

H2020 VALUMICS Project Policy Brief

Towards a Sustainable and Fair EU Food System: Challenges and Conditions of a Protein Transition

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Key Outcomes

Over 20 diverse actors from the European food system agree that the protein transition is both necessary and feasible. Although discussions remain on the precise scale of change needed in the next 10 years, the broad direction of travel must include a decrease in animal and feed production while substantially increasing the consumption and production of legumes (for feed and food).

The publication of the Farm2Fork Strategy paves the road for an ambitious transformation of the EU food system in order to address environmental, health and social issues and deliver on sustainable and healthy diets for all. The “protein transition” – i.e. the decrease in the consumption and production of animal products while increasing that of pulses - represents a key component of this transformation and is especially crucial to reduce the environmental pressures currently exerted by the food system (GHG emissions, biodiversity loss, water and soil pollution, etc.).

Yet, such a transition entails a considerable reorganization of food value chains (FVCs) and thus raises significant economic questions (especially within the animal and feed sectors) which often constitute a roadblock in discussions. In this context, the VALUMICS Workshop Series, held from November 2020 to January 2021, aimed to address head-on the issues at hand in specific food value chains (dairy, legumes, wheat) in order to identify the broader conditions of a protein transition.

- Over 20 actors, all with a stake in the European food system – from policy makers to agrifood businesses and civil society – agreed on the need for the transition while pointing out key political and socio-economic challenges to support its concrete operationalization within FVCs. To this end, the collective discussion investigated three main questions: (i) how can this transition be economically viable and fair (ii) what are the relevant policy levers to be implemented (iii) how can value chain actors drive and enhance the speed of change through collective action?
- Food value chain transformations will require policy shifts at three complementary levels: (i) supporting changes in food habits through public procurement and broader interventions on consumers’ food environments; (ii) levelling the playing field for agricultural markets both within the EU and between European and third countries, while making competition rules more favourable to address sustainability and fairness issues; (iii) succeeding in making the CAP reward the best environmental practices and support the production of protein crops.
- The protein transition will depend on the collective action of actors within food value chains: policy makers and economic actors can no longer pass the buck to each other or wait for consumers to drive the change. Every actor of the system needs to move in the same direction to create cumulative effects and ultimately overcome the macro socio-political lock-in of our food system.

INTRODUCTION: A GENERAL DIRECTION OF TRAVEL

Protein Transition

The protein transition will require:

- 1. A considerable reorganisation of food value chains,*
- 2. Key policy changes to make such value chain transformations feasible and viable,*
- 3. Collective action by value chains actors to drive the transition.*

The workshops

Three Food Value Chains (FVC) in focus for the workshop discussions

- Plant proteins,*
- Wheat,*
- Dairy.*

Focus on three questions

- Reorganisation challenges?*
 - Policy changes required?*
 - Actions needed to kickstart the process?*
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A number of recent high-level publications investigating sustainable food system scenarios all point towards the same general objectives to keep the EU food system within planetary boundaries by 2050 (even though minor differences remain on certain aspects).¹ Besides radically cutting the level of food waste and losses, they highlight the need to strongly reduce animal proteins and favour an increase in the consumption and production of pulses. This “protein transition” is of key importance from an environmental perspective for several reasons: (i) to limit the ecological footprint of animal and feed productions (in terms of GHG emissions, imported deforestation, land use, etc.); (ii) to deliver on key ecosystem services provided by pulses and legume fodder², in particular a better management of reactive nitrogen in agrifood landscapes whose overuse is currently responsible for many of the environmental challenges we have to face³. The issue has recently found growing resonance in the political agenda, and more specifically in the Farm to Fork Strategy which lays out the policy framework to accompany the transformation of the European food system⁴.

