POLICY BRIEF / MAY 2021

The Common Agricultural Policy (CAP) and the transition to legume supported food systems

TRansition paths to sUstainable legume-based systems in Europe

About TRUE

The EU funded project "TRansition paths to sUstainable legume based systems in Europe" (TRUE) is a balanced practice-research partnership of 24 institutions, which aims to identify the best routes, or “transition paths” to **increase sustainable legume cultivation and consumption across Europe** and includes the entire legume feed and food value chains.

April 2017 – September 2021

This Policy Brief addresses the critical need for **knowledge exchange and education** of farmers in the EU to the benefit of legumes. A transition to home-grown legume supported agri-food and feed-systems in Europe also requires a **major, concerted, and strategic effort across the value chain, including the crucial role of extension services.**

Policy implications and recommendations

Fragmentation and inconsistency of existing policies create situations where actors of the value chain face different and often conflicting incentives.

1

Policies that impact legume-based agri-food and -feed systems **operate across many levels of governance** shaped by international, EU, national and regional agreements.

2

There is a need for policies to operate at multiple levels concerning **awareness, education and knowledge among all value chain stakeholders of agroecological principles and legumes' potential to fulfil these**. Such shared awareness, understanding, co-innovation and cooperation is necessary to harmonise better and optimise the environmental, societal and economic functions - and so adapt to the serious existential crises facing citizens across Europe and globally.

3

Policy integration is required: **a 'mixed approach' where agriculture, environmental, and health policies** are linked, and inconsistencies eliminated would foster more comprehensive support and incentives for systemic change, where legumes are fully recognised and valued for the various benefits to human and environmental functions.

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Challenges with current legume cultivation

Legumes can provide multiple benefits to Europe's cropped systems, citizens health, and the environment. However, these potential benefits are often hindered by lower average gross margins. Furthermore, there are environmental and economic risks posed by high input dependency for a narrow range of crops, plus high levels of plant-protein import dependency for animal feed.

Protein crops have been subsidised within the CAP. But despite these incentives, grain legumes cultivation has persisted at an exceptionally low level (1-4%) across the EU, and well below a proposed minimum target of 1 crop in 6, and idealised target of ¼ (or 25% of the rotation).

Commonly proposed policy options

to promote legume production in Europe are:

1. **pay a premium to compensate farmers** for the lower profit

2. **recognise areas cropped with legumes as a mean to fulfil the objectives of Ecological Focus Areas** (EFAs), which are to make European agriculture more environmentally sustainable. The introduction of legumes in EFAs has been criticised as they are considered ineffective crops to increase biodiversity. The ban on the application of pesticides on EFAs has negatively influenced legumes in those areas. In addition, grain legume cropping is often selected as an EFA measure in place of other (non-cash-crop) based approaches that are more effective at delivering environmental and biodiversity provisions.

TRUE Findings

This policy brief builds on the H2020 funded TRUE project, which demonstrated that **increased legume production and consumption is hindered by system lock-ins that span the entire value chain**, not just production. Holistic, value-chain wide approaches are required to tackle these system lock-ins.

At the level of the cropped system, these approaches should consider: the role of farmers' knowledge and provision of independent advice and education regarding crop selection, availability of improved varieties, and agronomy. This should be extended to **ensure awareness of legumes potential to fulfil agroecological functions, including important environmental benefits such as optimising soil provisions and combating climate change** through more efficient management of reactive nutrients such as nitrogen and phosphorus, reduce greenhouse gases (GHG) and eutrophication losses.

Increasingly, such potential is exploited commercially, offering unique selling points for traders, and especially for farmers engaged in short value chains.

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Future CAP

(Common Agricultural Policy)

The future of the transition to legume supported food- and feed-systems is also connected to developing future CAP in the EU. The objectives of the future CAP are multiple. They span various agri-food sectors from competitiveness and food sovereignty to environmental care and climate action.

