FORESTRY THEMATIC STUDIES

#4

EXPLORING AREAS WITH HIGH AGROFORESRTRY POTENTIAL IN BIOEAST COUNTRIES

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THEMATIC STUDY OF THE BIOEAST THEMATIC WORKING GROUP ON FORESTRY

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1. Executive summary

In this study, the regulatory environment and spatial characteristics of the BIOEAST countries are examined in relation to the spread of agroforestry systems. The approach is aligned with the strategic scopes and objectives of the BIOEAST initiative.

Existence of agroforestry systems and agroforestry-related activities show significant differences in the BIOEAST countries. These differences determined not only by the varied climatic and natural conditions, but also by the diversified traditions and cultures. Having overviewed the actual state in the referred countries, basically, two main categories can be distinguished, where the presence or potential of agroforestry can be considered as strong or moderate.

The regulatory environment has so far been a significant barrier rather than a facilitator to the expansion of agroforestry systems in BIOEAST countries. The CAP-RDP measures to support the establishment of agroforestry systems are (could be) the only significant incentive in the current regulatory regime. The strict international and national land use regulations lack recognition of agroforestry activities, and consequently the expansion of agroforestry systems is excluded from land use options by either agricultural land use legislation, forestry regulations or conservation law. It is a realistic and desirable expectation that agroforestry, as a special and multifunctional form of land use, should be included in the regulations during the current planning period.

Based on the reviewed English language materials, extended by a spatial analysis approach, the following main conclusions can be derived.

- A clear formal definition at national level would be an important basis for promoting activity and it is also the necessary first action for the formulation of respective legal and regulatory environment.
- According to the national-level legal and regulatory documents in the BIOEAST countries, we can see that agroforestry-related legal and regulatory frameworks are ill-defined or not exist at all, and national legislation doesn't support agroforestry development. In most cases, EU-level regulations are not adopted by the national legal environment. Maybe framework given in EU policy documents is not fully exploited in the implementation at national level in the countries of CEE region.
- It would be important to represent the potential of AF systems toward climate change adaptation at the national level policies, to promote specific activities.
- During the formulation of respective measures for the next planning period, it would be important to implement respective CAP measures at the national level, effectively, with the consideration of national specificities.
- BIOEAST countries should ensure that agroforestry activities in agricultural land is eligible for direct payment.
- The agroforestry zones and hotspots presented in this study highlight the need to develop spatially differentiated agroforestry strategies within the BIOEAST area.
- There is a need to create type-specific stakeholder networks. These networks should include representatives of relevant farmers, forest owners, consultants, experts, professional trainers and decision-makers.

2. Aim of the study

In this study, the regulatory environment and spatial characteristics of the BIOEAST countries are examined in relation to the spread of agroforestry systems. Our approach is aligned with the following strategic scopes and objectives of the BIOEAST initiative:

Scopes:

S 1. Strategic thinking in bioeconomy: Develop bioeconomy strategies to tackle specific environmental and climatic challenges facing the CEE countries. Facilitate evidence-based policy making by developing bioeconomy-relevant statistical and administrative data. Support stability and socio-economic development in the CEE macro-region, within the framework of a reinforced solidarity between EU Member States and the countries covered by the European Neighborhood Policy.

Objectives:

O 1. To develop strategies: to create a cross-sectorial approach for the development of natio-nal circu-lar economy and bioeconomy strategies that are integrated into a broader, common strategy in all countries of CEE region aligned to the EU bioeconomy strategy and the common BIOEAST Initia-tive goals.

O 3. To identify common challenges and validate common research areas: to map specific challenges for a Strategic Research and Innovation Agenda and foster innovative multidiscip-linary research and cooperation activities at national and macro-regional level. These should address the relevant com-mon challenges of the BIOEAST Initiative member countries by means of common work carried out by experts, researchers and governmental officers as a follow-up to the Visegrad4+3 Common Decla-ration and a starting point for the discussion.

O 6. To develop synergies: to promote regional, national, EU and international funding oppor-tunities to develop innovative technologies, methodologies and approaches. The purpose would be to boost the sustainable and circular economic growth of the European bioeconomy sectors and the conserva-tion and upgrading of the regional environment, resources and cul-tural heritage.

3. The role of agroforestry in the sustainable land use

Agroforestry is a land management practice which intentionally integrates woody vegetation with crop and/or livestock farming to benefit from the resulting ecological and economic interactions (Burgess et al., 2015). Concept of agroforestry is not a new idea, however it is getting to be reinvented in the past decade. Considering the ultimate goal, humanity will need to produce 70% more food by 2050 (UN, 2017). Besides the growing demand for food production, sustainable and extensive technologies with smaller ecological footprint are also in the focus. In this sense, forests and combined agroforestry sites are real multitaskers by providing shelter, livelihoods, water, raw materials and food. The environmental services provided by agroforestry systems can be divided into four categories: (i) carbon sequestration, (ii) biodiversity improvements, (iii) enhanced soil productivity and conservation, (iv) water and air conservation (Jose, 2009). Data from the last 40 years show that agroforestry systems play an important role in soil improvement (Dollinger & Jose, 2018). Agroforestry systems can also improve livelihoods, enhance food security, and provide clean energy, contributing to sustainable rural development (Sharma et al., 2016). Agroforestry systems are supported by the EU's rural development policies (RDPs) since they play a relevant role in producing positive social, economic, and environmental externalities (Gaspar et al., 2016). Moreover, agroforestry system is an alternative way of utilization for lower quality areas to exploit the sunshine-originated photosynthesis for biomass production, as much as possible. In this sense, agroforestry systems serve as favorable alternative solutions.

In addition to the environmental benefits, agroforestry systems also have social benefits and increase the income of people living in rural areas, thereby slowing the rate of migration to urban areas (Current et al., 1995). Research has shown that agroforestry increases and diversicates household income, has environmental benefits and is particularly suitable for poor and women farmers (Franzel et al., 2001 & 2004). Mekonnen et al. (2021) also confirms that agroforestry systems provide higher incomes for Ethiopian farmers. A study by Rahman et al. (2007) in Bangladesh points out that although agroforestry systems are more profitable than conventional agriculture, without institutional subsidies the transition will not be achieved.

Afforestation of agricultural land has been one of the most successful CAP projects, with over 1 million hectares of agricultural land afforested (Santiago-Freijanes et al., 2018). While for EU countries with agroforestry subsidies, the aid take-up rate was typically low. A German study shows that legal regulations and administrative burdens are the biggest obstacles to the expansion of agroforestry systems. Simplifying the legal framework is the key to scaling up agroforestry systems (Tsonkova et al., 2018). The BIOEAST cooperation countries are no exception. While these countries have a tradition of centuries of forestry and integrated farming systems (wooded pastures, protective forest strips, mosaic land use), these nature-based practices and technologies have been phased out of conventional agriculture over the last 150-200 years. Despite their many natural, social and economic benefits, agroforestry systems are only slowly spreading across the countries of the European Union. Fagerholm et al. (2016) conclude that new agroforestry research should focus on social and cultural impacts and ecosystem services.

4. Agroforestry, and the respective legal and regulatory environment in BIOEAST countries: state-of-art

4.1. General overview

BIOEAST initiative was created in the Central and Eastern European region, by offering a common political commitment and shared strategic research and innovation framework toward the development of knowledge and cooperation based circular bioeconomies. The initiative covers the countries of Czech Republic, Hungary, Poland, Slovakia, Bulgaria, Romania, Slovenia, Croatia, Lithuania, Latvia and Estonia.

In the first part of the recent study, we focus on the overview of current state-of-art of agroforestry related activities and the related legal and regulatory frameworks and measures, applied in the BIOEAST countries.

Existence of agroforestry systems and agroforestry-related activities show significant differences in the BIOEAST countries. These differences determined not only by the varied climatic and natural conditions, but also by the diversified traditions and cultures. Having overviewed the actual state in the referred countries, basically, two main categories can be distinguished, where the presence or potential of agroforestry can be considered as strong or moderate. As extreme cases, we can mention the Baltic countries or as opposed to them, Romania or Bulgaria. These former countries (Estonia, Latvia or Lithuania) have significantly fewer opportunities for agroforestry due to their hemi-boreal and boreal climatic conditions. In contrary, in the southern regions it is much more built in the traditional practice. Bulgaria has 0.9 million ha of cultivated agroforestry area, or we can mention also Romania that has the third largest area of livestock agroforestry on sparsely wooded grassland in the EU. In these countries, agroforestry systems gained space earlier, especially because of the windy weather conditions. In Bulgaria, the first hedgerows were planted in 1925, and agroforestry solutions became widespread in the 1950s. Similarly in Hungary, shelterbelts were already being planted in the 1960s, with records of nearly 17,000 hectares.

Obviously, the differences appear also in the legal and regulatory environment that sometimes itself mean a significant gap against the development of agroforestry systems. As a first step toward discovering and promoting development opportunities, we made a comprehensive overview on the present state of art for each countries. As a starting point, we reviewed the respective state-of-art, based on the following main documents:
1. the legislations, governing access to land from the rural domain for (agro)forestry activities (utilizing also the resources at https://e-justice.europa.eu/);

2. the general rules and measures for the establishment of agroforestry sites and regulation of agricultural production (both in forestry laws and, in the regulation of forestry of agricultural related legal environment vice versa);
3. the related research programs and environmental services, as well as
4. the related scientific literature.

Based on the literature review, the following can be stated for BIOEAST countries, in general:

- in most countries, term of agroforestry is vaguely defined or not used at all (except of Hungary and Bulgaria),
- legal and regulatory frameworks are ill-defined or not exist at all, and national legislation doesn't support agroforestry development (again, except of some countries with strong agroforestry background),
- respective EU legislation is not incorporated into the national law,
  - Regulation (Eu) No 1305/2013 Of the European Parliament and of the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) and repealing Council Regulation (EC) No 1698/2005.
  - Regulation (EU) No 1306/2013 of the European Parliament and of the Council of 17 December 2013 on the financing, management and monitoring of the common agricultural policy and repealing Council Regulations (EEC) No 352/78, (EC) No 165/94, (EC) No 2799/98, (EC) No 814/2000, (EC) No 1290/2005 and (EC) No 485/2008.
  - Regulation (Eu) No 1307/2013 of the European Parliament and of the Council of 17 December 2013 stablishing rules for direct payments to farmers under support schemes within the framework of the common agricultural policy and repealing Council Regulation (EC) No 637/2008 and Council Regulation (EC) No 73/2009.
  - Regulation (EU) No 1308/2013 of the European Parliament and of the Council of 17 December 2013 establishing a common organisation of the markets in agricultural products and repealing Council Regulations (EEC) No 922/72, (EEC) No 234/79, (EC) No 1037/2001 and (EC) No 1234/2007.
- uptake of best practices is hindered by the respective complex administrative procedures,
- as a consequence of above points, direct support is not provided,
- lack of knowledge about the benefits of agroforestry systems among stakeholders,
- in spite of the existing barriers, in the context of the organic economy and climate change, several isolated agri-forestry initiatives have appeared in the recent years, and we can find good examples for agroforestry-related activities in almost all BIOEAST countries
- in the past years, the establishment of these agroforestry sites were supported from the following main resources:
  - farm subsidies of CAP;
  - European Agricultural Fund for Rural Development (EAFRD);
  - INTERREG programme; and
  - URBACT programme
  - the agroforestry related research activities were supported from the following main resources:
  - European Regional Development Fund,
  - EU LIFE program,
  - funds for environmental protection of the countries,
  - Horizon 2020 programs,
  - Intelligent Energy Europe Program of the EU, and
  - SRC+ program.

Regarding the analysis of CAP supporting measures, as Mosquera-Losada and colleagues (2016) concluded, there is a lack of overview about the real extent of activated support for agroforestry, funded under Pillar 1. Accordingly, in our analysis regarding BIOEAST countries, we took into consideration only the Pillar 2 related measures in Table 2.

