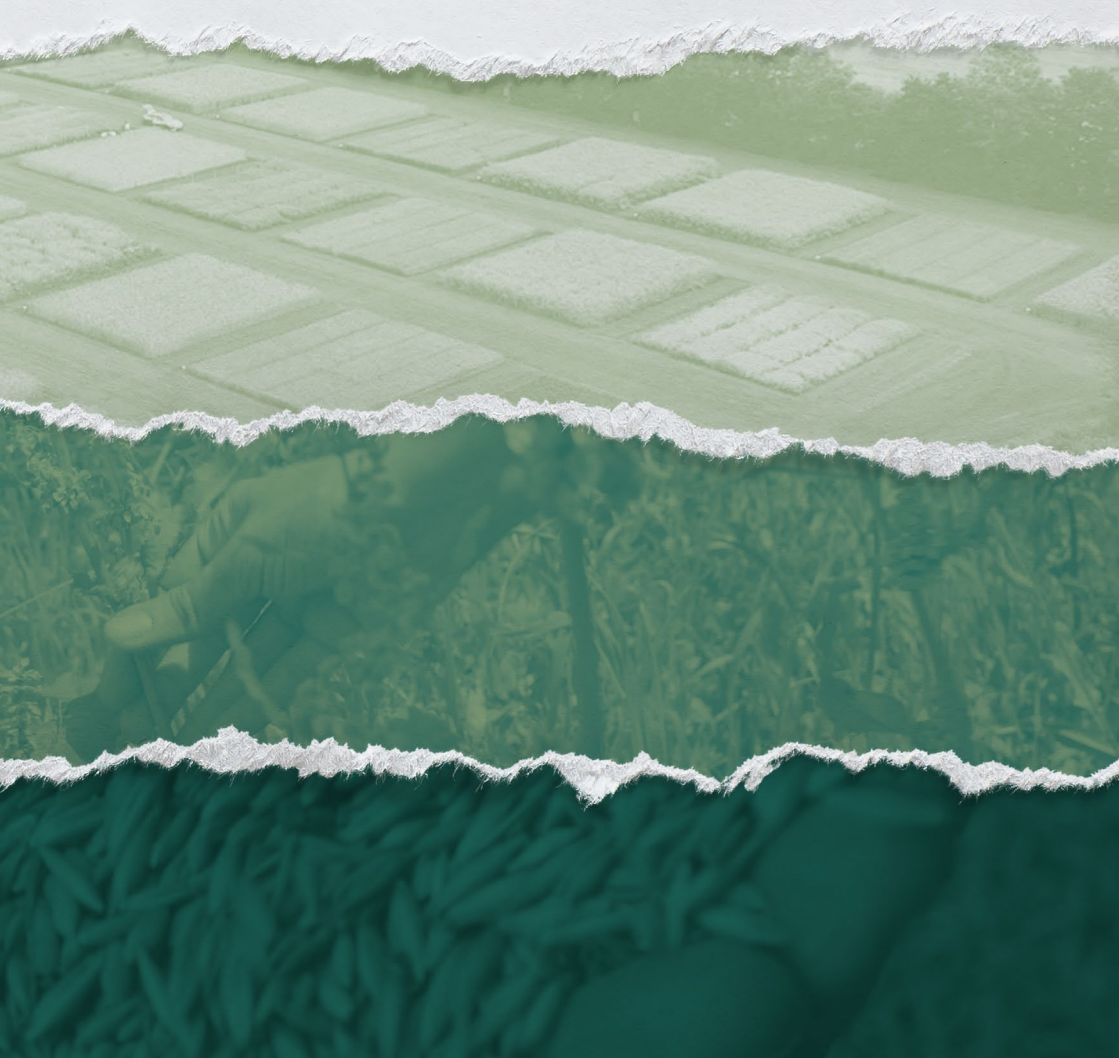




LEGUMINOSE

Policy Brochure

Published in August 2026





Contact

Project coordinator

Dr. Shamina Imran Pathan

University of Florence, Italy

shamina.pathan@unifi.it

Prof. Dr. Giacomo Pietramellara

University of Florence, Italy

giacomo.pietramellara@unifi.it

Policy officer

Clémence Leray

Farm Europe, Belgium

clemence.leray@farm-europe.eu

Media, press and communication

Dr. Mihaela Bozukova

European Science Communication

Institute gGmbH, Germany

mbo@esci.eu



Table of Contents

Why is intercropping relevant now?	4
What are the benefits of intercropping?	8
What prevents the wider adoption of intercropping?	12
How well do current policies support intercropping?	15
What should policymakers do?	21
Setting a coherent regulatory environment	23
Using CAP interventions to reward intercropping	24
Supporting investments in value chains	28
Using CMO interventions to reward intercropping	30
Strengthening the implementation of the EU Protein Action Plan	31
Strengthening knowledge and innovation	33
Towards more resilient European agriculture	35

A woman with long dark hair is crouching in a field of tall, thin grass. She is looking down at the grass with her hands gently touching it. The image has a green overlay and a torn-edge effect on the right side.

Why is **intercropping** relevant now?



European agriculture is facing growing challenges.

