinator	Regional	Catalonia	Private	1
Interview (4)	Technician	M	FIRE foundation	President	National	Spain	Private	1
Interview (4)	Technician	F	FIRE foundation	Technician	National	Spain	Private	1
Interview (4)	Advisor	M	Sorbus Bosques Multifuncionales SL	CEO	National	Spain	Private	1
Interview (1)	Farmer	M	N/a	Farmer	Local	Catalonia	Farming	15
Interview (1)	Farmer	F	N/a	Farmer	Local	Catalonia	Farming	2
Meeting (1)	Technician	F	N/a	Farmer	Local	Catalonia	Public education	1
Meeting (1)	Advisor	M	N/a	Farmer	Local	Catalonia	Private	1
Meeting (1)	Technician	M	N/a	Farmer	Local	Catalonia	Private	2
Meeting (1)	Technician	M	N/a	Farmer	Local	Catalonia	Public administration	1
Meeting (1)	Researcher	F	N/a	Farmer	Local	Catalonia	Public research center	1
Interview (4)	Technician	M	Association of rural initiatives of Catalonia	Director	Regional	Catalonia	Private	1
Interview (4)	Technician	F	Farmers' school	Director	Regional	Catalonia	Public education	1

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Interview (4)	Politician/ decision maker	F	Regional government (general director of agriculture and livestock of Catalonia government)	Director	Regional	Catalonia	Public administration	1
Interview (4)	Politician/ decision maker	M	Regional council of Osona	President	Regional	Osona	Public administration	1
Interview (4)	Technician	M	Technical gabinet of regional government (Catalonia government)	Head	Regional	Catalonia	Public administration	1
Interview (4)	Technician	M	Technical gabinet of regional government (Catalonia government)	Worker	Regional	Catalonia	Public administration	1
Interview (4)	Technician	F	Subsidies management and rural development section (dep. Of climate action, food and rural agenda, territorial services in central Catalonia)	Head	Regional	Central Catalonia	Public administration	1
Interview (4)	Technician	M	Forests and forest resources section (dep. of climate action, food and rural agenda, territorial services in central Catalonia)	Head	Regional	Central Catalonia	Public administration	1
Interview (4)	Politician/ decision maker	M	EU Commission	Deputy head of unit of rural development and agricultural policy perspectives	Supra-national	Europe	Public administration	1

*WP: Work package

**M: male; F: female

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Annex 1.2. Details of actors involved in the study of policy and economic challenges for agroforestry and diversified agricultural systems adoption by country.

The distribution of different characteristics of the actors interviewed was considered in order to balance representation of each type of participants including gender, sector, actors, and territorial scope. This distribution is presented for each country in Tables A6-A11.

Algeria

Table A 6. Distribution (%) of the actors' characteristics in the study of policy and economic challenges for agroforestry and diversified agricultural systems adoption in Algeria (17 interviews).

Characteristic	Type	Interviews (number)	Distribution (%)
Gender	Male	14	82,4
	Female	3	17,6
Sector	Public research center	4	23,5
	Public university/ school	3	17,7
	Private	4	23,5
	Public administration	4	23,5
	Farming	2	11,8
Actors	Technic	6	35,3
	Politician/ decision maker	4	23,5
	Advisor	1	5,9
	Farmer	2	11,8
	Student	0	0,0
	Researcher	4	23,5
Territorial scope	Supra-national	0	0,0
	National	0	0,0
	Regional	4	23,5
	Local	13	76,5

Egypt

Table A 7. Distribution (%) of the actors' characteristics in the study of policy and economic challenges for agroforestry and diversified agricultural systems adoption in Egypt (38 interviews).

Characteristic	Type	Interviews (number)	Distribution (%)
Gender	Male	19	50,0
	Female	19	50,0
Sector	Public research center	8	21,1
	Public university/ school	24	63,2
	Private	2	5,3
	Public administration	4	10,5
	Farming	0	0,0
Actors	Technic	9	23,7
	Politician/ decision maker	2	5,3
	Advisor	1	2,6

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	Farmer	0	0,0
	Student	24	63,2
	Researcher	2	5,3
Territorial scope	Supra-national	0	0,0
	National	0	0,0
	Regional	9	23,7
	Local	29	76,32

France

Table A 8. Distribution (%) of the actors' characteristics in the study of policy and economic challenges for agroforestry and diversified agricultural systems adoption in France (31 interviews).