Here we present evidence from a multi-actor assessment, engaging stakeholders from across the whole value chain, to explore how legumes production and consumption are connected to each of the objectives of the future CAP and how legumes can be best used to deliver their multiple benefits in Europe.

Paradigm Shift

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A transition to home-grown legume supported agri-food and feed-systems in Europe requires a 'paradigm shift', or in practical terms, a major, concerted, and strategic effort across the value chain, including the research and innovation systems. To meet health, environmental and economic goals, it is important to connect the aims of the CAP to those with other food- and feed-systems, as such **concerted focus recognises the connectivity between cropped systems and the environmental and human-health dependencies, and will help realise multiple benefits** (Parson and Hawkes, 2018).

Benefits of Legumes

Legume crops carry out biological nitrogen fixation and thus eliminate (or greatly reduce) the need for inorganic nitrogen fertiliser for their own growth, as well as limiting such requirements of the succeeding crop in the crop rotation (Iannetta et al., 2016). **Well-managed legume-based cropping systems,** especially those using no- or minimum tillage (ploughing), **can improve nitrogen use efficiency, reduce GHG emissions, sequester soil carbon and improve soil qualities and function** (Lötjönen & Ollikainen, 2017).

Legume grains, such as peas and beans, are crucial elements of a balanced diet low in saturated fat and high in fibre. They present a vital source of plant protein and a healthy menu option which should be promoted more strongly, especially given global dietary recommendations to significantly reduce meat and dairy intake (Zander et al., 2016). Legumes are rarely mentioned in policy debates on global food and nutrition security, despite their health, economic and environmental benefits. Previous EU-funded projects such as Legumes Futures, Legvalue and Legato demonstrated that **there is a lack of quantification and understanding of long-term benefits versus the short-term and often monetised gain of current dominant policies.**

Evidence and Analysis

Policies in support of home-grown legumes (EC, 2018) exist both at the EU level through the CAP and at member states level with the backing to diversification, the practice of agroecological principles (France) and grain legume cultivation in general (Germany). However, **these policies did not fully engage all the stakeholders from across the value chain to realise the necessary concerted action and paradigm shift** (Mason and Lang, 2017).

Capacities that can be linked to increased legume production through market development include:

- **the access to independent extension services**, regional networks, and training programs;
- **the proximity to legume processing facilities, trading companies, and associated R&D**; and,
- **the collaboration of key stakeholders** along the narrowing value chains - including seed aggregators, food retailers (to ensure legume and legume-based foods are categorised as recognisable as separate food products), and public food services. (Oré Barrios et al., 2020).

In particular, results of the TRUE Policy Analyses (Deliverables D7.1 and D7.2) argue that a transition to legume supported food systems can be facilitated by investments in farmer awareness and education initiatives, and farmer-to-farmer knowledge transfer via extension services, private-public research, and innovation actions.

The reasons for the low production and consumption of legumes in Europe are multiple. **The current barriers and policy challenges that could help reverse this trend are summarised in page 7 (**Balazs et al., 2021).

Current barriers and policy challenges to the increase of legume production and consumption in Europe

National and EU Level Policy

CAP/trade policies

- CAP's intense focus on production without sufficient support along the value-chain, no direct focus on legumes, and agroecological services undervalued by producers and society.
- Compartmentalisation, lack of coherence and polarisation of policies at the EU level.

Inorganic nitrogen fertiliser use policies

- Overuse / inefficient use of synthetic nitrogen, managing risk of leaching.

National Level Policy

R&D (breeding, processing technology)

- Challenges of breeding programs (lack of state-financed programs or private institutions, few investments in product development, lack of improvement and testing of local varieties)

Extension services /Profitability to farmers

- Difficulties of bridging regional supply and demand (decoupling from import in the feed sector, labelling food as regional, creating short food value chains in the food sector).
- Profitability is questioned by farmers (pest control, variable yields, not competitive with soybean, difficult to internalise external costs) as they are left without management tools and proper extension services.
- Proximity to processing facilities and trading companies.