Climate change, declining biodiversity, soil degradation, rising input costs, and the need to strengthen food and protein security are increasing pressure on farming systems. **Agricultural practices that can improve resilience, reduce environmental impacts, and maintain farm productivity and competitiveness are urgently needed.**

Legume-cereal intercropping is increasingly recognised as one such practice. By growing legumes and cereals together in the same field at the same time, farmers can improve soil health, enhance biodiversity, reduce dependence on synthetic fertilisers, increase climate resilience, and maintain productive and economically viable farming systems. **Despite its benefits, however, the adoption of legume-cereal intercropping remains limited, highlighting the need for stronger awareness, supportive policies, and practical guidance.**

LEGUMINOSE (Legume-cereal intercropping for sustainable agriculture across Europe) is a Horizon Europe-funded project under the CL6-2022-BIODIV-01 call coordinated by the University of Florence. Running from November 2022 to October 2026, the project brings together 21 organisations across 10 countries to investigate the agronomic, environmental, economic and policy dimensions of legume-cereal intercropping. Through field experiments, Living Labs, stakeholder engagement and policy analysis,

LEGUMINOSE is generating actionable and science-based evidence to support the wider adoption of intercropping across Europe.

This brochure provides an overview of the policy-related opportunities and challenges associated with legume-cereal intercropping, highlighting both its potential benefits and the key barriers that currently hinder its wider

Why is intercropping relevant now?

adoption. It also presents concrete policy recommendations aimed at creating a more enabling framework for farmers across Europe.

By bridging the gap between research and policy, the publication translates scientific findings into accessible and actionable messages to raise awareness of the benefits of legume-cereal intercropping and strengthen the case for more targeted policy support across the EU. In doing so, it aims to support policymakers, agricultural stakeholders, advisors, researchers, and practitioners in accelerating the transition towards a more sustainable and resilient European agricultural system.

21

partners

10

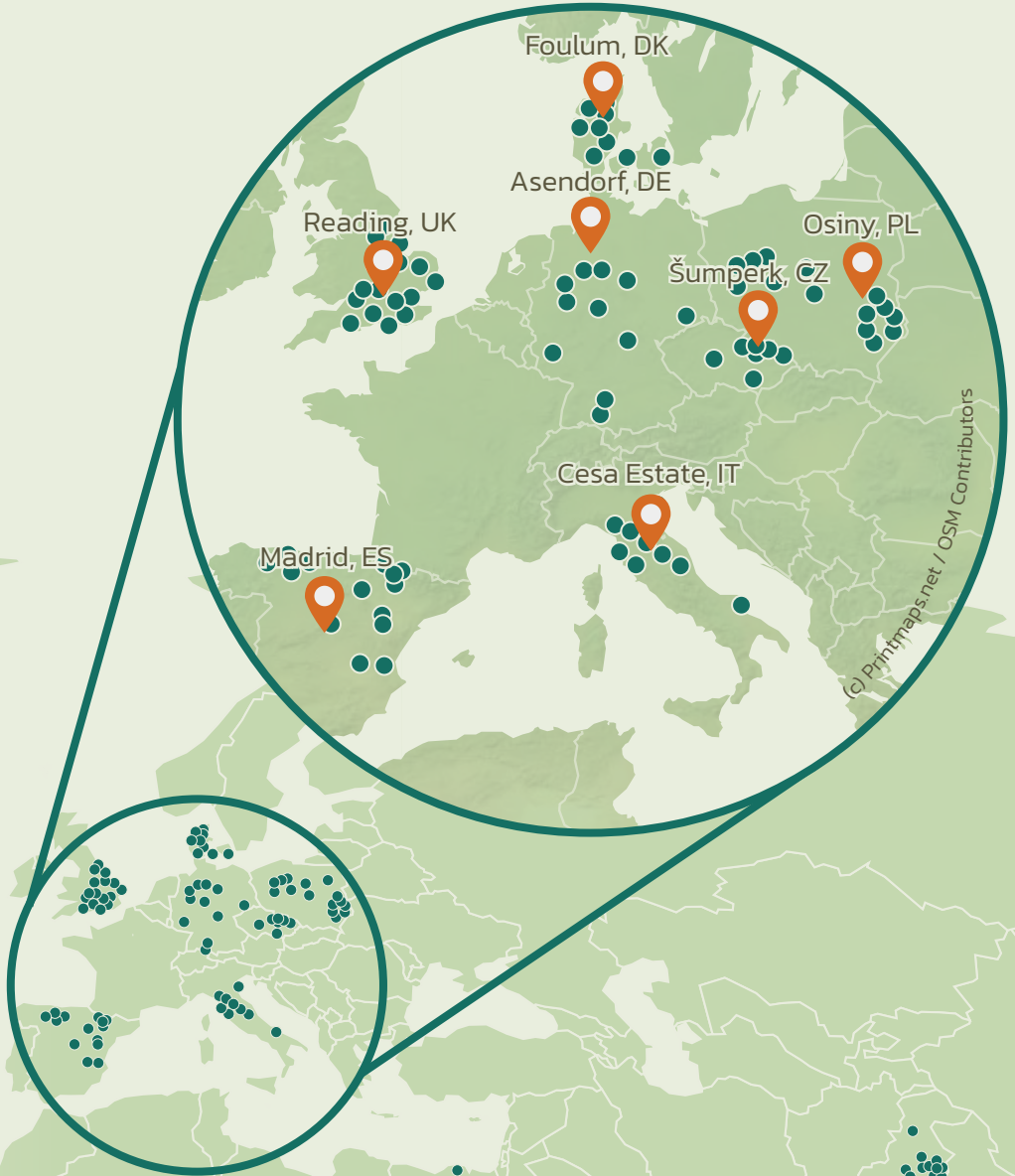
countries

189

Living Labs

7

research fields





What are the benefits of intercropping?



LEGUMINOSE results from field experiments, Living Labs, and stakeholder engagement activities across Europe demonstrate that intercropping delivers agronomic, environmental, and economic benefits that directly support many of the European Union's agricultural, climate, and biodiversity objectives.