Table 2 was compiled on the basis of this AGFORWARD study (Mosquera-Losada and colleagues (2016) as well as on the Evaluation of the Regulation 1305/201 (Evaluation 1305/201, 2019), focusing on the applied and budgeted measures of BIOEAST countries. It shows that in various countries various measures for different agroforestry activities were adapted. It is to be noted, that Table 2 including but not limited to the mostly applied forms of measures by the various countries. Although measure 221-223 and 8.1-8.2 (highlighted with yellow in Table 2) was specifically dedicated for agroforestry related developments, 223 and 8.1-8.2 was limitedly budgeted in BIOEAST countries.

Anyway, it definitely draws attention on the fact that inconsistent regulation and different interpretations may be an obstacle to efficient use.

Also, based on the Evaluation of the Regulation 1305/201 (Evaluation 1305/201, 2019), commission itself identified some restraining issues against implementation of dedicated measures, as follows:
- measures don't address local needs;
- low demand from beneficiaries and the high administrative cost, too much administrative burden, bad experiences from the former period;
- more relevant strategy chosen to meet local needs using State aid.

Accordingly, in the next planning period it would be important to simplify the respective measures and the related administrative burdens.

Table 1: **Existing AF practices of BIOEAST countries**

	Silvoarable agroforestry	Forest farming	Riparian buffer strips	Improved fallow	Multipurpose trees	Silvopasture
Romania		x	x		x	x
Bulgaria		x	x			x
Hungary	x	x	x			x
Slovenia		x	x			
Slovakia		x				x
Czech Republic		x	x			x
Poland	x		x		x	x
Croatia					x	x
Estonia		x				x
Latvia		x				x
Lithuania		x				x

The individual country-related specificities are detailed in Section 4.2.

4.2. Countries with strong agroforestry activities/potential

4.2.1. Romania

Starting with the southern region, Romania has the third largest contiguous area of livestock agroforestry on grassland with sparse tree cover in the EU   (after Spain and France). The Romanian Forestry Law (Law no. 46/19.03.2008) defines a forest as a forest with an area of at least 0.25 hectares, whose trees grow to at least 5 metres in height on the spot when they mature. The grazing forest strictly prohibited and other activites affecting the integrity of the forest (Lucreţia, 2018). Overall, Romania has the largest area under agroforestry among the BIOEAST countries, closely followed by Bulgaria (den Herder et al, 2017).

Agroforestry areas appear mainly in the southern part of Transylvania. However, in spite of the obvious existence of agroforestry in the traditional practice, the term "agroforestry" itself is still a new concept and often used with partial and inconclusive meaning (Mihaila et al, 2018). Authors also highlight that although there are measures to support agroforestry systems at EU level, but in Romania there are no such measures at national level.

Agroforestry is included in the Romanian agricultural development strategy, and rural areas in Romania are largely covered by traditional agroforestry at the landscape scale (Vityi, 2017), but no actual (financial) steps have been taken.

Regarding land related law in Romania, English language documentation is not available, according to our knowledge. However, a reference shows that there are efforts to make regulatory environment more efficient. A good example for this is the Law nr. 214/15.11.2011 (Arc2020, 2011), that was aimed to increase the absorption rate of European funds, focusing on animal breeders, that can support silvopastoral activities, too.

4.2.2. Bulgaria

Bulgaria is also one of the leading countries in the European Union (EU) in agroforestry systems (den Herder et al. 2017). According to national statistics, more than 2/3 of Bulgaria's territory is mountainous or semi-mountainous. According to den Herder et al. (2017), Bulgaria with its 0.9 million hectares has the seventh largest total area under agroforestry in the EU. Forest area was 4.18 million hectares. The majority of forests are used for logging and environmental protection (61.7%). Forests with conservation and special functions, including high stem forests and wooded lands, account for 38.3% of the national forest base. The Bulgarian forestry policy is based on the principles of multifunctional management and utilization of forests and protection of their biodiversity. The political management of forests is geared towards the commercial and economic benefit of forest owners, while forests are considered as national assets. Similarly to the case of Romania, in spite of the high potential and existence of agroforestry practices, there is no adopted law or regulatory mechanism that focuses exclusively on agroforestry agriculture or agroforestry systems (Kachova et al., 2018).

The Forestry Act (2011) classifies agroforestry systems as "protected forest areas", sets out rules for the use of non-timber forest products, and highlights the conditions under which livestock are allowed to graze on forest land. Other regulatory mechanisms comprise the Law on Ownership and Usage of Agricultural Land; the Law on Protection of Agricultural Land; the law for supporting agricultural producers.

An extensive set of strategic documents, referring to forestry activities, cover also agroforestry related activities, as follows:

- Activities related to agroforestry, such as organic farming, restoration and maintenance of lands with high natural values, etc. have been supported in the National Agroecological Program of Bulgaria (Kachova et al., 2018).
- In the Bulgarian National Action Program for Sustainable land management and combatting with Desertification (NAPSMCD 2007–2013) was written that agroforestry is "multifunctional and ecologically friendly usage of natural resources, through which from the positive biological interaction between joint cultivation of trees and/or shrubs with agricultural plants and/or domestic animals can be taken advantage and benefits".
- In the new national strategy for the forestry sector development NSFSD (2013–2020) targets related with the increase of the contribution of the forestry sector to the green economy are pointed to overcome the adverse effects of climate change, enhance biological diversity, and deliver renewable energy resources.
- The Strategic Plan for the development of the Forestry sector SPFSD (2014–2023) is the other strategic document regulating forestry activities. The results expected are associated with activities in restoration and construction of new shelterbelts, development of non-timber forest product markets, etc.

Despite the obvious importance and presence of agroforestry, there were no specific measures in the 2014-2020 Rural Development Programme to finance agroforestry in Bulgaria. Fortunately, there are various measures to support agriculture and forestry for certain activities that are representative of agroforestry itself. These include: support for the reconstruction and creation of new protected areas; various activities in the field of agroecology; organic farming; erosion control, etc. Activities related to the diversification of production and the restructuring of small farms, as well as activities aimed at the introduction of new technologies in agricultural production also have been financed. It supported to finance activities relating to afforestation of degraded and eroded areas and to the preservation and improvement of soil fertility. Financial means for restoration and maintenance of grasslands with high nature value usually linked to the presence of woody vegetation, control soil erosion, traditional practices for pasture of animals, transhumance, etc. also have been provided. Also, agricultural sector receives financial support by national state schemes, short-term and long-term loans granted by the State Fund "Agriculture" and from commercial banks in realizations of the two pillars of the CAP of EC.

The innovations have been identified and comprehensive theories about the possibilities of agroforestry as a science and practice have been developed, and there are educational programs for training of specialists in this field. However, there are no overall strategy and policy, as well as the comprehensive development and application of agroforestry in the country. Macke et.al. (2021) and Kachova et al. (2018) identified several gaps that hinder the effective development of agroforestry systems. Amongst these, inconsistent and sometimes unnecessarily complex, contradictory regulations, as well as the lack of financial incentives for the establishment of agroforestry farms and agroforestry agriculture are mentioned.

4.2.3. Hungary

In the Hungarian agricultural history, systems and technologies known as agroforestry today have centuries-old traditions, traces of this can be also found in the current land use. However, as Varga and Bölöni (2009) pointed out, this form of land use has been significantly diminished during the last decades. Wooded pastures have a total domestic area of only 5,500 hectares, most of these silvopasture systems are abandoned. Hungary also has a deep tradition in the

plantation and management of forest strips and forest belts protecting crop fields against erosion and deflation.

Against this historical background, it is particularly worrying that the domestic area of field protective forest belts has decreased by 15% between 2011 and 2015 (www.teir.hu). At present, 40% of the approximately 11,400 hectares of forest belts are in the Great Plain, and another 20% in the Central Transdanubian region. South Transdanubia (884 ha) and Central Hungary (668 ha) have the smallest area of protective forest belts.

It can be seen from the above that the use of agroforestry technologies in Hungary has been limited and traditional agroforestry practices have been reduced to the end of the 20th century. At the same time, mitigating climate change and adapting to climate change as a double constraint is a great reason for the wider spread of agroforestry systems. In addition, the country has a high proportion of environmentally sensitive agricultural areas, which justifies the use of systems providing complex ecosystem services (Vityi & Marosvölgyi, 2014). From the point of view of technology adaptation, nearly sixty percent of the Hungarian agricultural areas are used by individual farms, which are typically small-scale. The sustainability and rural development functions of agroforestry systems can prevail in such small farms (Coulibaly, et al, 2017; Cole, 2010).

Den Herder et al (2016) estimate that the total area of agroforestry in Hungary is 38 100 hectares, which is only 0.4 percent of the total area of the country. Most of this area is wooded pasture or woodland (36 100 hectares), but high-value tree AF (2000 hectares) and silvoarable AF (2000 hectares) also can be identified. In another aspect, 15 800 ha of the total AF area is classified as hedgerow.

The low proportion of identifiable agroforestry areas, combined with the very high potential of AF, encouraged Hungarian policy makers to budget direct agroforestry-related CAP measures for 2007-2013 and 2014-2020. Data on the budgeting and implementation of the relevant measures are presented in Table 2.

The measures in the Table 2. are classified as subsidies directly related to agroforestry based on Mosquera-Losada et al (2016). For the period 2007-2013, measures 221 (first afforestation of agricultural land) and 222 (first establishment of agroforestry systems on agricultural land) are included. In the case of 221, it is debatable whether the measure is indeed linked to agroforestry, since after afforestation the area loses its agricultural classification and becomes forest land. Technically, therefore, it is not agroforestry systems but forests that are established under measure 221. At farm level, however, the measure will lead to a diversification of activities, combining agricultural and forest management. It is therefore not too bold to say that afforestation could be the first 'stepping stone' to agroforestry on farms. Measure 222 is less controversial as it specifically supported the establishment of agroforestry systems. In Hungary, this measure was limited to the establishment of wooded pastures, other AF activities were not included. It can be seen that measure 221, which promoted afforestation of agricultural land in the 2007-2013 period, was particularly successful, with farmers using almost 95% of the budgeted funds. In contrast, as in other EU countries, support for the establishment of agroforestry systems was implemented by farmers at a very low rate (52%).

The budget for both afforestation (new code 8.1) and agroforestry (new code 8.2) measures has multiplied in the 2014-2020 period. The decision-makers' intention to encourage the combination of wooded and agricultural farmlands has been maintained. At the time of writing (December 2021), the implementation rates are not yet fully known. What is already visible is that more than 100% of the budget for measure 8.1 has already been signed. Interest in the

establishment of agroforestry (8.2) is again lower (30% of the planned budget is under contract), despite the extension of the measure to include silvoarable systems.

In addition to these very important and direct measures listed above, Mosquera-Losada et al (2016) also identify some additional measures budgeted in Hungary that could indirectly help the establishment of agroforestry systems (see Table 2).

In conclusion, there is significant untapped potential for the expansion of agroforestry systems in Hungary. Over the last 10-15 years, measures have been put in place to help better exploit this potential. These measures have been particularly successful in the afforestation segment. However, the potential for increasing agroforestry systems and areas is still not fully exploited.

4.3. Countries with moderate agroforestry activities/potential

4.3.1. Slovenia

Situation in Slovenia is twofold, regarding the expansion of agroforestry. On the one hand, Slovenia's natural-ecological conditions, as well as its socio-political objectives for rural development are undoubtedly favorable for the adaptation of agroforestry systems. A factsheet published by the European Commission (European Commission, 2021) highlights a number of Slovenian specificities that makes the country suitable for the adaptation of agroforestry systems, as follows:
- the high proportion of agricultural (36%) and forestry (56%) areas compared to the total area of the country;
- the majority of the total agricultural area (58%) is extensive grassland;
- due to the small farm structure, the productivity of conventional technologies and the bargaining power of farmers, and thus ultimately their profitability, is below the EU-average;
- the risks associated with intensive agriculture are high because of the rugged and sloping topography, particularly in terms of water quality, soil erosion and biodiversity.

Also, at national level, rural development policy in Slovenia determines three main challenges, in line with the high agro-ecological risks, as follows: (i) improving profitability in the context of small farm structure and unfavorable geographical conditions, (ii) maintaining land use that preserves biodiversity and water and soil quality, (iii) diversification of activities, increasing the share of high value-added economic activities. The spread of agroforestry systems can help to meet these challenges efficiently and effectively.