While the long-term direction of travel of the protein transition has gathered consensus among the VALUMICS Workshop Series Participants, this brief sheds light on three key questions addressed during the workshops: (i) What are the specific challenges associated to the reorganisation of key food value chains (section 1)? (ii) What are the key policy changes required to trigger those transformations (section 2)? (iii) What sort of collective action is needed to kickstart this process (section 3)? The discussions focused on three value chains of key importance for the protein transition: plant proteins, wheat and dairy. These have indeed been investigated in more depth in the broader context of the VALUMICS project and are of central importance in today’s EU food system functioning.

Box 1: The VALUMICS Workshop Series

The VALUMICS Workshop Series took place between November 2020 and January 2021 and brought together stakeholders from the European food system community with the overarching aim of developing a policy roadmap for the sustainable transformation of food value chains towards 2030. Over the course of six virtual meetings, representatives from policymaking, businesses, research and civil society were invited to collectively identify and explore the main obstacles, trade-offs, and levers towards the protein transition, while making especially clear socio-economic implications. The issues pertaining to three specific value chains - wheat, dairy and legumes - were discussed in detail. While describing a common strategic direction, the process itself did not strive for collective consensus on the path to follow. Rather, it deliberately acknowledged and made explicit key dilemmas and tensions where both deliberative dialogue and further evidence are still needed.

¹ Bryngelsson D., Wirsenius S., Hedenus F., *et al.* (2016). How can the EU climate targets be met? A combined analysis of technological and demand-side changes in food and agriculture. *Food Policy*, 59, 152-164, Buckwell A. & Nadeu E. (2018). *What is the Safe Operating Space for EU livestock*. Brussels, RISE Foundation, Karlsson J.O., Carlsson G., Lindberg M., *et al.* (2018). Designing a future food vision for the Nordics through a participatory modeling approach. *Agronomy for Sustainable Development*, 38 (6), 59, Willett W., Rockström J., Loken B., *et al.* (2019). Food in the Anthropocene: the EAT-Lancet Commission on healthy diets from sustainable food systems. *The Lancet*, Clark M.A., Domingo N.G.G., Colgan K., *et al.* (2020). Global food system emissions could preclude achieving the 1.5° and 2°C climate change targets. *Science*, 370, 705-708.

² Nemecek *et al.* (2008). Environmental Impacts of Introducing Grain Legumes into European Crop Rotation, *European Journal of Agronomy*, 28 (3).

³ Sutton M.A., Howard C.M., Erisman J.W., *et al.* (2011). *The European nitrogen assessment: sources, effects and policy perspectives*. Cambridge University Press

⁴ EC (2020). *Farm to Fork Strategy. For a fair, healthy and environmentally-friendly food system*. Brussels, European Union, 22 p.

1. CHALLENGES TO TRANSFORM SPECIFIC FOOD VALUE CHAINS

Legume Sector

Key issues pertain to the development of better adapted seed varieties able to deliver stable yields and incomes, the scaling up of collecting & processing capacities, and industry innovations in products and processes to develop new consumer outlets.

The development of the legume sector faces a dual challenge: to make legumes more economically profitable for producers and more attractive to consumers. This raises issues at all levels of the food value chain. First, the seed industry will need to provide better seed varieties, with a more stable and productive yield (including a better resistance to recurring pests) and adapted to the evolving pedo-climatic context. However, few incentives today exist to invest in such varieties given the structure and size of the market and the tough competition compared with American soyabean productions⁵, which raises questions regarding trade and competition policies (see below). Furthermore, the integration of protein crops into the business model of arable farms (which favour more profitable crops, in particular wheat) will require that they either be granted a higher value on the market or be subsidized through public incentives, specifically for the ecosystem services they render. At the processing level, the feed industry will have to find ways to valorise protein crops – and thus a larger diversity of raw materials – to meet higher sustainability criteria. Finally, the food industry will have to open up new markets based on innovative plant-based products appealing to consumers. Developing the collecting and processing facilities needed at all stages of the supply chain will require substantial investments.