Intercropping improves the efficiency with which crops use natural resources.

By making better use of nitrogen and phosphorus, intercrops can reduce dependence on synthetic fertilisers, lowering production costs while contributing to improved nutrient management and reduced environmental impacts.

LEGUMINOSE also found that **intercropping enhances soil health by stimulating microbial activity** and the biological processes that support nutrient cycling and long-term soil functioning. These benefits were consistently observed across

field experiments and reinforced by farmers participating in Living Labs and stakeholder workshops.

Agronomic data collected throughout the project also demonstrated **clear production benefits**: 75% of the examined intercrop combinations produced higher overall yields than comparable monocultures, with an average 31% increase in grain yield. Importantly, these advantages are particularly pronounced in drought-prone regions and during dry growing seasons, where mixed cropping systems showed greater yield stability and more efficient use of available resources.

Beyond productivity, intercropping contributes to more sustainable production.

LEGUMINOSE found that intercrops significantly **decreased the carbon footprint** of protein production by 10% compared to sole cereals. Intercrops also helped **naturally suppress pests**

What are the benefits of intercropping?

and pathogens, reducing the need for external pesticide inputs while strengthening crop resilience.

The project further showed that **intercropping can improve crop quality**. Cereals grown as intercrops consistently exhibited improved nutritional profiles, including a higher protein content (on average 2.4% more than cereals grown in monoculture), as well as elevated concentrations of essential nutrients. These improvements create added value for food and feed markets. In animal

nutrition, higher protein content can contribute to more efficient livestock growth and development.

Taken together, these findings show that intercropping can help farmers produce more resilient and resource-efficient crops while reducing input requirements and production risks. At the same time, it contributes to wider societal objectives, including climate mitigation, biodiversity conservation, soil health, and Europe's long-term food and protein security.





Key benefits of legume-cereal intercropping:



Enhances soil health



Improves nitrogen and phosphorus use efficiency



Reduces dependence on synthetic fertilisers and pesticide inputs



Improves yield stability, particularly under drought conditions



Decreases the carbon footprint of protein production compared to monocultures



Enhances grain quality and protein content



Strengthens farm resilience while supporting climate and biodiversity objectives

A photograph of a lush green field, likely a crop field, with two people standing in the middle. The field is bordered by a dense line of trees in the background. In the distance, a small white airplane is visible on a runway or tarmac. The entire image is overlaid with a dark green, semi-transparent shape that has a torn, irregular edge on the right side. Inside this shape, the text "What prevents the wider adoption of intercropping?" is written in white, bold, sans-serif font.

**What prevents
the wider
adoption of
intercropping?**



Despite its demonstrated environmental and ecological benefits, the adoption of cereal–legume intercropping remains limited due to a combination of market, technical, and institutional barriers that reinforce one another.

Addressing these barriers will require coordinated action across the entire agri-food system.

One of the most significant challenges is the lack of well-developed markets and value chains for intercrop products. Farmers often face **difficulties marketing mixed harvests** because established connections between producers, traders, processors, and end-users are limited. Uncertainty around profitability, pricing mechanisms, market access, and long-term demand increases the perceived financial risk of adopting intercropping, particularly where commercial models for mixed crops are not yet established.

Practical and operational challenges also limit uptake. Successful intercropping depends on selecting the right crop combinations and using appropriate seeding and management techniques. During LEGUMINOSE stakeholder workshops, farmers shared concerns related to crop competition for water, nutrients, and light, as well as weed and pest management, harvest timing, and the separation of mixed grains after harvest.

Access to suitable machinery, grain cleaning and drying facilities, and post-harvest sorting technologies are another major bottleneck. Although intercropping can reduce financial risks through greater yield stability, scaling up adoption will require significant investment in sorting and processing infrastructure.

Knowledge gaps further reduce farmer confidence. Many producers lack access to regional-specific recommendations, practical demonstrations, and advisory services that support effective intercrop

What prevents the wider adoption of intercropping?

management. Uncertainty about suitable crop combinations, agronomic practices, and expected outcomes can discourage adoption, particularly among farmers accustomed to conventional monoculture systems.

These challenges are reinforced by **broader institutional and socio-technical barriers**. Existing production practices, established

supply chains, machinery investments, and institutional frameworks have largely been designed around conventional cropping systems. As a result, innovative systems such as intercropping often struggle to compete with well-established and well-supported production models, despite their environmental, agronomic and economic benefits.

Table 1: Key barriers to legume-cereal intercropping

Barrier	Key challenge
Markets and value chains	Limited markets for intercrop products, uncertain prices and demand, and weak links between producers, processors, and buyers.
Technical and agronomic complexity	Successful intercropping requires careful crop selection and management; concerns about crop competition, weeds, pests, harvest timing, and grain separation.
Infrastructure and machinery	Limited access to suitable seeding machinery, grain cleaning, drying, sorting, and processing facilities.
Knowledge and advisory support	Lack of region-specific recommendations, practical demonstrations, and advisory services reduce farmer confidence.
Institutional and system barriers	Existing supply chains, machinery investments, policies, and farming practices favour conventional systems, making intercropping more difficult to adopt.



LEGUMINOSE

How well do current policies support intercropping?

How well do current policies support intercropping?

To analyse how strategies and policies support – or could better support – intercropping, LEGUMINOSE carried out a mapping of current EU policies and legislation. The aim was to identify relevant EU-level measures or policies that induce intercropping with particular emphasis on environment, climate and biodiversity.