In spite of the obvious potential, there are a number of barriers to the expansion of agroforestry systems in the country, mainly on the side of political incentives. According to Mosquera-Losada et al (2016), no CAP measures, promoting agroforestry, were budgeted, and implemented in Slovenia directly in the 2007-2013 and 2014-2020 periods. Some budgeted measures that can be indirectly linked to agroforestry schemes are mentioned for the periods 2007-2013 or 2014-2020 (Table 2). The table shows that in Slovenia agroforestry systems could be supported by non-agroforestry specific agri-environmental measures (measure 241, then 10.1) and from 2014 onwards by measure 4.1, which replaced the previous LEADER. It is important to note that there is no information available on the percentage of the aid called for under these measures that was actually used in agroforestry areas. However, it is clear from the table that in the case of Slovenia, extensive farming systems (mountain pastoralism, meadow orchards) are the potential absorbers and integrating frameworks for agroforestry projects. Knowledge of this fact can help to narrow down the broad range of agroforestry systems to a country-specific level, and to provide targeted, effective support for agroforestry development. Overall,

the range and extent of policy instruments to support the introduction of agroforestry systems in Slovenia is rather limited. Budgeted CAP measures are not, or only indirectly, used for agroforestry development.

Some regulatory barriers (i.e. the lack of experience, knowledge and practice, existing practices are not adequate, divisions between forestry and agriculture) are mentioned by Vochl et al (2012). All these factors can be addressed from the regulatory side through a conscious incentive-supporting strategy. Premrl et al (2018) also point out that the removal/reduction of barriers is important because there are existing examples of agroforestry systems, albeit isolated, in the country. The detailed regulation for forest (Forest Act, 1993) neither mention agroforestry, nor refers to this kind of combined activities.

4.3.2. Slovakia

There are no official data about the state of agroforestry in Slovakia. Agroforestry is nowadays a "brand new" topic for both researchers and farmers. According to Špulerová et al. (2011), current area of traditional agricultural landscapes in Slovakia is less than 1 %.

In AGFORWARD, the total extent of agroforestry systems in Slovakia was calculated to be about 43,900 ha (den Herder et al., 2017), which is equivalent to 0.6 % of its territorial area. They also present that the most common agroforestry practice seems to be livestock agroforestry that covers 41,900 ha, followed by grazed high value tree agroforestry which covers 2,000 ha.

One of the main obstacles to the implementation of agroforestry is the legal framework. The planting and management of trees on agricultural land is a complex legal issue in both the Czech Republic and the Slovak Republic. In these countries, the law does not allow the cultivation of trees on agricultural land (except for fast-growing trees) and grazing on forest land.

Palsova and colleagues (2017) introduce the historical development of land act in Slovakia, focusing also on the development of land protection legislation between 2004-2017. Lazikova and colleagues (2020) also gives a comprehensive overview about the legislation on land protection in Slovakia.

In spite of the existing barriers, traditional agroforestry systems can be found also in Slovakia, as follows:
- Various historical agricultural landscape structures i.e., vineyards, grasslands, high-trunk orchards of obsolete varieties and landraces of wild fruit tree species, grazed by cattle or sheep or intercropped with arable crops (cereals, vegetable),
- Traditional wood pastures with pollarding to support tree regeneration and fodder production,
- Traditional forest pastures (e.g. grazing pigs and autumn fattening on acorns/beechnut or maize grazing predominantly in coppice forests, which were cut and pruned for a larger harvest of nuts). However, this practice carries a significant animal health risk.

In recent time, in Slovakia there has been a "big boom" of fast-growing trees (Paulownia spp., Salix spp., Populus spp., Juglans nigra etc.) on agricultural land preferentially intended for the production biomass for energy, but also for firewood and edible nuts and often in combination with plant production (vegetable, cereal etc.).

4.4. Czech Republic

In the Czech Republic, agroforestry systems were abolished due to the expansion of arable land in the 20th century (Santiago-Freijanes et.al, 2018). Krčmářová, J., & Jeleček, L. (2017) noted that, the agroforestry is a forgotten phenomenon in the Czech Republic. Agroforestry does not appear in Czech legislation (Lojka et al., 2022). Recently, researchers are working with farmers and local stakeholders to "revitalize" agroforestry and create sustainable baseline conditions.

Implemented agroforestry practices in Czech Republic: silvopastoral agroforestry system, trees on pasture,

As authors identified, the main gap is a lack of knowledge among stakeholders about the synergistic benefits of agroforestry systems, in spite that impacts of climate change are already being felt. Besides the lack of knowledge, the lack of a market is the biggest barrier to the uptake of agroforestry systems. According to Lojka et al. (2022), there is interest in AF among Czech farmers, but similar barriers as in other sectors (e.g. profitability, high entry costs, bureaucracy). Authors (eg. Lojka and Martinik, 2014; Krčmářová et al., 2021) also highlighted that there is not much chance for agroforestry systems to spread in the Czech Republic because of
- European AF legislation is not expected to be fully incorporated into Czech law,
- direct support of Agroforestry systems is not provided, as well as
- a lack of knowledge among stakeholders about the synergistic benefits of agroforestry systems.

In line with these existing barriers, the implementation of agroforestry subsidies (measure 221, not taken 222 and 223) was poor in the 2007-2013 CAP period, but started to increase a little bit between the 2014-2020 period, mainly due to the recognition of woody vegetation and the 5-year compensation . It is important to note that in the Czech Republic between 1000 and 5000 hectares have been reforested under measure 221 during the last two CAPs (Santiago-Freijanes et.al, 2018).

4.4.1. Poland

Regarding Poland, term agroforestry is not recognized and used by producers and decision makers (EURAF, 2021). Rozakis et al (2018) also highlighted the problem of lack of clear definition and legal regulations related to agroforestry. Borek (2018) identify the barriers to the introduction of agroforestry systems in Poland, as follows:
- communication and awareness: farmers are not aware of agroforestry.
- economic considerations: lack of financial support. "The government did not implement Article 23 of the EU RD Regulation which supports the establishment and maintenance of AF areas."
- technical barrier: Poor quality of land, small size and fragmentation of land.
- legal background: Poland lacks clear legal regulation of agroforestry systems.
- commercialization: Local producers do not use agroforestry systems and therefore there would be no market for the products that could be sold from them, as they are not familiar with the agroforestry sector.

Polish land is about 60% agricultural and 31% forest. Compared to Romania, the Polish Forest Law is less strict, with areas above 0.1 ha being classified as forest. And although the term is not in the public consciousness, the practice of Trees outside Forests   (ToF) appears as an important element of ecologic policy. State Forestry Policy 1997 (based on Borek, 2015) and State Ecological Policy 2000 (based on Borek, 2015) both supports the management of trees

and shrubs in agricultural landscape. Furthermore, shrubs and buffer strips along water courses are considered to be the main protection forms . Afforestation of agricultural land was funded since 2002 before period of Community support for agriculture in Poland. In the first programming period (2004-2006) the total surface area eligible for the support had to be at least 0.3 ha (previously 0.4 ha) and at minimum parcel width 20 m, but in the next program (2007-2014) has been increased up to 0.5 ha. However, due to fragmented land use structure, exemptions regarding minimal width could be applied to narrower parcels, adjacent to forests. Since 2022, 8.1 afforestation measure is changed to include support for mid-field trees establishment (multispecies structure with area 0.1-0.5 ha). The main aim of the sub-measure is to be nitrate leaching reduction (through establishment wooded buffer strips), water balance improvement and soil erosion protection (through hedgerows established on balks) and biodiversity increase.

Recognizing these and other benefits of combined systems, Polish Agroforestry Association has been established in 2015. Within this organization, researchers and farmers are collaborating to spread agroforestry systems. Several initiatives were focused on planting of traditional varieties of fruit trees, used as silvopastoral systems (EURAF, 2021). However, the gap is still exist, as agroforestry is not yet included as a measure within the CAP policy . Other hand, for the 2023-2027 period, Polish government prepared general rules of agroforestry support. Strategic Plan includes agroforestry as an optional measure for farmers interested in establishment of agroforestry system. Financial support is to be continued by eco scheme for agroforestry maintenance. Climate and environmental objectives can be alternatively fulfilled by support for establishment and maintenance of mid-field trees in form of buffer strips and windbreaks.

4.4.2. Croatia

The term agroforestry is still relatively unknown in Croatia. The Croatian National Forest Plan does not include the term agroforestry. However, we do see practices based on tradition and taking advantage of local conditions (Zalac et.al, 2021).

In the past, free-range farming was common in coastal Croatia and, similarly, in the continental part of the country, pigs were often fed with acorns from large oak forests. Nowadays, in the Mediterranean part of Croatia, we read about sheep grazing causing damage to olive plantations, which negatively affects farmers' ability to combine livestock farming with other agricultural production, such as orchards.

In eastern Croatia, the aim is to promote the free-range rearing of black Slavic pigs. However, the high quality and higher price of this meat cannot compete with imported pork.

For the time being, agroforestry as a practice is still not fully recognised, and these two separate issues in the mediterranean and continental parts of the country are key obstacles to the development of silvopastoral systems (Euraf, 2021).

In 2019, in the context of sustainable agriculture, Croatian short rotation coppice plantations have been included in green payments (subsidies) under the SRC Regulation (Official Gazette 16/2019), which may make alley cropping attractive for farmers.

4.4.3. Estonia

Considering the Baltic countries, they have significantly fewer options in agroforestry, than the Southern regions, because of their hemiboreal and boreal climatic zones. Accordingly, they were not traditionally associated with these practices. In addition, some agroforestry related activities (animal grazing in wooded pastures, forest badges stripes and bushlands) are not

counted as 'agroforestry' in the countries' statistics. In supporting agroforestry establishment through the 2nd pillar of CAP, (European agricultural fund for rural development, EU, 1305/2013), the EU rural development program (measure 222) was applied in each countri-esalso in Estonia in the 2007-2013 period (Santiago-Freijanes et al, 2016; EC, 2014; RDP Estonia, Latvia and Lithuania, 2014).. Rules for direct payment under CAP are controlled by the Regulation (EU, 1307/2013), where agroforestry areas belong to 'ecological focus area', if they received support under Article 44 . Estonia has an area of 45000 km², of which 50% of the territory of Estonia is forest and 21% is farmland. Estimated size of areas, occupied with agroforestry-related practices, are relatively low, only 0.3% (den Herder et al, 2017). Further-more, the term of 'agroforestry' is not exactly used for agroforestry-like activities in the respective legal documents.

The monitoring of agricultural land (including agroforestry) resources in terms of CAP, Article 22 of (EU, 1306/2013) regulation serves as a legal basis for each countries . In terms of local specificities, in Estonia neither the Forest Act (2006), nor the land-related act (Restrictions on Acquisition of Immovables Act, 2012) utilizes the term agroforestry, however, it is to be noted that term of 'agricultural land' is interpreted broadly enough to cover agroforestry activities ("agricultural land is a land parcel in the land use type category of land under cultivation or natural grassland or both such lands of an immovable used as profit yielding land or a part thereof").

In fact, in the period of 2007-2013, Estonia have invested in schemes for the management and restoration of traditional wooded pastures under the measures of 121, 123, 216 and 221, mainly (EURAF report, 2012),and in the period of 2014-2020 Estonian RDP (RDP Estonia, 2014) funded actions under all Rural Development Priorities, particularly under Priority 4 "Restoring, preserving and enhancing ecosystems related to agriculture and forestry" was applied. Under this priority, the program established a number of agroforestry related activities (EC Factsheet, 2021) to avoid the deterioration of the agri-environment and to maintain the current status of soils, water and biodiversity.