Characteristic	Type	Interviews (number)	Distribution (%)
Gender	Male	22	71,0
	Female	9	29,0
Sector	Public research center	0	0,0
	Public university/school	2	6,5
	Private	3	9,7
	Public administration	8	25,8
	Farming	18	58,1
Actors	Technic	10	32,3
	Politician/Decision maker	1	3,2
	Advisor	1	3,2
	Farmer	18	58,1
	Student	0	0,0
	Researcher	1	3,2
Territorial scope	Supra-national	0	0,0
	National	0	0,0
	Regional	13	41,9
	Local	18	58,1

Italy

Table A 9. Distribution (%) of the actors' characteristics in the study of policy and economic challenges for agroforestry and diversified agricultural systems adoption in Italy (8 interviews).

Characteristic	Type	Interviews (number)	Distribution (%)
Gender	Male	5	62,5
	Female	3	37,5
Sector	Public research center	1	12,5
	Public university/school	0	0,0
	Private	2	25,0
	Public administration	0	0,0
	Farming	5	62,5
Actors	Technic	1	12,5
	Politician/Decision maker	0	0,0
	Advisor	2	25,0
	Farmer	5	62,5
	Student	0	0,0

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	Researcher	0	0,0
Territorial scope	Supra-national	2	25,0
	National	0	0,0
	Regional	1	12,5
	Local	5	62,50

Spain

Table A 10. Distribution (%) of the actors' characteristics in the study of policy and economic challenges for agroforestry and diversified agricultural systems adoption in Spain (44 interviews).

Characteristic	Type	Interviews (number)	Distribution (%)
Gender	Male	30	68,2
	Female	14	31,8
Sector	Public research center	1	2,3
	Public university/school	2	4,6
	Private	13	29,6
	Public administration	11	25,0
	Farming	17	38,6
Actors	Technic	16	36,4
	Politician/Decision maker	6	13,6
	Advisor	4	9,1
	Farmer	17	38,6
	Student	0	0,0
	Researcher	1	2,3
Territorial scope	Supra-national	2	4,6
	National	5	11,4
	Regional	14	31,8
	Local	23	52,3

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ANNEX II: Systems identified through participatory methods with farmers and stakeholders

Table A 11. List of the different agroforestry and diversified agricultural systems studied in the TRANSITION project.

Municipality	Province or Department	Country	Type of system	Trees	Crops	Animals
Mezloug	Sétif	Algeria	Agrosilvopastoral	Poplar, ash trees	Meadows, cereal, forage crops	Cattle
Bir haddada	Sétif	Algeria	Agrosilvopastoral	Olive, almond, apple, plum	Barley, oats, triticale, durum wheat	Sheep, bees
Ain arnet	Sétif	Algeria	Agrosilvopastoral	Ash trees, aleppo pine, cypress	Durum wheat, bread wheat, barley, oat, field peas, lentil, chickpeas	Cattle
El eulma	Sétif	Algeria	Agrosilvopastoral	Olive trees, forest trees: aleppo pine, cypress	Durum wheat, bread wheat, barley, oat, triticale, alfa-alfa, lentil, olive tree, natural grassl,	Cattle, broiler
Beni fouda	Sétif	Algeria	Agrosilvopastoral	Olive trees, forest trees: aleppo pine, cypress	Durum wheat, bread wheat, barley, green barley, oat, lentil, chickpeas, triticale, vetch-oat, maize, sorghum	Cattle, sheep, broiler
Ain roua	Sétif	Algeria	Agrosilvopastoral	Olive trees, almond trees, apricot, apple, pear, peach, walnut, vine,	Durum wheat, bread wheat, barley, green barley, oat, lentil, chickpeas, triticale, vetch-oat, vetch-triticale, alfa-alfa	Cattle, sheep, broiler
El ouldja	Sétif	Algeria	Agrosilvopastoral	Olive trees	Barley, oat, lentil,	Sheep
Sétif	Sétif	Algeria	Agrosilvopastoral	Poplar, eucalyptus	Durum wheat, association (triticale-oat, vetch-field peas), alfa-alfa, maize (silage)	Cattle
Avignon	Vaucluse	France	Mixed horticultural systems	Apple tree, plum tree, pear tree, cherry tree, peach tree, apricot tree, persimmon, mandarin, nectarine tree	Diversified vegetables*	Ducks
Vezénobre	Gard	France	Mixed horticultural systems	Peach tree, persimmon, apple tree, pear tree, plum tree, cherry tree, apricot tree	Diversified vegetables*	Ducks