The analysis shows that intercropping aligns closely with many of the European Union's priorities, including climate resilience, biodiversity conservation, sustainable nutrient management, soil health, food security, and protein autonomy. However, although many policy frameworks support these objectives, **they rarely mention intercropping specifically**. As a result, support for the practice remains indirect, fragmented, and

highly dependent on how individual Member States implement EU legislation.

It is therefore crucial to **develop a more supportive and comprehensive legislative framework** that actively promotes and incentivises intercropping. Such policies must not only offer financial support (e.g. targeted subsidies) but also facilitate access to innovation, knowledge-sharing platforms, and the necessary tools and resources (research, training, advisory services) that enable farmers to transition smoothly into intercropping.

The tables on the next pages provides an overview of how current strategies and legislation align with the benefits of intercropping practices.



How well do current policies support intercropping?

Table 2: EU Strategies aligning with intercropping

Strategy		Alignment with the benefits of intercropping
GREEN DEAL	Farm to Fork	• Improving pollination; • Improving pest control; • Ameliorating nutrient cycle; • Improving farmer's economic situation through crops resilience; • Increasing water and waste management.
GREEN DEAL	Biodiversity strategy for 2030	• Promoting sustainable land use; • Improving soil health; • Mitigating climate change; • Enhancing ecosystem services.
GREEN DEAL	EU circular Economy action plan	• Promoting waste circularity to fight climate change.
EU PROTEIN ACTION PLAN	Published in July 2026	• Increasing EU protein autonomy; • Increasing sustainable production; • Increasing protein crops standards.
COMPETITIVENESS COMPASS	Vision for agriculture and food	• Reducing protein dependency: by increasing the European production of grain legumes, while keeping strategic autonomy on cereals • Increasing food security in Europe • Contributing to the decarbonisation of agriculture through climate change mitigation

How well do current policies support intercropping?

CAP: Common Agricultural Policy

CMO: Common Market Organisation

NRPP: National and Regional Partnership Plans

ECF: European Competitiveness Fund

Table 3: EU Regulations and Directives aligning with intercropping

Regulations and Directives		Alignment with the benefits of intercropping
ORGANIC FARMING		- Improving soil structure; - Reducing reliance on external synthetic inputs; - Enhancing ecosystem balance; - Promoting better nutrient cycling, weed management, and pest control; - Reducing the need for external organic fertilisers; - Protecting biodiversity; - Preserving natural soil fertility.
CARBON FARMING	Adopted in November 2024	- Promoting sustainable environmental practices; - Promoting carbon capture practices; - Promoting biodiversity.
NATURE RESTORATION LAW	Adopted in June 2024	- Increasing biodiversity; - Supporting carbon capture; - Promoting sustainable farming practices.
SOIL HEALTH LAW	Adopted in November 2025 + MS have until December 2028 to transpose it	- Reducing soil pollution and erosion; - Promoting soil biodiversity and fight pesticides use.



CAP	CAP Strategic Plans	• Promoting sustainable practices • Promoting crop diversification; • Promoting soil health; • Reducing soil erosion, • Improving biodiversity; • Reducing reliance on chemical inputs; • Fight GHG emissions; • Promoting sustainable land use; • Possibility of diversifying the practice's implementation across countries.
MFF 2028–2034	CAP post 2027	• Promoting crop diversification; • Promoting soil health; • Improving nutrient management; • Reducing soil pollution; • Reducing soil erosion; • Promoting sustainable land use; • Contributing to climate change adaptation and mitigation; • Improving biodiversity; • Enhancing ecosystem services; • Reducing use of pesticides; • Improving water resilience; • Increasing food security in Europe; • Promoting sustainable production methods
MFF 2028–2034	CMO post 2027	• Ensuring a competitive, resilient, and sustainable agricultural sector; • Supporting the production of protein crops and reducing the Union dependence on imports for high-quality proteins;

How well do current policies support intercropping?

MFF 2028-2034	NRPP	• 35% climate and environment spending target to support the objectives of the Green Deal has been set for the overall EU budget, translating into a 43% spending ambition for climate and environmental objectives applied both to the European Competitiveness Fund and the National and Regional Partnership Plan envelopes. • Supporting efficient water management; • Supporting environmental protection; • Supporting climate adaptation, mitigation and resilience; • Enhancing the conservation and restoration of biodiversity; • Enhancing ecosystem services; • Enhancing soil quality; • Contributing to long-term food security; • Fostering a sustainable agricultural sector
MFF 2028-2034	ECF	• Reducing or preventing the Union's strategic dependencies; • Fostering the competitiveness, sustainability, and resilience of agriculture; • Fostering the role of agriculture in the transition to a climate-neutral, climate-resilient, water-smart, nature-positive economy and the protection of natural resources, biodiversity while contributing to long term food security in the Union.