4.4.4. Latvia

Regarding Latvia, from the total area of 64573 km ², more than 54% is forest and around 30% is agricultural area. Estimated size of agroforestry areas are only 0.4% (den Herder et al, 2017). However, in line with the European trends, as well as in the context of bioeconomy and climate change mitigation, several isolated agroforestry-related initiatives have appeared in the up-to-date literature in past years. Accordingly, we can find practical agroforestry activity in these countries, this country, but sometimes without mentioning the term of 'agroforestry' in the local legislation. It is similar in all of three countries, where tThere are several farming methods (e.g. short rotation coppices and silvopastoral systems that means trees are grown on agriculture land and are being managed like agriculture crops) which could be classified as agroforestry (e.g. short rotation coppices and silvopastoral systems) (Lazdina et al, 2019). In spite of the less favorable climatic conditions, there is a long tradition of several agroforestry systems such as silvopasture, clusters of trees in arable land (silvoarable), riparian buffer strips, hedgerows and windbreaks (Bardule et al, 2019). Similarly to Estonia, oOne of the main priority of Rural Development Plan (RDP Latvia, 2014) is the restoration of ecosystems in agricultural and forestry areas, while 23% of the agricultural area came under contract for biodiversity, where agroforestry is could be a potentially advantageous practice. In addition to this priority, RDP promoted also the local development in rural areas, involving also agroforestry activities. Similarly to other BIOEAST countries, Latvian farmers can also received less favored

area payments, as a part of CAP (LFAP) for those agriculture areas that has unfavorable conditions for agriculture utilization (e.g. areas with poor soil quality, with high slopes, etc.), and/or agriculture lands located in marginal areas with remote access and poor socio-economic performance (Rural Support Service, 2021).

In line with the opinion of local experts (Ivaviciute, 2018), role of agroforestry and establishment of agroforestry systems will increase in the next period . Also, in line with the regulation, laid down in (EU, 1305/2013) "if a traditional agroforestry system is defined by the Member State as agricultural land eligible for CAP direct payments, the land manager implementing appropriate environmental management may receive both CAP income support payments plus agri-environment-climate payments".

The respective regulations and guidelines (Saeima material, 1997 , Land policy guidelines, 2008; Latvia Sustainable Development Strategy until 2030, 2010) omit to mention agroforestry. However, in 2010 the Government of Latvia enforced double taxation for uncultivated or otherwise non-used agriculture lands, by adding 1.5% penalty tax to the existing 1.5% real estate tax, that motivated alternative use of abandoned areas, even as agroforestry area (Saeima, 1997 , Abolina and Luzadis, 2015). The term "agroforestry" is not mentioned either in the Law on Forest (2000), however the act refers to the existence of agroforestry-related activities in Latvia ("Trees on the land which has been registered as agricultural land in the National Immovable Property Cadastre Information System shall be felled in accordance with the laws and regulations regarding tree felling outside the forest").

4.4.5. Lithuania

Agroforestry-related activities occupy only 0.6% of the areas in Lithuania (den Herder et al, 2017), similarly to other Baltic countries. Initiatives under five RDP measures (4: Productive and non-productive investments, 13: Farming in areas with natural constraints, 6: Farm and business development, 11: Organic farming, 19: LEADER) were supported under the 2014-2020 Rural Development Programme (RDP Lithuania, 2014), as the combination of agriculture and forestry, featuring innovation and environmental benefits. Agricultural and forested land is about 78% of the total area, and although only about 0.6% of this area is estimated to belong to agroforestry related cultivation (den Herder et al, 2017), the agroforestry appeared as a sustainability-supporting practice in the past years.

Although the respective national legislations (Forestry Law, 1994; Rep. of Lithuania Law on Land, 1994) doesn't refer to agroforestry, in line with the opinion of local experts, role of agroforestry and establishment of agroforestry systems will increase in the next period (Ivaviciute, 2018), especially in Utena and Šiauliai counties. According to the authors' description, in line with the national development plan determined plantation activities, forest would occupy 35% of the country's area by 2030.

Similarly to Latvia, in line with the rules of (EU, 1305/2013), in Lithuania farmers also were received can get CAP income support payments plus agri-environment-climate payments, although national regulations doesn't mention „agroforestry" (Republic of Lithuania Law on Land, 2014). It is a general endeavor also here, that abandoned or non-productive lands are expected to be utilized in a higher extent (Salkauskiene, 2019).

Table 2: **Activated support for various agroforestry systems in the BIOEAST countries**

Period	Measure code	Notion	Bulgaria	Croatia	Czech Republic	Estonia	Hungary	Latvia	Lithuania	Poland	Romania	Slovakia	Slovenia
							Activated support for various agroforestry systems in the BioEast countries						
2007-2013	112	Setting up of young farmers			apiculture								
	121	Modernisation of agricultural holdings				apiculture, truffle cultivation				apiculture	apiculture		
	122	Improving the economic value of forests									hedgerow		
	123	Adding value to agricultural and forestry products				forest strips, non-timber forest products				meadow orchards	apiculture, non-timber forest products		
	214	Agri-environmental payments	hedgerow, meadow orchards, apiculture, mountain pastoralism		hedgerow		meadow orchards	apiculture, hedgerow	hedgerow	meadow orchards, apiculture	hedgerow		hedgerow, forest understory grazing, meadow orchards
	216	Support for non productive investments				hedgerow	hedgerow						hedgerow
	221	First afforestation of agricultural land			first afforestation	forest farming, forest strips and small stands	first afforestation		first afforestation	first afforestation	forest farming		
	222	Agroforestry establishment					agroforestry practices on grassland						
	223	First afforestation of non-agricultural land											
	323	Conservation and upgrading of the rural heritage											
2014-2020	4.1	Support for investments in agricultural holdings		forest farming, apiculture									
	4.2	Support for investments in processing/marketing and/or development of agricultural products		apiculture, forest farming						apiculture			
	4.4			hedgerows									
	6.1	Business start up aid for young farmers								apicultute			
	6.3	Business start up aid for development of small farms		forest farming									
	8.1	Support for afforestation/creation of woodland	72.3 1-50 million	92.9 No budget allocated	95.9 1-50 million EUR	10 No budget allocated	261.1 over 50 million EUR	36.9 between 1- 50 million EUR	123.7 over 50 million EUR	301 over 50 million EUR	242.3 over 50 million EUR	142.6 below 1 million EUR	59.5 No budget allocated
	8.2	Support for establishment and maintenance of agroforestry systems	No budget allocated	No budget allocated	No budget allocated	No budget allocated	between 1-50 million EUR	No budget allocated	No budget allocated	No budget allocated	No budget allocated	No budget allocated	No budget allocated
	8.6	Support for investments in forestry technologies and in processing, mobilising and marketing of forest products		forest farming						meadow orchards			apiculture, meadow orchards
	10.1	Payment for agri environment climate commitments		mountain pastoralism, meadow orchards									hedgerow, mountain pastoralism

Number in red: Public expenditure of forestry related measures (million EUR) Related measures: 8.1-8.6 and 15.1-15.2
Number in green: Public expenditure regarding 8.1 and 8.2
Source: own compilation, based on AGFORWARD report and the Evaluation of the Regulation (EU) No 1305/201, 2019

4.5. Summary of the current situation and regulation of agroforestry in the BIOEAST area

Based on the studies carried out in this chapter, the following main conclusions (for the BIO-EAST region as a whole) can be drawn.

- The extent of agroforestry systems represents a negligible share of land use in the region.
- Agroforestry is still in the grey zone of the regulatory systems in BIOEAST countries, with the definition of agroforestry areas not or only partially reflected in land use regulations.
- Moreover, the establishment of agroforestry systems is currently rather incompatible with the rules on the protection of semi-natural areas of areas of high ecological value, forestry management and agricultural land use in most countries. It can be concluded that agroforestry is still "outsider" and not (or only partly) integrated into the legal environment governing land use. For example, agroforestry does not appear as a specific land use category in national classification systems. It is urgent to solve this problem as soon as possible.
- Largely as a result of the above, the agroforestry measures of the CAP rural development policy have been budgeted for and implemented by the BIOEAST countries at a low level compared to their potential.
- For countries with a strong agroforestry potential and where agroforestry measures are more budgeted and implemented (Bulgaria, Hungary, Romania), the introduction of agroforestry is mostly done through schemes linked to traditional practices or high added value production. These are, in order of importance, (i) wooded pasture systems, (ii) silvoarable systems, (iii) grazed orchards, (iv) intercropped orchards. this prioritisation seems to be extendable to countries with moderate agroforestry potential.

To sum up, the regulatory environment has so far been a significant barrier rather than a facilitator to the expansion of agroforestry systems in BIOEAST countries. The CAP-RDP measures to support the establishment of agroforestry systems is (could be) the only significant incentive in the current regulatory regime. However, their budgeting and implementation has been only partial and under-utilised in the countries under review, Furthermore, the strict international and national land use regulations lack recognition of agroforestry activities, and consequently the expansion of agroforestry systems is excluded from land use options by either agricultural land use legislation, forestry regulations or conservation law. Of course, this is not to suggest that important current land use regulations should be loosened in the interests of agroforestry systems. However, we feel that it is a realistic and desirable expectation that agroforestry, as a special and multifunctional form of land use, should be included in the regulations in the current planning period.

5. Delineation of strategic AF zones within the BIOEAST area

As mentioned in the previous chapter, to increase the spread of agroforestry, we need to go beyond the isolated analysis of individual territorial units. In this chapter, the LUCAS (Land Use and Coverage Area Frame Survey) database is used to classify the BIOEAST area into different types of strategic agroforestry zones.

5.1. Methodology

For the geographical analysis, we used land cover and land use data from the LUCAS 2018 survey. From the database we have filtered and selected the reference points in the BIOEAST area.

The reference points were arranged into neighborhood relationships using a spatial statistical procedure. For each point, the number of neighboring reference points from the following land use categories was calculated:
- number of arable lands,
- number of forests and woodlands,
- number of orchards,
- number of wooded grasslands,
- number of grazed areas.

Using these variables, extended with variables for geolocation (longitude and latitude coordinates) a K-mean spatial cluster analysis were applied to identify different strategic agroforestry zones within the whole BIOEAST area.

5.2. Description of the strategic zones

In Map 1, the entire BIOEAST area is divided into five different strategic agroforestry clusters. A brief description of each cluster is given below.
1. Conventional Crop Farming Zone. In these areas, both temporary arable crops and perennial plantations are predominant. At the same time, there is a moderate presence of wooded areas and a markedly low presence of grassland and wooded pastures. In these zones we can expect most conflicts between forestry/extensive land use and agricultural activities. The most important source of conflict is wildlife damage and the associated costs. Another important issue affecting spatial policy is the issue of income generation from intensive agricultural land use and the negative natural externalities that this generates. It is expected that in these zones, cognitive lock-in and path dependency are high as barriers to agroforestry. Other obstacles to the transition of arable land and orchards to agroforestry are mechanisation and investment costs.
2. Forestry Dominated Zone. This zone is dominantly covered by contiguous forests, but grasslands, pastures and orchards are absent. In these traditional forest zones, the presence and expansion of agricultural activity is not justified from either a social or a natural

point of view. The expansion of agroforestry systems can therefore only be considered within the strict legislation of forests.

3. Extensive Land Use Zone. In addition to forests, wooded grasslands are present in this zone, but the proportion of grazing is low. An indicator of the ecotonic character is the presence, albeit moderate, of arable crops in these areas. The duality of extensive land use and crop production seems to us to confer a considerable, but as yet under-utilised, agroforestry potential on these zones.

4. Livestock and Mixed Farming Zone. The presence of woodlands and forests is the lowest in this zone, while the share of livestock, grazing and arable crops is high. A significant part of the arable land is used for the production of fodder for livestock. The relatively high share of grazing naturally justifies the development of silvopastoral systems.

5. Silvopastoral Target Zone. In virtually all BIOEAST countries, the zone with high silvopastoral potential is present, albeit to varying degrees, dominated by wooded pastures and orchards. In these areas, both natural and socio-economic conditions are favourable for the expansion of silvopastoral systems. In our opinion, one of the main focuses of the BIOEAST initiative, with an impact on the whole region, could be to encourage the spread and development of silvopastoral systems in these zones.

The location of each zone divides the BIOEAST countries into three groups:

- the Baltic countries are mostly dominated by extensive wooded zones with high but underutilised agroforestry potential
- in Romania and Bulgaria in the south, the conditions for silvopastoral systems are best;
- forestry and conventional agricultural zones are the most prevalent in the central, large belt, which implies both a high risk of conflicts with agroforestry and good conditions for the spread of silvoarable systems.

The distribution of each zone in the different countries is shown in Figure 1.