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PRIMA PARTNERSHIP FOR RESEARCH AND INNOVATION IN THE MEDITERRANEAN AREA

Municipality	Province or Department	Country	Type of system	Trees	Crops	Animals
Pernes les fontaines	Vaucluse	France	Mixed horticultural systems	Apple tree, fig tree, olive tree, plum tree, hazel, cherry tree, walnut, peach tree, truffle oak, persimmon trees, others	Diversified vegetables*	Ewes
Le val	Var	France	Mixed horticultural systems	Apple tree, peach tree, apricot tree, fig tree, plum tree, pistachio, mulberry	Diversified vegetables*	Chickens
Le thor	Vaucluse	France	Mixed horticultural systems	Apple tree, hazel, pear tree, fig tree, plum tree, apricot tree, cherry tree, fig tree, plum tree, persimmon, olive trees, cold-resistant citrus, American papaw, sorb tree, saskatoon berry, quince trees, jujube tree	Diversified vegetables*	N/A**
Peyrolles en provence	Bouches du Rhône	France	Mixed horticultural systems	Apricot tree, cherry tree, fig tree, plum tree, apple tree, pear tree, persimmon, olive trees, cold-resistant citrus, American papaw, sorb tree, saskatoon berry, quince trees, jujube tree	Diversified vegetables*	N/A
La treille	Bouches du Rhône	France	Mixed horticultural systems	Plum tree, apricot tree, fig tree, olive tree, persimmon, hazel, cherry trees, feijoa, almond, jujube tree, nashis, peach tree	Diversified vegetables*	Chickens
Mirmande	Drôme	France	Mixed horticultural systems	Medlar tree, peach tree, quince tree, apple tree, pear tree, cherry tree, hazel tree, apricot tree, plum tree, date plum tree, walnut, almond tree, nectarine tree, fig tree	Diversified vegetables*	Chickens and horses
Die	Drôme	France	Mixed horticultural systems	Plum tree, apple tree, goumi, eleagnus, walnut, catalpa, yuzu, schichuan pepper, quince tree, elder, tea tree, fig tree, hawthorn, nashi, timut pepper, citrus	Diversified vegetables*	N/A
Tourves	Var	France	Mixed horticultural systems	Honey locust, elm tree, eleagnus, plum tree, molinia	Diversified vegetables*	Chickens
Ansouis	Vaucluse	France	Mixed horticultural systems	Walnuts, hackberry, sorb tree, bohemian olive tree	Diversified vegetables*	Chickens

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PRIMA PARTNERSHIP FOR RESEARCH AND INNOVATION IN THE MEDITERRANEAN AREA