Voluntary and National Level Policy

Consumers' preferences/ Public procurements/ dietary guidelines

- Public perception of pulses - not attractive enough
- Lack of knowledge regarding the nutritional and health value of legume by consumers
- Improved availability as convenience- or snack-foods, and access to information on cooking in easy-to-follow recipes

Adapted from Balázs *et al.*, 2021

Awareness, Education and Knowledge Transfer

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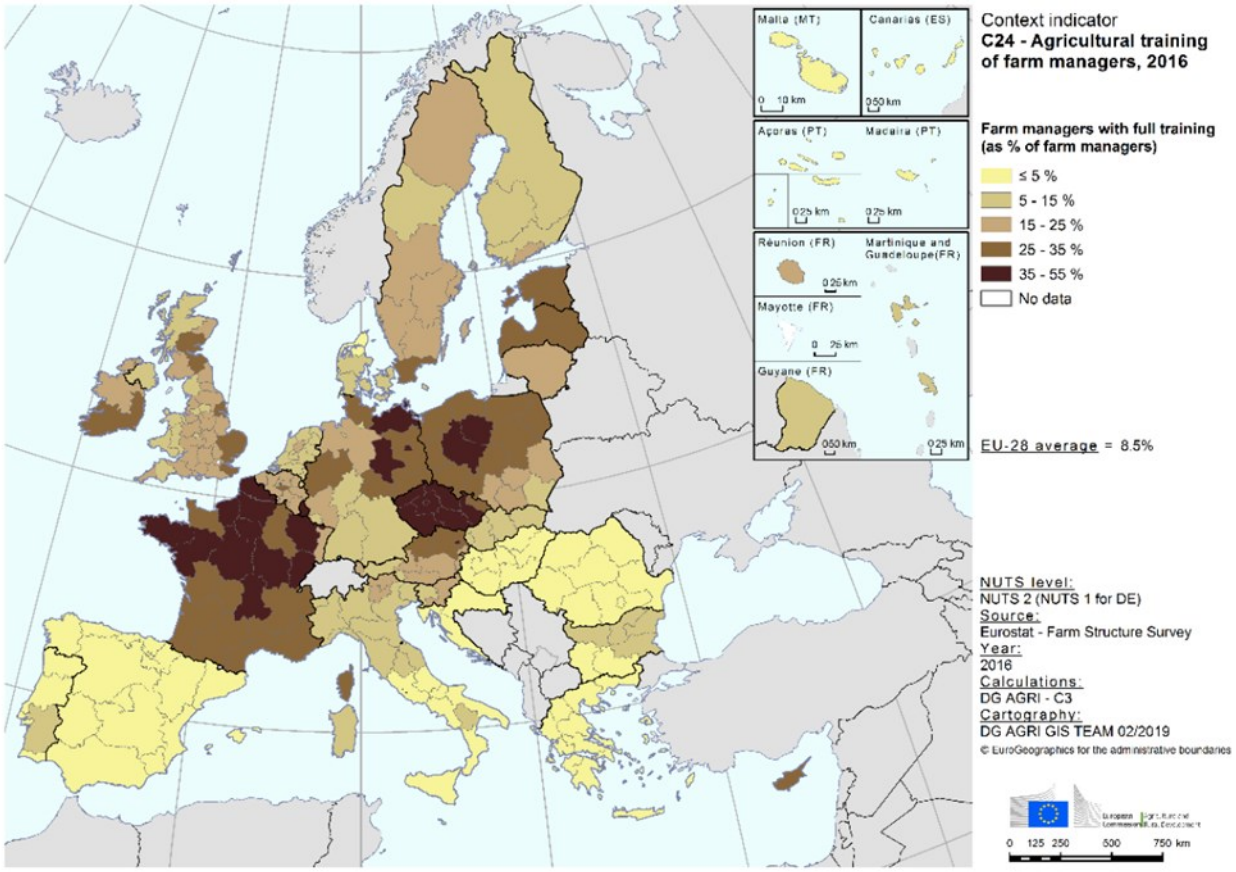
Young farmers are relatively scarce in the EU: the highest regional shares of farmers under 40 years were in Salzburg (Austria) and Franche-Comté (France), where they represented about one-quarter of all farmers in 2016. Three of the barriers listed in page 7 (inorganic nitrogen fertiliser use, R&D, and extension services) are linked to awareness, education, and knowledge transfer.