Countries/zones	Conventional Crop Farming Zone	Forestry Dominated Zone	Extensive Land Use Zone	Livestock and Mixed Farming Zone	Silvopastoral Target Zone
Estonia	0%	0%	100%	0%	0%
Latvia	10%	0%	89%	0%	0%
Lithuania	6%	0%	83%	0%	11%
Croatia	18%	79%	0%	0%	3%
Czechia	69%	20%	0%	0%	11%
Hungary	48%	38%	0%	4%	10%
Poland	59%	21%	14%	0%	7%
Slovakia	34%	55%	0%	0%	10%
Slovenia	19%	66%	0%	0%	15%
Bulgaria	0%	34%	0%	60%	6%
Romania	2%	19%	0%	47%	32%

Figure 1: **Distribution of strategic agroforestry zones in the BIOEAST countries**

5.3. Possible implementation strategies by zones

We believe it is very important to encourage the dissemination of good practices in the agroforestry zones that have now been defined. We are in the fortunate position that these good practices have been collected in previous years by two major European agroforestry projects (AGFORWARD and AFINET projects). In the tables below, we list the most appropriate solutions for each of these zones, with corresponding links.

Zone	Strategic directions, main steps	Most suitable AGFORWARD good practices	Most suitable AFINET good practices
Conventional Crop Farming	Promotion of silvoarable systems. Moving from windbreaks and shelterbelts to alley cropping systems Resolving forestry-farming conflicts through networking, training and support schemes. Good practice-based counselling and study tours to overcome cognitive lock-in and road dependence. Developing and promoting alley cropping mechanisation technologies.	https://www.agforward.eu/alley-cropping-systems-in-hungary.html https://www.agforward.eu/integrating-trees-with-arable-crops-switzerland.html https://www.agforward.eu/alley-cropping-systems-in-germany.html https://www.agforward.eu/silvoarable-agroforestry-in-the-uk.html https://www.agforward.eu/agroforestry-for-arable-farmers-in-northern-france.html https://www.agforward.eu/agroforestry-for-arable-farmers-in-western-france.html https://www.agforward.eu/trees-for-timber-intercropped-with-cereals-445.html	http://agroforestrynet.eu/wp-content/uploads/2019/12/AJ_PA_38_Melliferous.pdf http://agroforestrynet.eu/wp-content/uploads/2019/11/26Ingles.pdf http://agroforestrynet.eu/wp-content/uploads/2019/11/77ingles.pdf http://agroforestrynet.eu/wp-content/uploads/2019/12/PA98.pdf http://agroforestrynet.eu/wp-content/uploads/2019/10/20190919_factsheet_38_en_web.pdf
Forestry Dominated Zone	Prioritise and protect forest land over agricultural land use. Encourage agroforestry and forestry interface: forest farming (apiculture, mushroom and herb farming), semi-domesticated game farming. Afforestation of less profitable agricultural lands. Extensive agroforestry projects on farms combined with conservation measures.	/Partly suitable practices/ https://www.agforward.eu/dehesa-farms-in-spain.html https://www.agforward.eu/wood-pastures-and-reindeer-in-sweden.html https://www.agforward.eu/montado-in-portugal.html https://www.agforward.eu/bocage-agroforestry-in-brittany-france.html https://www.agforward.eu/agroforestry-in-the-spreewald-flood-plain-germany.html http://agroforestrynet.eu/wp-content/uploads/2019/12/AJ_PA_102_Fallow_dear.pdf	http://agroforestrynet.eu/wp-content/uploads/2019/11/PA_mushrooms_EN_21.10.2019.pdf http://agroforestrynet.eu/wp-content/uploads/2019/11/29ingles.pdf http://agroforestrynet.eu/wp-content/uploads/2019/10/20190529_factsheet_02_en_web_0.pdf http://agroforestrynet.eu/wp-content/uploads/2019/11/76ingles.pdf

Zone	Strategic directions, main steps	Most suitable AGFORWARD good practices	Most suitable AFINET good practices
Extensive Land Use	Establish and operate agroforestry training and extension systems. Implementation of AF schemes linked to nature and tradition conservation. Extensive use of wooded grassland for grazing. Promotion of mosaic systems, field protection strips.	https://www.agforward.eu/wood-pastures-and-reindeer-in-sweden.html https://www.agforward.eu/agroforestry-for-organic-poultry-and-pig-production-in-denmark-583.html https://www.agforward.eu/agroforestry-with-ruminants-in-france.html https://www.agforward.eu/fodder-trees-for-cattle-and-goats-in-the-netherlands.html https://www.agforward.eu/agroforestry-with-ruminants-uk.html	http://agroforestrynet.eu/wp-content/uploads/2019/12/AJ_PA_102_Fallow_dear.pdf http://agroforestrynet.eu/wp-content/uploads/2019/12/AJ_PA_1_Beef_cattle_grazing.pdf http://agroforestrynet.eu/wp-content/uploads/2019/12/PA63.pdf http://agroforestrynet.eu/wp-content/uploads/2019/10/20190804_factsheet_29_en_web.pdf http://agroforestrynet.eu/wp-content/uploads/2019/12/AJ_PA_40_Traditional_grazing_of_sheep.pdf http://agroforestrynet.eu/wp-content/uploads/2019/12/PA64.pdf http://agroforestrynet.eu/wp-content/uploads/2019/10/16_Grazing_sheep_under_walnut_trees.pdf
Livestock and Mixed Farming	Promotion of agroforestry systems combined with livestock production through networking, training and technical advice. Adapting agroforestry systems for both ruminant and monogastric species. Development of forage production systems combined with agroforestry. Integration of livestock and crop farms in a co-operative system. Complex linking of organic and agroforestry farming systems.	https://www.agforward.eu/agroforestry-for-poultry-systems-in-the-netherlands.html https://www.agforward.eu/Poultry-systemUK.html https://www.agforward.eu/agroforestry-for-organic-poultry-and-pig-production-in-denmark-583.html https://www.agforward.eu/free-range-pigs-with-energy-crops-italy.html https://www.agforward.eu/free-range-pigs-integrated-with-energy-crops.html https://www.agforward.eu/agroforestry-with-ruminants-in-france.html https://www.agforward.eu/agroforestry-with-ruminants-uk.html https://www.agforward.eu/fodder-trees-for-cattle-and-goats-in-the-netherlands.html	http://agroforestrynet.eu/wp-content/uploads/2020/03/fs45.pdf http://agroforestrynet.eu/wp-content/uploads/2019/10/20190805_factsheet_32_en_web.pdf http://agroforestrynet.eu/wp-content/uploads/2019/11/27ingles.pdf http://agroforestrynet.eu/wp-content/uploads/2019/12/PA64.pdf http://agroforestrynet.eu/wp-content/uploads/2019/12/PA52_INAGROILVO_Design-and-management-of-silvopastoral-systems-with-pigs-in-Northwestern-Europe_Template.pdf http://agroforestrynet.eu/wp-content/uploads/2019/12/PA_INAGROILVO_Combining-woody-plants-with-free-range-poultry_Template.pdf http://agroforestrynet.eu/wp-content/uploads/2019/10/39_Commercial_apple_orchards_in_poultry_free-range_areas.pdf

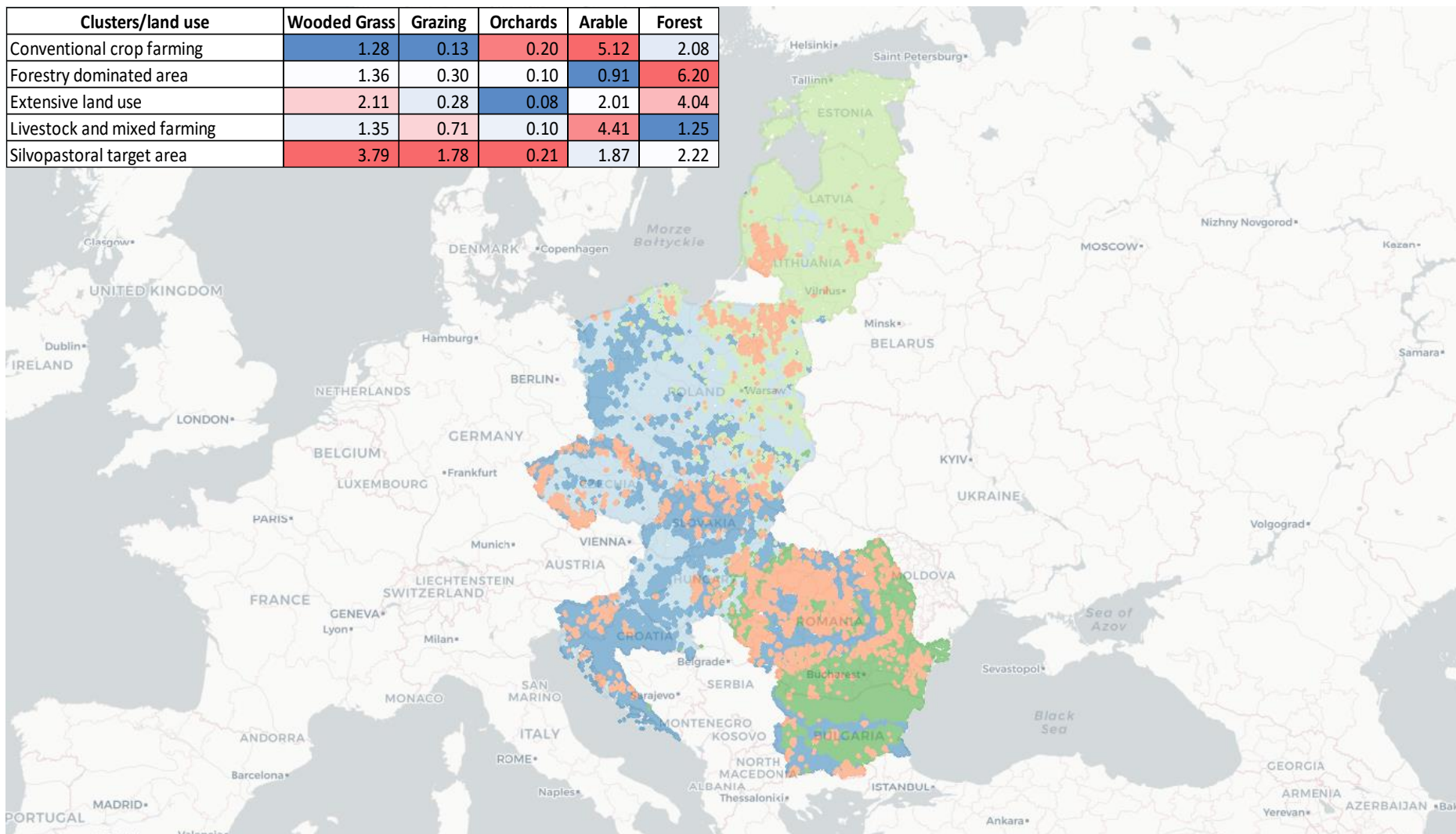| Zone	Strategic directions, main steps	Most suitable AGFORWARD good practices	Most suitable AFINET good practices
Silvopastoral Target Zone	Building on traditional grazing practices and technologies. Linking orchards and grazing farms through local agroforestry cooperatives, and farmer groups.	https://www.agforward.eu/wood-pastures-in-southern-transylvania-romania.html https://www.agforward.eu/wood-pasture-in-hungary.html https://www.agforward.eu/agroforestry-with-ruminants-uk.html https://www.agforward.eu/agroforestry-with-ruminants-in-france.html https://www.agforward.eu/grazed-orchards-in-northern-ireland-uk.html https://www.agforward.eu/grazed-orchards-in-france.html	http://agroforestrynet.eu/wp-content/uploads/2019/12/AJ_PA_1_Beef_cattle_grazing.pdf http://agroforestrynet.eu/wp-content/uploads/2019/12/AJ_PA_40_Traditional_grazing_of_sheep.pdf http://agroforestrynet.eu/wp-content/uploads/2019/11/PA_sheepmanagers_EN_21.10.2019.pdf http://agroforestrynet.eu/wp-content/uploads/2019/12/PA64.pdf http://agroforestrynet.eu/wp-content/uploads/2019/10/16_Grazing_sheep_under_walnut_trees.pdf http://agroforestrynet.eu/wp-content/uploads/2019/12/AJ_PA_102_Fallow_dear.pdf

Clusters/land use	Wooded Grass	Grazing	Orchards	Arable	Forest
Conventional crop farming	1.28	0.13	0.20	5.12	2.08
Forestry dominated area	1.36	0.30	0.10	0.91	6.20
Extensive land use	2.11	0.28	0.08	2.01	4.04
Livestock and mixed farming	1.35	0.71	0.10	4.41	1.25
Silvopastoral target area	3.79	1.78	0.21	1.87	2.22

Figure 2: **Strategic AF zones of the BIOEAST area**

5.4. Potential hotspots for the relevant types of agroforestry systems

In the four maps (maps 2-5) on the following pages, spatial statistical methods are used to suggest hotspots for the four most relevant agroforestry systems. Agroforestry projects, incentive actions and subsidies targeting hot spots are likely to result in the spread of agroforestry practices, technologies or even complex systems to adjacent areas. If the BIOEAST Initiative, with the cooperation of its member countries, can deploy agroforestry development projects in some of the hot spots we propose, then we would expect a significantly better chance of geographical spread of project results than if it were to do the same on an ad-hoc site selection basis outside the hot spots.