Municipality	Province or Department	Country	Type of system	Trees	Crops	Animals
Pernes les fontaines	Vaucluse	France	Mixed horticultural systems	Apricot tree, peach tree, plum tree, apple tree	Diversified vegetables*	Chickens
Correns	Var	France	Mixed horticultural systems	Pear tree, olive tree, apple tree, peach tree, almond tree, plum tree, pomegranate tree, cherry tree, hawthorn, arbutus, pistachio tree, mulberry tree	Diversified vegetables*	Chickens and quails
Marseille	Bouches du Rhône	France	Mixed horticultural systems	Cherry tree, plum tree, apricot tree, fig tree, apple tree, pear tree, arbutus, elder, hazel tree, naschi, peach tree, olive tree, pepper, feijoa	Diversified vegetables*	Chickens
Forqualquier	Alpes de haute provence	France	Mixed horticultural systems	Apple tree, cherry tree, hazel tree, shadbush, plum tree, peach tree, fig tree, olive tree, pepper, eleagnus, quince tree, walnut	Diversified vegetables*	N/A
Mallemort	Bouches du Rhône	France	Mixed horticultural systems	Cherry tree, Plum tree, apricot tree, peach tree, fig tree	Diversified vegetables*	N/A
Mutubas	Kafr El-Sheikh	Egypt	Mixed woody crops	Citrus species, mangos	N/A	N/A
Mutubas	Kafr El-Sheikh	Egypt	Mixed herbaceous crops	N/A	Wheat, alfalfa	N/A
Mutubas	Kafr El-Sheikh	Egypt	Mixed woody crops and vegetable	Guava	Tomato	N/A
Mutubas	Kafr El-Sheikh	Egypt	Mixed woody and herbaceous crops	Citrus	Alfalfa	N/A
Mutubas	Kafr El-Sheikh	Egypt	Mixed woody and herbaceous crops	Citrus	Wheat	N/A
Mutubas	Kafr El-Sheikh	Egypt	Mixed vegetables	N/A	Cabbage, tomatoes	N/A
Mutubas	Kafr El-Sheikh	Egypt	Mixed woody crops and vegetable	Citrus	Tomatoes	N/A
Mutubas	Kafr El-Sheikh	Egypt	Mixed woody and herbaceous crops	Guava	Alfalfa	N/A

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Municipality	Province or Department	Country	Type of system	Trees	Crops	Animals
Borg el-arab	Alexandria	Egypt	Mixed woody, herbaceous crops and vegetables	Jatropha, berries, figs, olives	Wheat, tomatoes, alfalfa, eggplants, potatoes	N/A
Nicolosi	Catania	Italy	Silvoarable	Olive trees	Wheat, rye, fava bean, vetch	N/A
Argençola	Barcelona	Spain	Silvoarable	Olive trees	Sanfoins (*Onobrychis bicifolia*) between the rows	N/A
Bràfim	Tarragona	Spain	Silvoarable	Olive trees (>50 years old)	Winter cereals	N/A
Riner	Lleida	Spain	Silvoarable	Vineyards	Winter cereal, cover crop	N/A
Sant Quintí de Mediona	Barcelona	Spain	Silvoarable	Olives, vineyards	Cover crop composed of natural vegetation	Sheep grazing (2 months in winter. In the aisles between vineyards)

*Diversified vegetables: artichoke, arugula, basil, beet, pepper, black radish, broccoli, brussels sprout, cabbage, carrot, cauliflower, cherry tomatoes, chili pepper, chives, collard, coriander, cucumber, eggplant, fava bean, fennel, garlic, kale, leek, lettuce, new potato, onion, oregano, pea, pumpkin, potato, radish, spinach, squash, sweet potato, thyme, tomatoes, turnip, zucchini

**N/A: Not apply for that system type

ANNEX III: Regulations and financial opportunities for agroforestry and diversified agricultural systems by region

The information is split into two tables for each country. On the one hand, relevant a summary table regarding laws, regulations, policies, and strategies affecting the promotion of agroforestry and diversified agricultural systems is shown (Tables A12, A14, A16, A18, A20). On the other hand, then financial incentive systems, favourable strategies, economic ideas/strategies, and political ideas/strategies to enhance the development of agroforestry and diversified agricultural systems are shown (Tables A13, A15, A17, A19, A21). Information provided by the research done by each participant country at three levels supra-national, national, and regional.

Algeria

*Table A 12. Relevant laws, regulations, policies, and strategies which may affect the propagation of the agroforestry and **diversified agricultural systems** can be found on multiple levels in the Sétif region at supra-national, national and regional levels.*

Agroforestry		
Supra-national	**National**	**Regional**
• Protection of the three wetlands (sebkhet melloul, sebkhet el-fraïne, chott el beïda) (ramsar)	• National fund for rural development (FNDR): - Opening and development of rural ways, - Supplying in fruit trees and olive trees, - Supplying of beehives for farmers, - Supplying of goats for farmers (10 females and 2 males) - Hardy fruit trees program - Forest plantation program - The national reforestation program): - Fight against soil erosion - The restoration of the forest area - The expansion of fruit trees on private land	• Local initiative program: - For rustic trees (almonds, pistachio, walnut) - Renewable energies development: - Exploitation and pumping of water in rural areas - Electrification of rural dwellings in scattered areas - Electrification of 12 units with solar energy - Improvement of the living conditions of the rural population