LEGUMINOSE

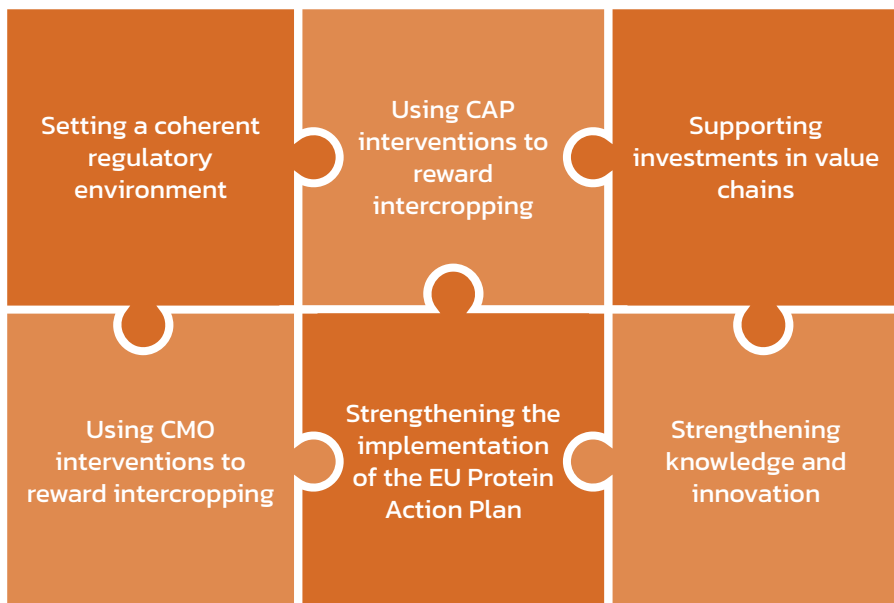
What should **policymakers** do?

What should policymakers do?

Public support is necessary to encourage the wider adoption of intercropping and enable farmers to realise its environmental, economic and agronomic benefits.

The EU should provide a clear policy framework that encourages Member States to support intercropping through funding instruments that best suit local farmers.

The following set of policy recommendations were developed together with IntercropVALUES (<https://intercropvalues.eu/>), focus on the Common Agricultural Policy (CAP) post-2027 and build on both the European Commission's recent CAP & CMO proposals published in July 2025 and the joint policy brief published by LEGUMINOSE and IntercropVALUES in June 2025, which included good practices identified in CAP National Strategic Plans across 12 Member States.





Setting a coherent regulatory environment

The post-2027 CAP should strengthen its position as a bridge between farming and nature and implement the environmental and climate ambitions of the EU while ensuring the competitiveness of European agriculture.

The European Commission's proposal for the post-2027 CAP establishes environmental and climate priority areas that Member States must support (Article 4). Of the six proposed priorities, intercropping can contribute directly to at least five:

- a. climate change adaptation and water resilience;
- b. climate change mitigation including carbon removals;
- c. soil health;
- d. preservation of biodiversity, such as conservation of habitats or species, landscape features;
- e. development of organic farming.

Intercropping should therefore be explicitly recognised and promoted within Member States' NRP Plans.

Under the post-2027 CAP proposal and more precisely the Farm Stewardship framework, past Good Agricultural and Environmental Conditions (GAECs) are merged into 3 main objectives (Article 3(4)) and become protective practices. Within this framework, intercropping could be explicitly listed as a relevant optional practice to be implemented in order to comply with the specific objective of the protective practices: "Preservation of the soil potential, including: crop rotation or diversification".

With this proposal, however, the definition of the former good agricultural and environmental practices is left entirely to Member States, risking fragmentation across the EU. Yet soil protection, buffer strips,

What should policymakers do?

maintenance of permanent grasslands, crop rotation, landscape features are all shared European common goods. Their reference conditions should be defined in the CAP Regulation itself,

rather than delegated to 27 national interpretations. Under the current proposal, no common EU baseline is defined.

Using CAP interventions to reward intercropping

Two types of support identified in the current proposal could be used to better reward and incentivise intercropping by Member States.

- Coupled income support
- Agri-environmental and climate actions

Coupled income support (Article 11)

Member States shall provide coupled income support to farmers in specific agricultural sectors and products or to specific types of farming that undergo difficulties while remaining important for socio-economic or environmental reasons.

Protein crops can benefit from coupled income support. This intervention is fully financed by the EU and shall take the form of an annual payment per eligible hectare. Compared to the current CAP, coupled income support is increased, with the maximum spending going up from 13% to 20% of EU contribution, with an additional 5% possible for sectors such as protein crops.

CAP payments should not only support protein crops but also explicitly reward intercropping. NRP Plans should allocate support to proven practices that contribute directly to the EU's climate and environmental objectives.



Therefore, coupled income support should include strong financial incentives for mixed cropping.

Agri-environmental and climate actions (Article 10)

Under the new CAP architecture, Member States must grant support to two types of agri-environmental and climate actions:

- voluntary management commitments taken up by farmers and other beneficiaries, including commitments to maintain organic farming and extensification of livestock production
- voluntary transition towards resilient production systems

carried out by farmers, including conversion to organic farming and extensification of livestock production systems. This support is conditional on the implementation of a transition plan.

This dual system replaces the current system of eco-schemes and agri-environmental measures.

Agri-environmental and climate actions should reward intercropping as part of the voluntary transition towards resilient production systems. Member States should provide higher levels of financial support to farmers whose transition action plan

What should policymakers do?

includes the adoption and continuous development of intercropping.

Limits

While, under the current CAP, agri-environment-climate measures (AECMs) are limited to compensating for additional costs and income losses incurred by farmers, the Commission's proposal removes this limitation, potentially allowing Member States full discretion in determining the level of per-hectare support granted under both the voluntary management commitments and voluntary transition measures.

Moreover, while current eco-schemes were fully funded by the European Union, the new proposal sets a minimum national contribution of

30% for environmental and climate actions. The removal of a fully EU-funded measure could therefore reduce Member States' motivation to implement environmental and climate actions. Co-legislators should consider maintaining a fully CAP-funded environmental scheme and ring-fencing at least 25–30% of the national direct payments envelope for these schemes.

The ability to incentivise climate and environmental action beyond co-financing constraints must be maintained, while also strengthening the EU's long-term agricultural productivity, food security, bioeconomy supply, sovereignty and decarbonisation objectives.