Figueres 4-7 show the intervention zones of the agroforestry systems we consider most relevant:

- hotspots for silvopastoral systems,
- hotspots for silvoarable systems.
- hotspots for intercropped orchards
- hotspots for grazed orchards.

Obviously, the estimation procedures and maps we use may sometimes contain inaccuracies or errors. However, we consider the maps reported here to be a very important step towards spatially explicit agroforestry project planning and regulation.

The fit of each agroforestry system to different strategic zones is shown in Figure 3.

		Zones				
		CCF[1]	FD[2]	ELU[3]	LMF[4]	SPT[5]
Types of AF systems	Silvopastoral	*	**	***	***	***
	Silvoarable	***	*	**	***	*
	Intercropped orchards	***	*	**	*	*
	Grazed orchards	**	*	*	*	***

Figure 3: **The adaptation of different agroforestry systems to different agroforestry zones**

1Conventional Crop Farming Zone; 2Forestry Dominated; 3Extensive Land Use; 4Livestock and Mixed Farming; 5Silvopastoral Target.
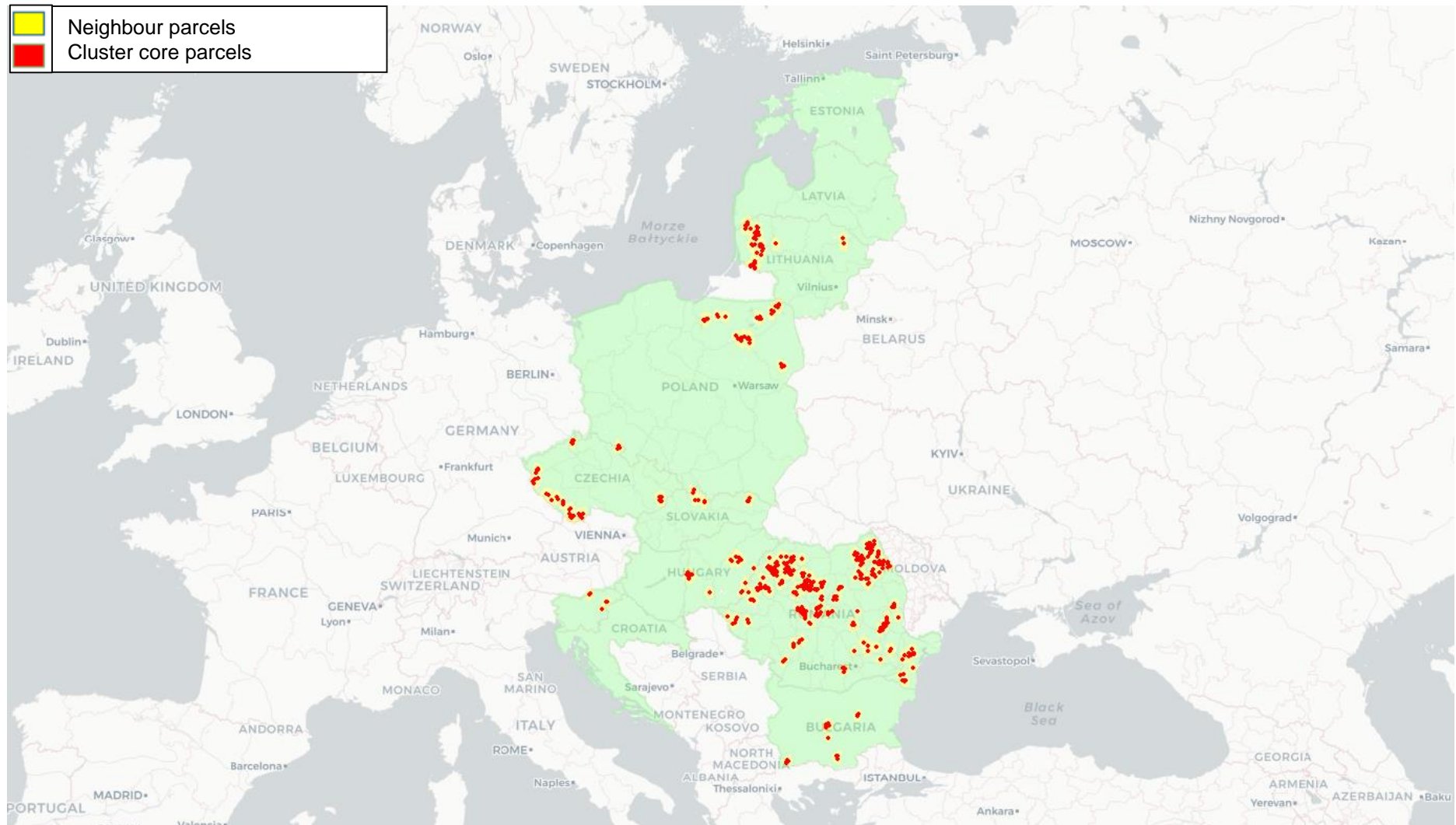***: primary suggested measure; **secondary suggested measure; *: suggested only as a complementary measure
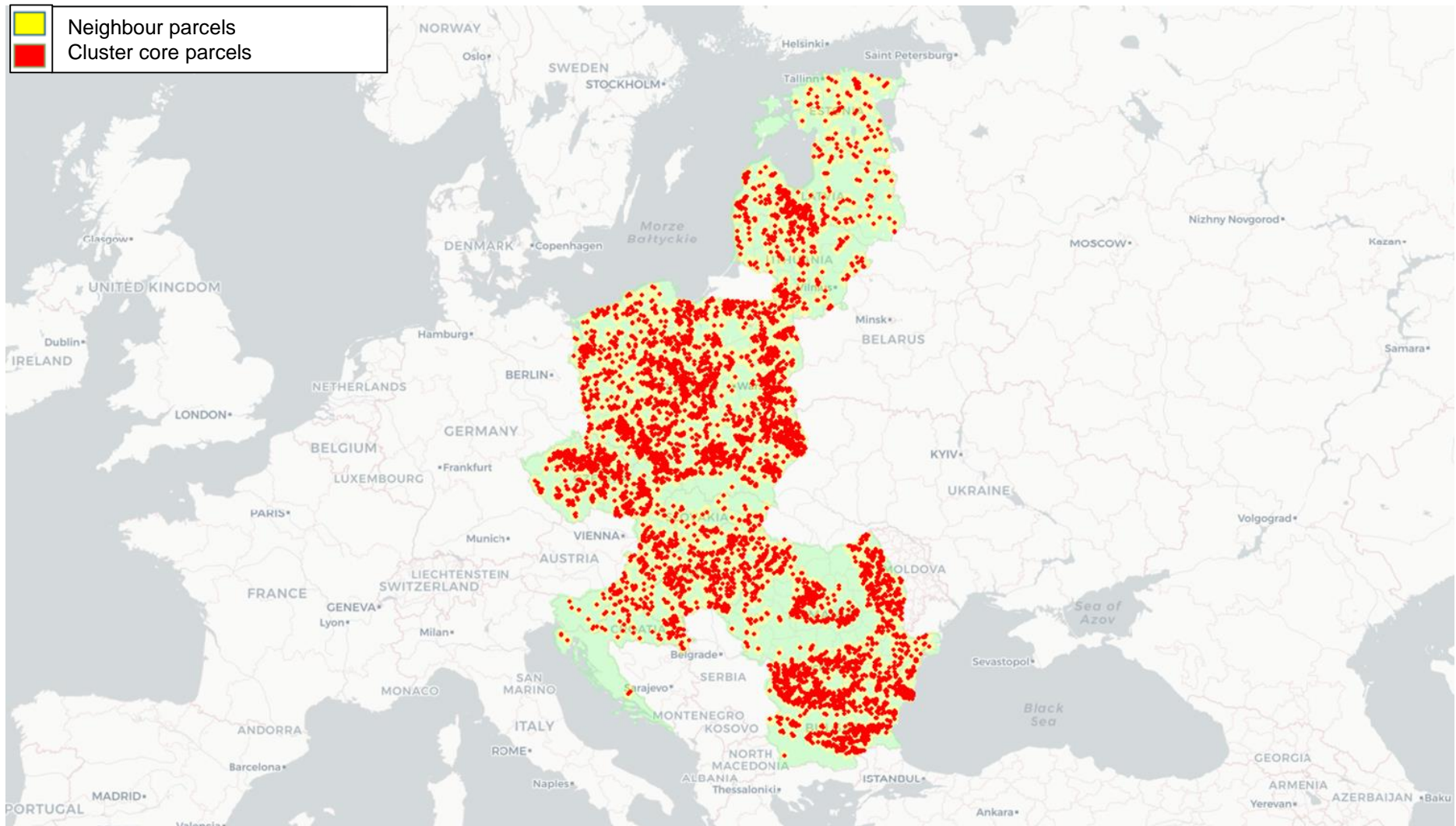
Figure 4: **Hotspots for silvopastoral systems**
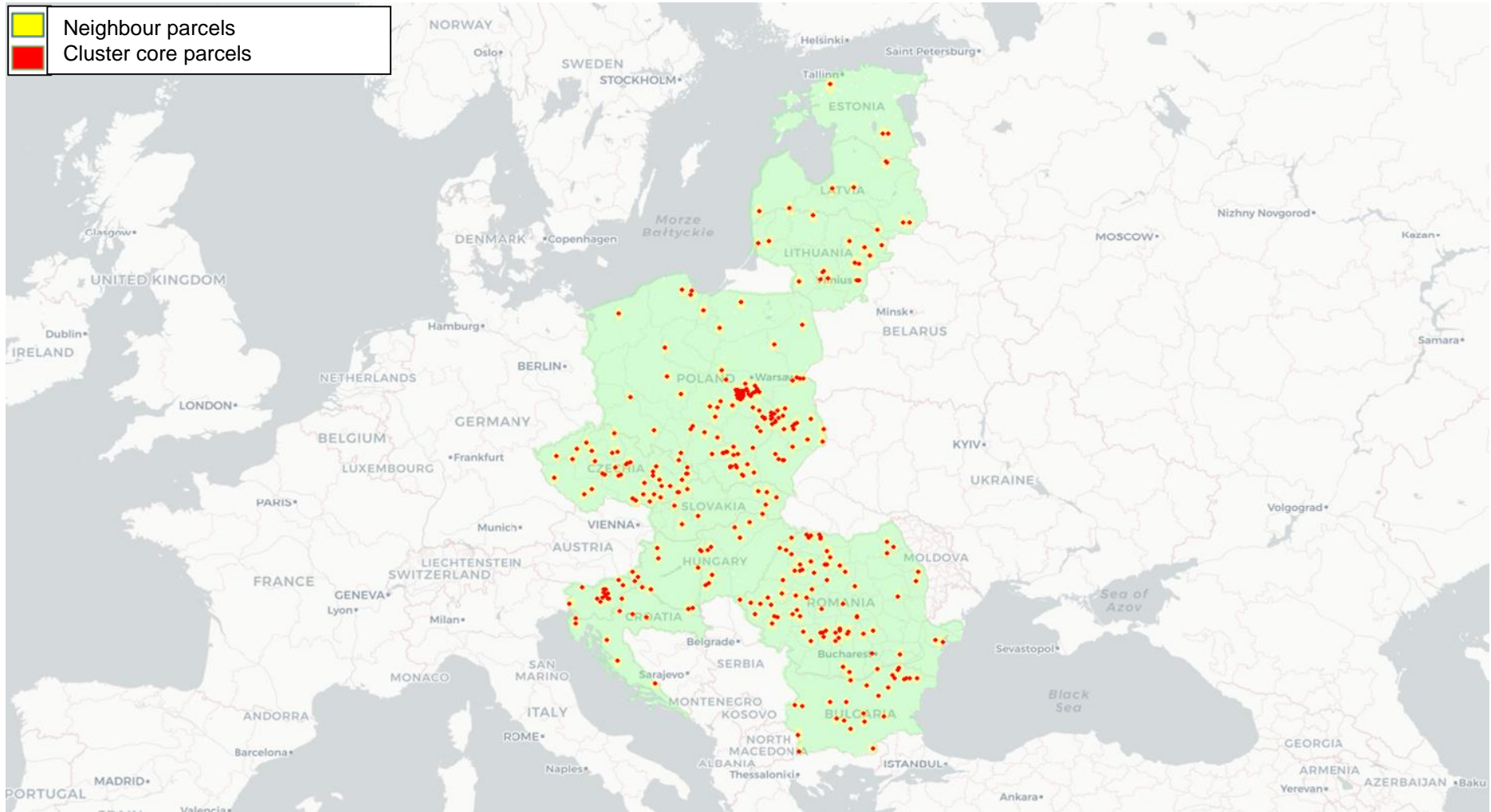
Figure 5: **Hotspots for silvoarable systems**
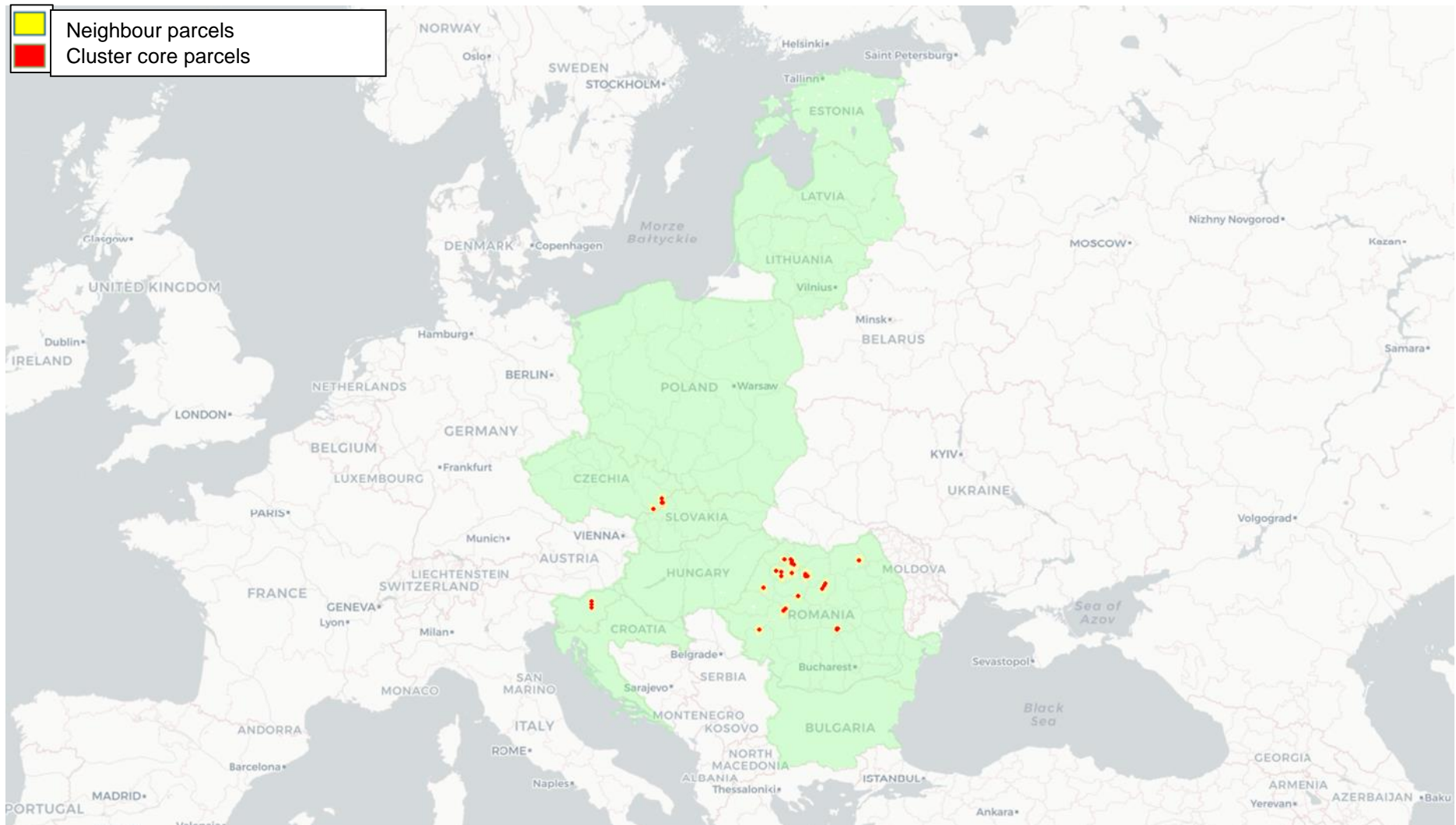
Figure 6: **Hotspots for intercropped orchards**