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	• The national strategy for sustainable rural development (SNDRD): - Food security of rural households - Improvement of the living conditions of rural populations - Improvement and diversification of economic activities • Rural renewal policy (PRR) • Strengthening the complementarity between urban and rural areas • Reinforcement of decentralization operations which in no way penalize the most vulnerable, especially in the most isolated rural areas • Strengthening equity and equality for access to resources (information, financing, natural resources). • Protection of the national babors park • Protection of forest heritage and conservation of eroded land	
---------- Diversified agricultural systems including livestock----------		
Supra-national	**National**	**Regional**
• National fund for agricultural development (FNDA) (subsidies for individual or collective): - support to development of irrigation areas, - support for production of seeds - support for milk production - support for fertilisers, - support for the storage of consumer goods, - vat exoneration for livestock feeds - interest-free bank loans for investment and production (ettahaddi and rfig) - payment of the differential for cereal seeds		

Table A 13. Financial incentive systems, favourable strategies, economic ideas/strategies, and political ideas/strategies in the Sétif region to enhance the development of agroforestry and Diversified agricultural systems at supra-national, national and regional levels.

Agroforestry		
Supra-national	**National**	**Regional**
• Protection of the three wetlands (sebkhet melloul, sebkhet el-fraïne, chott el beïda) (ramsar)	• National fund for rural development (FNDR): - Opening and development of rural ways, - Supplying in fruit trees and olive trees, - Supplying of beehives for farmers, - Supplying of goats for farmers (10 females and 2 males) - Hardy fruit trees program - Forest plantation program - The national reforestation program): - Fight against soil erosion - The restoration of the forest area - The expansion of fruit trees on private land • The national strategy for sustainable rural development (SNDRD): - Food security of rural households - Improvement of the living conditions of rural populations - Improvement and diversification of economic activities • Rural renewal policy (PRR) • Strengthening the complementarity between urban and rural areas • Reinforcement of decentralization operations which in no way penalize the most vulnerable, especially in the most isolated rural areas	• Local initiative program: - For rustic trees (almonds, pistachio, walnut) - Renewable energies development: - Exploitation and pumping of water in rural areas - Electrification of rural dwellings in scattered areas - Electrification of 12 units with solar energy - Improvement of the living conditions of the rural population

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	• Strengthening equity and equality for access to resources (information, financing, natural resources). • Protection of the national labours park • Protection of forest heritage and conservation of eroded land	
---------- Diversified agricultural systems including livestock ----------		
Supra-national	**National**	**Regional**
• National fund for agricultural development (fnda) (subsidies for individual or collective): - support to development of irrigation areas - support for production of seeds - support for milk production - support for fertilisers - support for the storage of consumer goods - vat exoneration for livestock feeds - interest-free bank loans for investment and production (ettahaddi and rfig) - payment of the differential for cereal seeds		

Egypt

Table A 14. Relevant laws, regulations, policies, and strategies which may affect the propagation of the agroforestry and diversified agricultural systems can be found on multiple levels in the Mutubas Kafr El-Sheikh region at supra-national, national, and regional levels.

---------- **Agroforestry** ----------		
Supra-national	**National**	**Regional**
n/a*	n/a	n/a
---------- Diversified agricultural systems including livestock ----------		
Supra-national	**National**	**Regional**

• Egypt vision 2030 - Agriculture vertical development - Egyptian integrated agricultural guidance program for agricultural villages - Improving the efficiency of field irrigation in the Nile delta and Nile valley - Smart-climate agriculture strategy - Biodiversity protection program - Lakes restoration program	• Egypt's strategy 2030	• General plan for irrigation and drainage canals development • Law to stop planting riberas and high water consuming crops • Policies of some crops like cotton and the surrounding crops cultivation • Sea level rise protection plan

n/a* not applicable

Table A 15. Financial incentive systems, favourable strategies, economic ideas/strategies, and political ideas/strategies in the Mutubas Kafr El-Sheikh region to enhance the development of agroforestry and diversified agricultural systems at supra-national, national and regional levels.