Good practice examples

1. Coupled income support

The French National Strategic Plan (NSP) provides coupled income support for mixtures of cereals and protein crops if protein crops account for more than 50% of the seed mixture sown in specific areas.

2. Agri-environmental and climate actions

The Flemish NSP has an eco-scheme supporting legume-cereal intercropping (peas or field beans) and an ENVCLIM intervention on multi-annual protein crops that can be combined with no-till, rotation, or organic measures. Organic farmers benefit most from this support, receiving between €230 to €600 per hectare.

Similarly, Wallonia has an eco-scheme on favourable crops for the environment promoting mixed crops (minimum 20% legumes and 50% cereals) and allows a mixture of protein crops with grasses, cereals, or oilseeds under a direct income support scheme for plant-based protein crops.

What should policymakers do?

Supporting investments in value chains

Intercropping implementation often faces barriers beyond the farm gate. For this reason, any new policy supporting this practice must take a whole value-chain approach. The new CAP can create investment opportunities that facilitate growing, harvesting, processing, distributing, marketing and consuming intercrop products.

Cleaning and separating mixed crops remain technically challenging, and specialised cleaning and sorting machinery requires significant financial investment. Due to imperfect separation and crop residues, intercrop products often need to target niche, higher-value markets, such as high-protein bread, pasta, or beer. The European Commission should therefore work with representatives of the farming sector and the wider value chain to explore adjustments to purity standards for intercropped grains. This

could allow small proportions of other crop species within the targeted crop, e.g., allowing legumes in cereal grains, provided appropriate allergen labelling is ensured. Such an approach could support the development of innovative products such as legume-fortified breads or baked goods, offering higher protein content without any impact on taste.

The CAP post-2027 offers investment opportunities through the intervention “Support for investments for farmers and forest holders” (Article 13). Investment support should incentivise not only the purchase of equipment, including second-hand machinery, but also the sharing of equipment among farmers. This could be achieved through machinery owned by cooperatives or associations and made available to members as needed, thereby reducing the costs associated with individual ownership.



Cooperation schemes can also offer long-term support to farmer groups or regions with intercropping ambitions. Collaboration through

shared financing also strengthens rural communities and improves farmers' negotiating position in the value chain.

Good practice examples

Many of the assessed NSPs (Germany, Spain, Hungary, Poland, Wallonia, Austria) include investment schemes supporting machinery and equipment, often with green or competitiveness objectives. However, only two Member States offer specific productive investment opportunities for intercropping.

Flanders supports multi-sowing machines through a 50% investment subsidy, increasing to 60% for young farmers (under 40) or groups of farmers. Czechia has two seed hopper modular sowing machines under eligible expenditures and provides a 40% investment subsidy, with an additional 10% for young farmers (under 40) and 10% for organic farmers.

In Wallonia, groups of farmers receive higher subsidies for shared machinery, providing a good example that could be replicated elsewhere, particularly for specialised multi-crop equipment.

What should policymakers do?

Using CMO interventions to reward intercropping

Under the new CMO proposal, Member States shall include sectoral interventions in their NRP Plans. The sectors covered appear to be the same as under the current CAP (2021–2027). The main difference is the creation of a distinct protein crop sector, replacing the current dried fodder sector. For this newly created sector, the European Commission proposes a mandatory intervention for Member States with recognised producer organisations or associations of producer organisations.

According to the proposal, this distinct protein sector would oblige Member States to recognise producer organisations (PO) and interbranch organisations, thereby strengthening the protein value chain. This recognition would give POs and associations of producer organisations (APOs) access to operational programmes, strategic projects of 3–7 years co-funded by the EU to support

sharing risks, investments, logistics, management, storage, processing, and marketing infrastructure.

The proposal also provides the possibility of establishing marketing standards for protein crops to better inform consumers about the origin of the protein crop products they purchase. This could strengthen consumer education on how food is produced, empowering consumers to choose sustainable goods from diversified farming systems.

The new CMO regulation should emphasise the practice of cultivation, particularly when it comes to goods produced organically or by agroecological methods such as intercropping.



Strengthening the implementation of the EU Protein Action Plan

The publication of the EU Action Plan for resilience, strategic autonomy and sustainability of the EU protein system in July 2026 marks an important step towards strengthening Europe's protein autonomy and reducing its dependence on imported feed proteins. To achieve the Plan's objectives, its implementation should place greater emphasis on diversified cropping systems, including legume-cereal intercropping, as a practical solution for improving food and feed security, strengthening rural economies, reducing fertiliser dependence, and enhancing climate and environmental resilience.

The Action Plan rightly adopts a whole-system approach, combining measures to increase sustainable protein production with actions to strengthen value chains, stimulate demand, improve research and innovation, and support local and regional protein systems. Intercropping contributes directly to these objectives

by increasing resource-use efficiency, reducing reliance on synthetic nitrogen fertilisers, improving soil health and biodiversity, and enabling the simultaneous production of food and feed proteins on the same land.

Successful implementation of the Protein Action Plan should therefore explicitly promote intercropping through the Common Agricultural Policy, advisory services, research and innovation programmes, and investments in regional processing, storage and marketing infrastructure.

Dedicated support for mixed cropping systems would help farmers diversify production, improve farm resilience, and strengthen local protein value chains.

The Action Plan also recognises the importance of sustainable public procurement in creating demand for

What should policymakers do?

European protein crops. Green public procurement criteria should therefore reward products derived from legume-cereal intercropping and other diversified cropping systems.