Figure 7: **Hotspots for grazed orchards**

6. Recommendations for the implementation of agroforestry to the national strategic plans (CAP 2021-2027)

6.1. The potential position of agroforestry within the EU's Common Agricultural Policy objectives and broader strategic goals of the EU

To successfully integrate agroforestry into the national strategic plans for the CAP 2021-2027, we first need to clarify its potential in relation to the EU's Common Agricultural Policy and the EU's broader strategic objectives. As we have repeatedly pointed out, despite decades of international research and promotional projects, agroforestry is still perceived by local decision makers, farmers and stakeholders as a marginal practice, applicable only in specific circumstances. As a consequence, the real implementation of agroforestry is often lost between different mainstream regulatory areas and interest groups, and is left in the 'no man's land'. Before any further proposals are made, it is strongly recommended that a 'ground zero' step be taken to identify the objectives of the EU's common agricultural policy and wider EU-strategies to which agroforestry can make a decisive contribution.

6.1.1. Contribution to the specific objectives of CAP 2021-2027

A briefing by European Parliament (EP) entitled 'Agroforestry in the European Union' (see: https://www.europarl.europa.eu/RegData/etu-des/BRIE/2020/651982/EPRS_BRI(2020)651982_EN.pdf) has already clarified the main connections between agroforestry and 2021-2027 Common Agricultural Policy as well as other wider strategic frameworks. In the following, based on the EP's briefing, the possible positioning of agroforestry within the EU's agricultural and rural development objectives are presented.

As you can see in Figure 8, there are five target fields, where benefits provided by agroforestry systems meet the main specific objectives of CAP 2021-2027.
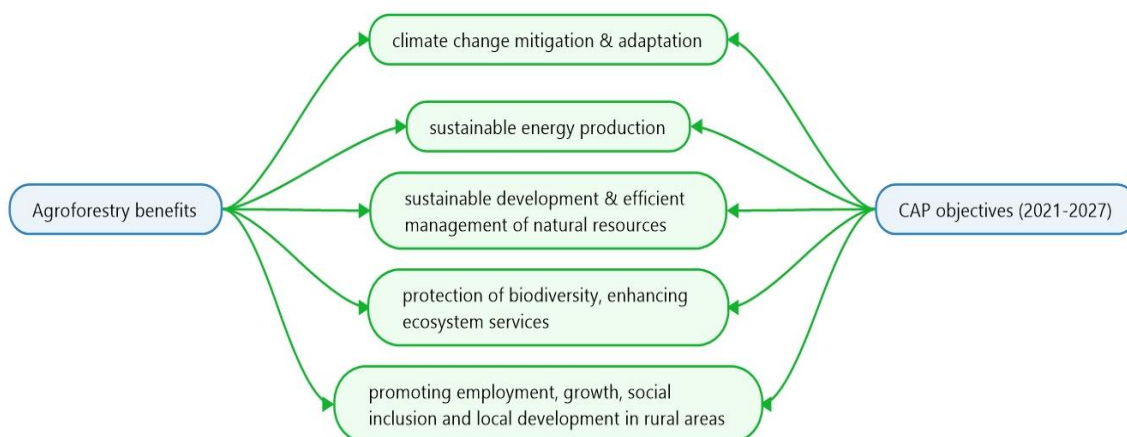
Figure 8: **Connections between agroforestry and the specific objectives of CAP 2021-2027**

Source: own compilation based on https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/651982/EPRS_BRI(2020)651982_EN.pdf

In a working paper , EURAF highlights that member states (MS) of the EU should note the flexibility in EU-definition of agroforestry and therefore encourage agroforestry on both agricultural and forest lands. the document lists in detail the implementability of agroforestry in both pillars of the CAP. Quoting the EURAF document, the following entry points are available to promote agroforestry, also in the BIOEAST countries.

Considering Pillar I:
- "Agroforestry contributes the Pillar I requirements for "Good Agricultural And Environmental Conditions" especially GAEC 1,4,5,6,7,9,10. Therefore, MS could mention agroforestry in their conditionality rules."
- "EURAF proposes a "light-touch Agroforestry and Landscape Feature Ecoscheme" to establish small areas of tree outside forests. MS should implement agroforestry ecoschemes accessible to all farmers."
- "MS have the leeway to ensure agricultural area under agroforestry is fully eligible for payments, when justified based on the local specificities (e.g. density/species/size of the trees and pedo- climatic conditions) and the value added of the presence of trees to ensure sustainable agricultural use of the land. MS should publicise and use this flexibility."

Considering Pillar II
- "MS should make Agri Environment Climate Schemes payments to farmers and farmer groups who undertake management contracts for long-term "Carbon Farming with Agroforestry".

The further details of the listed proposals can be found in the document quoted here (see footnote nr. 1[1] at the bottom of this page).

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[1] https://docs.google.com/document/d/1TzeXWvNmnBHjaul5IS3f4SVFy_TvKi6DOowok1it1S0/edit

Table 3: **Agroforestry as part of the wider EU policy framework**

Title (*and main goal*) of the strategic documents	Explicit reference(s) to agroforestry in the document
The European Green Deal (*Response to the current challenges of climate change and environmental degradation.*)	"The Commission will ensure that these strategic plans are assessed against robust climate and environmental criteria. These plans should lead to the use of sustainable practices, such as precision agriculture, organic farming, agro-ecology, **agro-forestry** and stricter animal welfare standards."
Farm to Fork Strategy (*The strategy aims to help farmers to strengthen their efforts to tackle climate change, protect the environment and preserve biodiversity.*)	"The new 'eco-schemes' will offer a major stream of funding to boost sustainable practices, such as precision agriculture, agro-ecology (including organic farming), carbon farming and **agro-forestry**."
EU Biodiversity Strategy for 2030 (*Aims to ensure that Europe's biodiversity will be on the path to recovery by 2030 for the benefit of people, the planet, the climate and economy.*)	"The uptake of agroforestry support measures under rural development should be increased as it has great potential to provide multiple benefits for biodiversity, people and climate.

Source: own compilation based on
https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/651982/EPRS_BRI(2020)651982_EN.pdf

6.2. General regulatory & policy suggestions

Based on the reviewed English language materials (respective legal and regulatory documentation, papers and materials about research programs, project documentations, etc.), the following main conclusions can be derived.

6.2.1. Clear definition of terms

EU 1305/2013 regulation gives an overall definition for agroforestry systems, as "land use systems in which trees are grown in combination with agriculture on the same land". In addition, besides EU definition, various expert groups suggested different formulation for describing the term (e.g. AGFORWARD project definition, FAO, 2015, etc.), appropriately.