Agroforestry		
Supra-national	**National**	**Regional**
n/a*	n/a	n/a
Diversified agricultural systems including livestock		
Supra-national	**National**	**Regional**
• Egypt vision 2030 - Agriculture vertical development - Wgyptian integrated agricultural guidance program for agricultural villages - Improving the efficiency of field irrigation in the Nile delta and Nile valley - Smart-climate agriculture strategy - Biodiversity protection program - Lakes restoration program	• Egypt's strategy 2030	• General plan for irrigation and drainage canals development • Law to stop planting riberas and high water consumuing crops • Policies of some crops like cotton and the surrounding crops cultivation • Sea level rise protection plan

n/a* not applicable

France

Table A 16. Relevant laws, regulations, policies, and strategies which may affect the propagation of the systems can be found on multiple levels in the Languedoc-Roussillon (Occitanie) and Provence Alpes Côte d'Azur *region* at supra-national, national and regional levels.

Agroforestry		
Supra-national	**National**	**Regional**
POLICIES: • CAP 2023-2027 • Green Deal • Farm to Fork Strategy • Biodiversity Strategy for 2030 of the EU	**POLICIES:** • CAP Strategic Plan of France • French agroforestry development plan **REGULATIONS:** • Law on water protection, biodiversity protection and forest protection	**POLICIES:** • CAP Strategic Plan of France adapted to PACA and Occitanie (regional specific policy) • France climate plan to handle forest fire • DRAAF plan for agriculture and forest
Diversified agricultural systems including livestock		
Supra-national	**National**	**Regional**
CAP 2023 – 2027 • European Green Deal • Farm to Fork Strategy • EU Biodiversity Strategy and Global Biodiversity Framework	n/a	**POLICIES:** • CAP Strategic Plan of France adapted to PACA and Occitanie • DRAAF plan for agriculture and forest

n/a* not applicable

*Table A 17. Financial incentive systems, favourable strategies, economic ideas/strategies, and political ideas/strategies Languedoc-Roussillon (Occitanie) and Provence Alpes Côte d'Azur region to enhance the development of agroforestry and d**iversified agricultural systems** at supra-national, national and regional levels.*

Agroforestry		
Supra-national	**National**	**Regional**

• CAP 2023-2027 • Horizon Europe grants • PRIMA grants	• CAP Strategic Plan of France • French agroforestry development plan • Subsidies program “plantons des haies” and Water agencies program, and private program AFTER • Association fundings such as “Des enfants et des arbres”. Planting trees with children • Private funds such as Livelihood/ A Tree for You	• Subsidies program “plantons des haies” and Water agencies program, and private program -AFTER • Regional specific application of the • CAP Strategic Plan of France • Local subsidies for planting hedgerows (municipalities or department)
Diversified agricultural systems including livestock		
Supra-national	**National**	**Regional**
• CAP 2023-2027 • Horizon Europe grants • PRIMA grants	• CAP Strategic Plan of France • Private funds such as Livelihood	• Regional specific application of the CAP Strategic Plan of France

Italy

Table A 18. Relevant laws, regulations, policies, and strategies which may affect the propagation of the systems can be found on multiple levels in the Sicily region at supra-national, national and regional levels.

Agroforestry		
Supra-national	**National**	**Regional**
• CAP 2023 – 2027 • European Green Deal • Farm to Fork Strategy • EU Biodiversity Strategy and Global Biodiversity Framework	• CAP strategic plan – Italy • National Strategy for “Inner Areas” SNAI	• Rural development programme (CAP) for Sicily. It is important to note that in the previous CAP (2014-2020) the measure 8.2 related to agroforestry systems was not involving Sicily. • Regional law 21/2021, Provisions on agroecology, protection of biodiversity and Sicilian agricultural products and technological innovation in agriculture.
Diversified agricultural systems including livestock		

Supra-national	National	Regional
• CAP 2023 – 2027 • European Green Deal • Farm to Fork Strategy • EU Biodiversity Strategy and Global Biodiversity Framework	• CAP strategic plan – Italy • National Strategy for "Inner Areas" SNAI	• Rural development programme (CAP) for Sicily. It is important to note that in the previous CAP (2014-2020) the measure 8.2 related to agroforestry systems was not involving Sicily. • Regional law 21/2021, Provisions on agroecology, protection of biodiversity and Sicilian agricultural products and technological innovation in agriculture.