For farmers, intercropping offers the opportunity to produce food and fodder simultaneously, reducing competition for land between these

production systems while increasing on-farm protein autonomy. By supporting market opportunities and developing dedicated value chains, the implementation of the EU Protein Action Plan can unlock the full potential of intercropping as a cornerstone of a more resilient, competitive and sustainable European protein system.

Good practice examples

The Flemish NSP includes focused actions for intercropping because Flanders has adopted a protein strategy (2021–2030) for sustainable, diverse, and future-focused protein production. This strategy provides incentives to increase and diversify plant protein production. The Flemish example shows the potential of strategic policy coherence across agriculture, aquaculture, public health, and markets in supporting diversified protein systems.



Strengthening knowledge and innovation

To fully realise the benefits of intercropping, this practice needs to become a mainstream farming and policy tool. Major barriers to uptake are linked to a disabling context: lack of specialised regulations, advisory services, knowledge-sharing mechanisms and an agricultural and consumer culture that remains largely geared towards conventional production systems. Together, these factors increase risk aversion and discourage innovation.

Education, peer-to-peer exchange, and advisory services play a central role in encouraging farmers and processors to adopt intercropping. Yet, advisory systems across Europe often lack the experience and expertise needed to support this transition. Farmers gather much of their knowledge from fellow farmers and advisors. Strengthening agroecological and organic advisory services and Agricultural Knowledge and Innovation System (AKIS) with deep and nuanced knowledge of

What should policymakers do?

intercropping and funding sources and specialised advice adapted to the individual context is indispensable for the transition of food systems.

The CAP proposal offers an opportunity through Article 19 “Support for knowledge sharing and innovation in agriculture, forestry and rural areas”. While this intervention is not ring-fenced and therefore depends largely on Member States’ funding choices, it has become mandatory for all Member States, whereas previously it was optional.

Research and innovation funding should be allocated towards further understanding intercropping practices and the conditions needed for their wider adoption.

Priority areas include species interactions, breeding and selecting varieties, adapting crop mixtures to different production objectives, machinery and processing technologies, and market dynamics.

Moreover, the EU research agenda must continue investigating the agronomic performance and profitability of intercropping to provide credible evidence for practitioners, advisors, and policymakers. Further research is also needed on market organisation, consumer behaviour, demand-side incentives, and breeding programmes specifically designed for diversified cropping systems.

The new proposals for the European Competitiveness Fund and Horizon Europe are major levers as additional funding opportunities beyond the CAP to contribute to the transition to sustainable food systems.

Lastly, cohesion across agricultural, trade, research and innovation (Horizon Europe), and food policies will be essential to scale up intercropping and ensure a coherent EU-wide transition to more diversified and resilient production systems.



LEGUMINOSE



Towards more **resilient** European **agriculture**

Towards more resilient European agriculture

Intercropping represents a promising pathway towards more sustainable, resilient, and competitive European farming systems. The work carried out within LEGUMINOSE has strengthened the evidence base on the multiple benefits of legume–cereal intercropping while also highlighting the practical conditions needed for its wider uptake.

Key findings from the project demonstrate that:



Intercropping delivers multiple agronomic and environmental benefits, including improved soil health, enhanced nutrient-use efficiency, reduced reliance on synthetic inputs, and reduced carbon footprint with a higher protein revenue compared to monocultures.



Farm-level evidence confirms the practical potential of intercropping, with LEGUMINOSE field trials, Living Labs, and stakeholder exchanges showing that well-designed intercrop systems can maintain or improve productivity while creating additional environmental and economic value.



The main barriers to adoption are not a lack of potential, but of enabling conditions. These include stronger value chains for intercrop products, adapted machinery and processing solutions for mixed harvests, improved knowledge transfer and advisory services, and more supportive policy frameworks.



Farmers and stakeholders across Europe recognise the opportunities offered by intercropping, while emphasising that targeted support is needed to reduce risks and facilitate the transition towards diversified cropping systems.