However, in spite of the various available definitions, in most BIOEAST countries, with a few exceptions, the term "agroforestry" is not used consequently at national level. Nonetheless, considering the common sense importance and obvious benefits of combining agricultural activities with growing trees, it appears in most countries, even in those cases, where climatic conditions are less favorable (e.g. Baltic countries).

Anyway, clear formal definition at national level would be an important basis for promoting activity and it is also the necessary first action for the formulation of respective legal and regulatory environment.

6.2.2. Harmonization of legal/regulatory environment at EU and national level

According to the national-level legal and regulatory documents in the BIOEAST countries, we can see that agroforestry-related legal and regulatory frameworks are ill-defined or not exist at all, and national legislation doesn't support agroforestry development (again, except of some countries with strong agroforestry background). In most cases, EU-level regulations are not adopted by the national legal environment.

Accordingly, in line with literature suggestions (Krčmářová & Jeleček, 2017) participatory po-licy-shaping, inviting experts both at national and international level, would be a possible way for the harmonization in each country. This way of organization would allow the consideration of national specificities, and would draw attention to international good practices. Also, in line with Forest Europe workshop report (2018), development of legislations, fostering the imple-mentation of agroforestry activities, would be important. Authors highlight that it would be im-portant to draw attention to the benefits and promote agroforestry as a specific practice e.g. against forest fires in the Mediterranean region, or for the alternative utilization of abandoned areas.

6.2.3. Stronger consideration of the role of agroforestry in climate change adaptation

Multiple benefits (air, soil and water quality improvement, biodiversity conservation, resilient and sustainable way of food production, balanced landscape, etc.) of agroforestry are obvious for experts studying these systems (Smith et al., 2022). Considering these benefits, the cont-ribution to climate change adaptation are emphasized, and this is in total consonance with most of the global strategic documents (SDG 2030), and also appears at the EU level strategic planning (European Green Deal, 2019; Farm to Fork Strategy, 2020; Biodiversity Strategy, 2020).

Beyond the strategic documents, the 2018/841 EU regulation (2018) explicitly mention agrofo-restry as a sustainable practice that "can enhance the role of the LULUCF (Land Use, Land Use Change and Forestry) sector in relation to climate mitigation and adaptation, as well as can strengthen the productivity and resilience of that sector".

The Forest Europe workshop report (2018) also aimed to support this goal, and it gave a comprehensive summary about the main barriers and drivers of development, and provided a set of structured suggestions toward the solution (strengthening communication, promotion, research, innovation, education and training, recommendations for policy and legal frame-works, etc.). The report highlighted also that it would be important to draw attention and promote these important benefits of AF systems.

In line with these suggestions, it would be important to represent the potential of AF systems toward climate change adaptation at the national level policies, to promote specific activities. Of course, it require commitment and coordinated actions from the actors of the whole supply chain, as well as from national and EU level policy makers (Smith et al., 2022).

6.2.4. Definition of effective support measures

Having reviewed the activated and budgeted support in the BIOEAST countries in the periods of 2007-2013 and 2014-2020 (Table 2), we can say that for various forms of agroforestry acti-vities (forest farming, silvoarable, silvopasture, multi-purpose tree silvopasture), various meas-ures was utilized. This means that in addition to specific targeted measures, support was ava-ilable under various axles of CAP Pillar II, taking into account and exploiting the multifold be-nefits of agroforestry.

Of course, it shows that there is the necessary flexibility in the system, however, significant lack of use of related specific agroforestry target supports (221. First afforestation of agricultu-ral land, 222. Agroforestry establishment, 223. First afforestation of non-agricultural land in the 2007-2013 period, as well as the consecutive 8.1 Support for afforestation/creation of wood-land and 8.2 Support for establishment and maintenance of agroforestry systems in the 2014-

2020 period, highlighted by yellow in Table 2) are really surprising. Especially because we can see several best practice from the countries of Spain, France or Portugal.

Accordingly, during the formulation of respective measures for the next planning period, it would be important to implement respective CAP measures at the national level, effectively, with the consideration of national specificities. Also, easy adaptability, accompanied by simplified administrative procedures for application would promote wider use, presumably.

6.2.5. Revision of 100 trees per hectar principle

Based on the country overviews and the suggestions, the principle of 100 trees per hectare means an opaque and difficult to implement administrative burden. Accordingly, it should be adopted more to the countries's specificities, based on the EURAF Policy Briefing (2020). In line with this suggestion, countries should ensure that agroforestry activities in agricultural land is eligible for direct payment "when justified based on the local specificities (e.g. density/species/size of the trees and pedoclimatic conditions) and the value added by the presence of trees, to ensure sustainable agricultural use of the land". Also this description highlight emphasizes that it should be valid for all possible agricultural land uses, in line with the fact that agroforestry systems are present also on permanent grassland and also together with permanent crops.

6.3. Establishment of regional relevant, type-specific stakeholder networks

6.3.1. Spatial drivers and barriers for the spread of agroforestry

So far, our study has mainly focused on the presence of agroforestry and its regulatory environment. However, the spread of new technologies and practices in agriculture has many other socio-economic or natural factors, and agroforestry is no exception.

A set of spatial factors influencing the spread of agroforestry systems was compiled by Csonka et al. (2018). The seven groups of affecting factors they list are shown in Figure 9. In present chapter, we focus mainly on drivers relevant for quantitative processing of land cover and land use data, highlighted with orange. However, the latter drivers also interact closely with the former, as the dashed frames indicate.
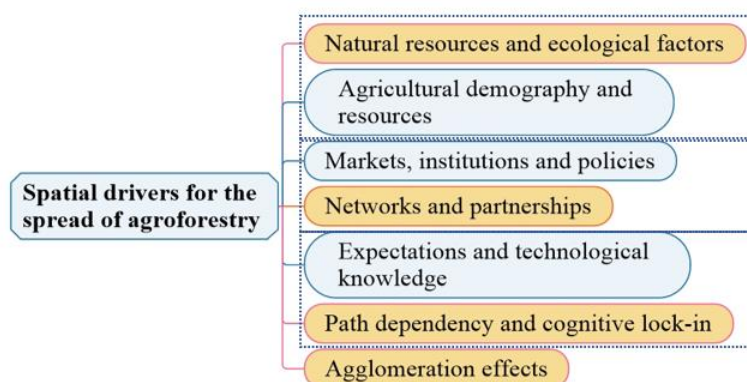

Figure 9: **Main spatial drivers and barriers for the spread of agroforestry**

Source: Csonka et al. (2018)

Natural and ecological conditions are the primary spatial drivers for the spread of agroforestry. Reisner et al. (2007) identified European silvoarable target regions based on a combination of three natural-ecological factors: a high proportion of arable land (above 50 percent), potential productive tree growth, and the presence of environmental risks. Accurate estimation of these factors can be quite costly, even over relatively small areas. Thus, the study by den Herder et al. (2016) based on readily available and regularly updated land cover and land use data, is even more relevant for practical spatial planning. Li et al. (2021) highlight the conflicts between the land use functions of agricultural and ecological fields. Potential agroforestry areas and their neighbourhoods are typical ecotones[2], where the conflicts between different land use functions can become particularly sharp. At the same time, it is agroforestry systems adapted to local conditions that can reduce and resolve these natural, social, and economic conflicts.

Louah et al.,2017 highlight the importance of path dependency and cognitive lock-in as barriers to the development of temperate agroforestry. Usually, farmers accept common old technologies as established and unquestionable, so they react negatively to new technologies. Path dependency and cognitive lock-in effects can be reduced by ecological education and learning within innovation networks. Based on a semi-quantitative questionnaire, Sereke et al. (2016) concluded that payments for ecosystem services (e.g., agroforestry systems) cannot change attitude locking as long as farmers' expectations and knowledge are not appropriately addressed. Results by Lin et al. (2021) also support the relevance of social networks in the spread and adoption of agroforestry.

All the above factors are essentially affected by geographical proximity. The agroforestry use of a given area is influenced not only by its own characteristics but also by those of its surroundings and wider geographical environment. In the same way, the socio-economic factors listed above cannot be interpreted only in relation to a specific site, but in the context of its geographical environment.

In our analysis, we look for geographical proximity, or in other words, high spatial density of agroforestry-related land use functions and stakeholders. We are therefore looking for areas where both agricultural land use and woodlands are present in high density and proximity to each other.

In these target areas, two important supporting forces are available to facilitate agroforestry expansion efforts:
1. as transition (ecoton) areas they potentially provide a rich combination of natural resources, knowledge, tradition and cultural values which are essential for sustainable agroforestry systems (static advantage);
2. based on the models of new economic geography, they also provide agglomeration externalities (eg. spillover effects) contributing to the successful spread of agroforestry (dynamic advantage).

The landscape-level interpretation of agroforestry (eco)systems (in contrast to agricultural practices) is not a brand-new idea:
- Kay et al. (2018) point out that temperate agroforestry systems have a significant impact on the ecosystem services provided by landscapes.
- Lovell et al. (2021) offer a guidance for placing agroforestry practices based on landscape and site conditions. This landscape-level perspective in agroforestry research can enhance the delivery of ecosystem goods and services from agroforestry in order to create more resilient agricultural landscapes.

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[2] a spatial unit of transition between two or more ecological communities, ecosystems or ecological regions.

- van Noordwijk et al. (2020) notes that sustainable and location-specific agroforestry land-scape management can reduce problems in the forest-water-people nexus.
- According to Hillbrand et al. (2017), agroforestry landscape management can advance land restoration and conservation, while increasing the resilience of agroecosystems and their contribution to food security and poverty alleviation.

6.3.2. "In-house" AF practices to be promoted and spread in BIOEAST countries

The existence of spatial drivers and barriers, as well as the agroforestry zones and hotspots presented in this study highlight the need to develop spatially differentiated agroforestry strategies within the BIOEAST area. In the previous chapter, we have provided specific examples of the agroforestry systems that are best suited to the zones with different characteristics, and which are proposed to be promoted in the zones.

In order to put these suggestions into practice, theres is a need to create type-specific stakeholder networks. These networks should include representatives of relevant farmers, forest owners, consultants, experts, professional trainers and decision-makers. The networks should be linked to existing international systems. The AGFORWARD and AFINET projects, which have been used in the past to collect good practices, provide an excellent basis for this.

The links to good practices collected in Chapter 5 provide not only the description and location of the systems, but also the stakeholders and experts involved in managing the system. It is proposed to design and prepare an international BIOEAST project, involving stakeholders and experts from previous projects, to create type-specific agroforestry networks supported by a system of expert advice and training. We believe that without these networks, the promotion of agroforestry exclusively by regulatory measures cannot be effective.

As a starting point, it may be worth contacting the BIOEAST stakeholders of AGFORWARD and AFINET good practices. In Table 4, a brief overview of the benefits of each good practice and the potential for innovation in the spread of agroforestry is presented.

Table 4: **AGFORWARD good practices located in BIOEAST countries**

Titles and links to the descriptions of good practices	Suggestions in the innovation leaflets	Main advantages
Wood pasture in Hungary Link1	Restoration of abandoned wood pastures: shrub clearing Leaflet1	Shrub clearing give the possibility for grazing new lands, and to maintain wood astures for longer periods.
Wood pastures in Southern Transylvania, Romania Link2	Protecting large old trees in wood-pastures Leaflet2	Ecological and cultural tourism; Branding of local products; Genetic resources for forestry; Cultural and educational role; Soil fertility.
	Grazing and biodiversity in Transylvanian wood-pastures Leaflet3	Scattered mature trees and shrubs (i) substantially increase the value of pasture biodiversity, (ii) do not compromise production and economic profitability, (iii) play a crucial role in maintaining the biodiversity value.
Alley cropping systems in Hungary Link3	Weed suppression in alley cropping Leaflet4	Benefits of bio-mulch: is wind-proof, lowers overall cost, is environmentally-friendly, improves soil fertility, decreases erosion, reduces manpower needs and mechanical working time and costs, etc.

There is also a lot of potential in the good practices collected by AFINET from BIOEAST countries:

- AFINET good practices from the Czech Republic
- AFINET good practices from Hungary
- AFINET good practices from Slovakia

Networking work would probably be most effectively launched through these areas and stakeholders already assessed and involved in previous agroforestry-promoting projects.

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