Table A 19. Financial incentive systems, favourable strategies, economic ideas/strategies, and political ideas/strategies Sicily region to enhance the development of agroforestry and diversified agricultural systems at supra-national, national, and regional levels.

Agroforestry		
Supra-national	**National**	**Regional**
• CAP 2023 – 2027 • Horizon Europe grants • PRIMA grants	• CAP Strategic Plan - Italy	• Rural development programme (CAP) for Sicily
Diversified agricultural systems including livestock		
Supra-national	**National**	**Regional**
• CAP 2023-2027 • Horizon Europe grants • PRIMA grants	• CAP Strategic Plan - Italy	• Rural development programme (CAP) for Sicily.

Spain

Table A 20. Relevant laws, regulations, policies and strategies which may affect the propagation of the systems can be found on multiple levels in the Catalonia region at supra-national, national and regional levels.

Agroforestry		
Supra-national	**National**	**Regional**
POLICIES: • CAP 2023-2027 • Green Deal • Farm to Fork Strategy • Biodiversity Strategy for 2030 of the EU	**POLICIES:** • CAP Strategic Plan of Spain **REGULATIONS:** • Law on water protection against diffuse pollution produced by nitrates from agricultural sources • Relationship of activities potentially contaminating the soil • Mountains law • Rustic leases law	**POLICIES:** • Regional specific policies on the CAP Strategic Plan of Spain • Sustainable Agriculture Production • Rural Agenda of Catalonia 2030 • Bioeconomy Strategy of Catalonia 2030 • Strategy for the sustainable development of Catalonia • Catalan strategy for the adaptation to climate change • General Plan of Forestry Policy • Technical plans of forest management • Strategic Plan of Extensive Livestock • Strategic food plan of Catalonia 2021-2026 • Strategy to promote the energy utilization of forest and agricultural biomass • Test spaces of agroforestry systems **REGULATIONS:** • Management of soil fertilization and livestock manure • Relationship of activities potentially contaminating the soil • Forests law • Law on media producers and operators of phytosanitary defense of Catalonia • Rustic leases law

Diversified agricultural systems including livestock		
Supra-national	**National**	**Regional**
POLICIES: • CAP 2023-2027 • Green Deal • Farm to Fork Strategy • Biodiversity Strategy for 2030 of the EU **REGULATIONS:** • Animal protection during transport	**POLICIES:** • CAP Strategic Plan of Spain **REGULATIONS:** • Management of livestock farms • Protection of animals in livestock farms • Framework of action for a sustainable use of antibiotics in species of livestock interest	**POLICIES:** • Regional specific policies on the CAP Strategic Plan of Spain • Sustainable Agriculture Production • Rural Agenda of Catalonia 2030 • Bioeconomy Strategy of Catalonia 2030 • Strategy for the sustainable development of Catalonia • Catalan strategy for the adaptation to climate change • General Plan of Forestry Policy • Technical plans of forest management • Strategic Plan of Extensive Livestock • Strategic food plan of Catalonia 2021-2026 • Strategy to promote the energy utilization of forest and agricultural biomass • Test spaces of agroforestry systems **REGULATIONS:** • Management of livestock farms • Framework of action for a sustainable use of antibiotics in species of livestock interest

Table A 2122. Financial incentive systems, favourable strategies, economic ideas/strategies, and political ideas/strategies ***Catalonia region*** *to enhance the development of agroforestry and* ***diversified agricultural systems*** *at supra-national, national and regional levels.*

Agroforestry		
Supra-national	**National**	**Regional**
• CAP 2023-2027 • Horizon Europe grants • PRIMA grants	• CAP Strategic Plan of Spain	• Regional specific application of the CAP Strategic Plan of Spain
Diversified agricultural systems including livestock		

Supra-national	National	Regional
• CAP 2023-2027 • Horizon Europe grants • PRIMA grants	• CAP Strategic Plan of Spain	• Regional specific application of the CAP Strategic Plan of Spain