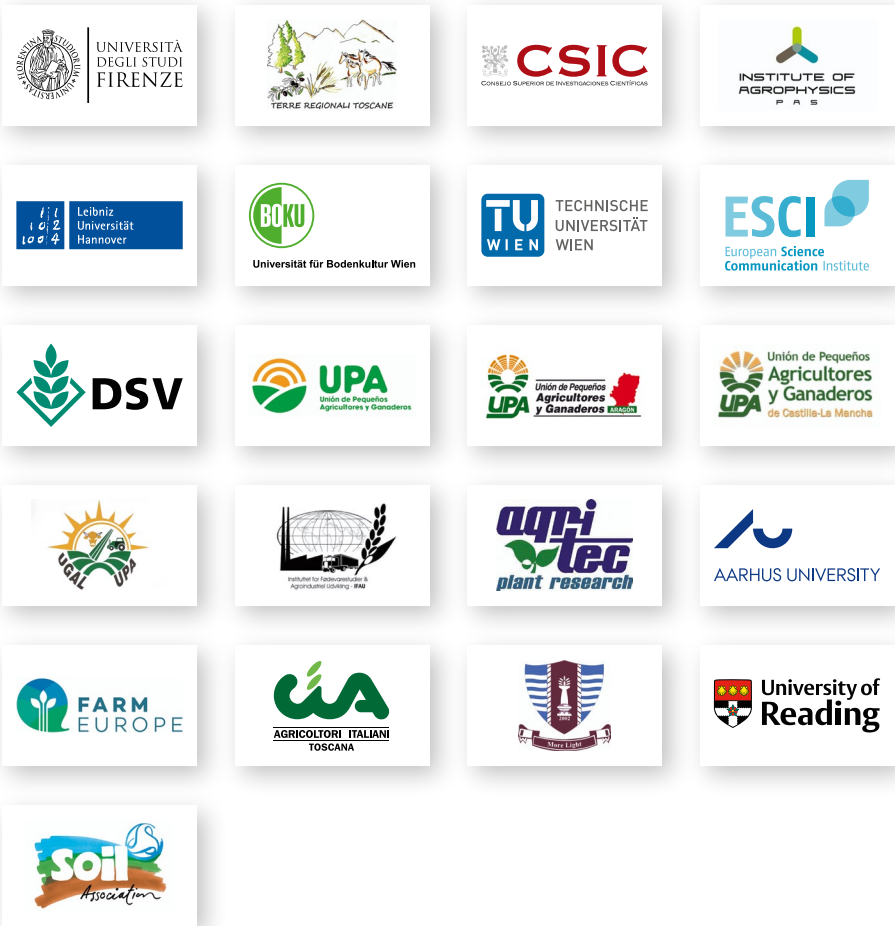


The ongoing reform of the Common Agricultural Policy, together with wider initiatives such as the EU Protein Action Plan and increased focus on climate, biodiversity, and soil health objectives, provides an important opportunity to create a more enabling environment for intercropping. By integrating this practice more explicitly into future policy frameworks, the European Union and Member States can support farmers in delivering multiple public goods while strengthening the resilience and competitiveness of agricultural systems.

The evidence generated through LEGUMINOSE, combined with the

experiences shared by farmers, researchers, and policymakers, demonstrates that intercropping is not only a scientifically validated approach but also a practical solution with strong potential for wider implementation. The challenge is no longer to demonstrate its potential, but to create the conditions that enable its wider adoption. Continued collaboration between research, farming communities, value-chain actors, and policymakers will be essential to unlock this potential. With the right policy support, intercropping can become an important component of Europe's transition towards more sustainable and resilient agriculture.

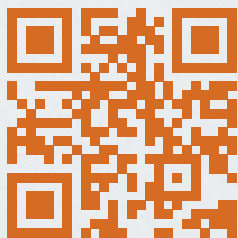
Our Project Partners



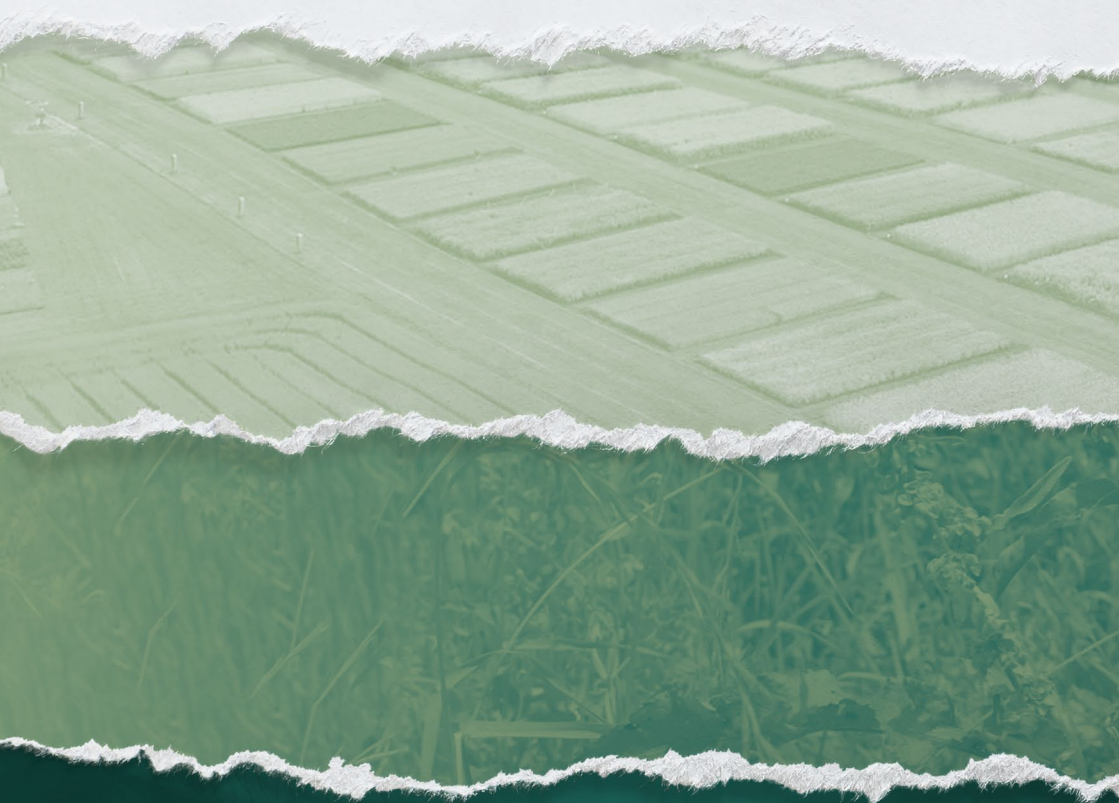


Picture Credits

Cover and pages 2, 4, 8, 12, 25, 33, 35, 37, 39 – LEGUMINOSE;
pages 10, 15, 21, 27 – Envato Elements



For more information about
the project visit our website:
www.leguminose.eu



Funded by
the European Union



**UK Research
and Innovation**

This work has received funding from UK Research and Innovation (UKRI) under the UK government's Horizon Europe funding guarantee [grant numbers 10057156 and 10039837] to the Soil Association and the University of Reading.