Wheat Sector

A decrease in the demand for feed would have a moderate impact on employment levels in the feed sector but could lead to changes in the overall production of wheat, thus raising questions regarding the economic balance of arable farmers

In the wheat sector – and more generally for cereal production – an overall decrease in the feed demand will necessitate the emergence of new farm business models. Indeed, wheat and primary cereals are key commodities for most arable farmers, that support the overall economic balance of the farm. In order to maintain a stable income for farmers and at the same time reduce areas cropped with primary cereals, an increase of farmgate crop prices seems necessary. Such a change will in turn affect the whole feed value chain up to the livestock sector, resulting in a likely price increase for animal products. On top of that, the reduction in volumes in the feed industry is also likely to lead to a decrease in the employment level in the sector. At the industry level, socio-economic changes will mainly concern the feed industry, whose overall importance compared to other sub-sectors is rather limited as it represents only 3% of the total number of jobs and around 5-7% of the total turnover of the food industry. How the feed industry will handle such a decrease while, in the same time, continue to improve its overall performance (in terms of feed input-output ratio, traceability...) remains an open question.

Dairy Sector

Reducing the volumes consumed and produced while maintaining jobs will only be possible if the quality – and thus the labour intensity – of the production increases at each stage of the value chain.

Finally, decreasing the production of dairy is a sizeable challenge in a context where the end of dairy quotas in 2015 has led to a continuous increase in production in most EU countries and at the EU level. At both farm and processing levels, the sector is more and more polarized, with small farms and dairies producing differentiated milk and dairy products, and large farms and dairies turning towards the production of commodified products. At the processing level, the bulk of the production is clearly handled by large companies, although the sector is still mainly composed by a vast number of SMEs. While companies from 0 to 19 employees represent 85% of the total number of enterprises, they only represent 24% of all jobs at the EU level and, depending on the countries, 2 to 5% of the value created in Germany, the Netherlands, France or Ireland (Eurostat). A decrease in volumes could thus mean either that large facilities continue to process the same amount of milk and most SMEs just disappear; or that fluxes passing through SMEs vs large facilities are rebalanced, favouring at the same time a re-territorialization of agrifood chains and a greater labour intensity of the production (hence providing more jobs overall) – but raising in the same time significant questions regarding stranded assets and price competitiveness on export markets (in a context where the EU exported 28% of its production in 2018).

⁵ On this point, the question of genome editing/new breeding techniques (NBTs) has been put on the table as a way to deliver more productive and resistant yields, but this constitutes a controversial discussion at the European level (the regulatory framework on GMOs currently prohibits the use of NBTs in Europe).

Policy Challenge 1

Public intervention is needed to support changes in food practices, notably by acting on consumers' food environment. To this end, policy-makers must mobilize a wide array of policy tools (public procurement, marketing regulation, education, regulatory incentives towards retailers, etc.).

Policy Challenge 2

Levelling the playing field and harmonizing market rules is of absolute necessity for EU actors to raise their level of sustainability and fairness without being at risk of losing market shares or profitability.

2. THREE ISSUES OF POLICY CHANGE

Given the intertwined challenges at play in each food value chain, the protein transition will require cross-cutting changes at three complementary levels of the policy framework. Firstly, while there are indications that evolutions in consumer perceptions are already happening in Europe⁶, public intervention is clearly needed to support changes in food practices⁷, notably by acting on the consumer's food environment⁸. FVC actors have pointed out the importance of public procurement policies to align cafeteria menus on sustainable healthy diets as well as the role of public education to raise awareness amongst younger generations. In this respect, local governments and citizen organizations have a key role to play in developing local initiatives (while advocating for changes at the EU level). Beyond that, other options pertain to marketing regulation, fiscal measures or the provision of more adequate information on sustainable healthy diets, notable through harmonized dietary guidelines at the EU level.⁹ While some of these measures were once considered to be part of the F2F strategy, they have eventually been dropped and generate intense debates between stakeholders. Moreover, the potential role of retailers in guiding consumers towards more sustainable options (e.g., by increasing the availability on shelves of alternative products while reducing the offer of unsustainable options) is also a matter of discussion. In a competitive context where retailers risk losing clients and market shares, such market moves will likely remain limited without regulatory incentives or obligations.