The figure below shows the **low level of training in agroecological principles among EU agriculturalists**. Such lack of awareness and gaps of knowledge may affect willingness to grow legumes, as cultivation of other currently market-dominant non-legumes crops is promoted. The agronomy and multiple benefits for and of legumes remain largely unknown to farmers (Squire et al., 2019). **A foundation for the desired paradigm shift should demand that farmers receive financial support,** which is linked to positive impacts system function quality, wherever in the value chain these may be - rather than assumed benefits based upon cultivation or not.



Source: DG Agriculture and rural development, context indicators

Awareness, Education and Knowledge Transfer (cont.)

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Environmental-, human- and animal-health protection *via* **production of varied crops (crop diversification) with high nutritional value should be favoured and incentivised** *via* awareness and educational schemes. Only independent extension services can make these provisions.

Actors at the production side of the value-chain, including seed suppliers, crop breeders, and agronomists, can significantly impact **how the increased demand for raw materials and commodities** of specific qualities can be met.

As in the case of legumes, where existing varieties are not sufficiently profitable for most farmers, **crop breeders, seed suppliers, and extension service providers would be the key actors** to remedy this limitation.

More-supported research and innovation could contribute strongly to increased grain legume production and profitability. Currently, we estimate that several multi-actor networks, including farmers, advisors and breeders, deliver such capacities (*e.g.* in Germany). At the same time, in other countries, only a narrow range of market actors fill these niches (*e.g.* in Italy) (Balazs et al., 2021).

References

- Balázs, B., Kelemen, E., Centofanti, T., Vasconcelos, M. W., & Iannetta, P. P. (2021). Integrated policy analysis to identify transformation paths to more sustainable legume-based food and feed value-chains in Europe. Agroecology and Sustainable Food Systems, 1-23. https://doi.org/10.1080/21683565.2021.1884165
- EC, 2018. Report from The Commission to the Council and the European Parliament on the development of plant proteins in the European Union. Brussels. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52018DC0757 *Accessed 10 July 2020.*
- Ferreira, H., *et al.* 2020. Benefits of pulse consumption on metabolism and health: A systematic review of randomised controlled trials. Crit. Rev. Food Sci. Nutr. 1–12. https://doi.org/10.1080/10408398.2020.1716680
- Iannetta, P.P., *et al.*, 2016. A comparative nitrogen balance and productivity analysis of legume and non-legume supported cropping systems: the potential role of biological nitrogen fixation. Frontiers in Plant Science, 7, p.1700. https://doi.org/10.3389/fpls.2016.01700
- Magrini, M.-B., *et al.* 2019. Peer-reviewed literature on grain legume species in the WoS (1980–2018): A comparative analysis of soybean and pulses. Sustainability 11: 6833. https://doi.org/10.3390/su11236833
- Squire, G.R., *et al.,* 2019. Transitions to greater legume inclusion in cropland: Defining opportunities and estimating benefits for the nitrogen economy. Food and Energy Security, 8 (4), p.e00175. https://doi.org/10.1002/fes3.175

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FURTHER READING

Policy Briefs on: Environment (DOI:10.5281/zenodo.4911317)
Delphi (DOI: 10.5281/zenodo.4911276)
Nutrition (DOI:10.5281/zenodo.4911360)

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