Secondly, the issue of market organization is also key to enable the transition. European food value chain actors currently operate in a context characterised by strong competition, both on the internal EU market and internationally. Getting to a sufficient level of price competitiveness is absolutely required for them to thrive in such a context. However, given that fiscal, social and environmental rules are not fully aligned between countries, this often result in a “race to the bottom”. Levelling the playing field and harmonizing market rules is therefore of absolute necessity for EU actors to raise their level of sustainability and fairness without being at risk of losing market shares or profitability. This holds true not only at the international level, but also on the Common Market.

This issue raises several questions, in particular with respect to the criteria on which to base standards. For instance, would a climate metrics based on carbon footprint be sufficient? Would it be necessary to go beyond standards based on intrinsic quality of products to also reflect production process and methods (PPMs) in order to better account for key environmental and social issues?¹⁰ Given the international context of discussions on trade, it is unlikely that such changes could be approved in a near future through a multilateral process.

Competition rules and how they are currently applied in the EU are also a matter of reflection, as they have previously proved to limit the potential coordination between value chain actors in favour of greater sustainability.¹¹ Adjusting them to enable an alignment between actors on key sustainability and fairness criteria is needed and discussions have already begun on this question in order to align competition rules with the Green Deal.¹²

⁶ de Boer J. & Aiking H. (2018). Prospects for pro-environmental protein consumption in Europe: Cultural, culinary, economic and psychological factors. *Appetite*, 121, 29-40.

⁷ Scientific experts mandated to advise on how best to implement the Farm2Fork strategy indicated that changes in the consumer's food environment (beyond the sole provision of information) was clearly needed to foster changes in food practices. See on this: Chief Scientific Advisors (2020). *Towards a Sustainable Food System. Moving from food as a commodity to food as a common good*. Brussels, European Commission – Scientific Advice Mechanism.

⁸ According to the HLPE (High-Level Panel of Experts on Food Security and Nutrition), the food environment is defined as ‘the physical, economic, political and socio-cultural context in which consumers engage with the food system to make their decisions about acquiring, preparing and consuming food.’ (HLPE, 2017)

⁹ Capacci S., Mazzocchi M., Shankar B., *et al.* (2012). Policies to promote healthy eating in Europe: a structured review of policies and their effectiveness. *Nutrition Reviews*, 70 (3), 188-200.

¹⁰ Gaines S.E. (2002). Processes and Production Methods: How to Produce Sound Policy for Environmental PPM-Based Trade Measures Symposium: Trade, Sustainability and Global Governance. *Columbia Journal of Environmental Law* (2), 383-432.

¹¹ Bos J.M., van den Belt H. & Feindt P.H. (2018). Animal welfare, consumer welfare, and competition law: The Dutch debate on the Chicken of Tomorrow. *Animal Frontiers*, 8 (1), 20-26.

¹² https://ec.europa.eu/competition/information/green_deal/call_for_contributions_en.pdf

Policy Challenge 3

Aligning the CAP with the Green Deal and Farm to Fork objectives will prove critical to enhance the environmental sustainability of food production.

Collective Action

The protein transition will depend on the collective action of actors within food value chains: policy makers and economic actors can no longer pass the buck to each other or wait for consumers to drive the change. Each and every actor of the system needs to move in the same direction to create cumulative effects and ultimately overcome the macro socio-political lock-in of our food system.

Finally, a sustainable transformation of the European food system will not be possible without significant changes at the level of agricultural policies. Aligning the CAP with the Green Deal and Farm to Fork objectives (in terms of reduction in GHG emissions but also fertilizer application and pesticide use, etc.) will indeed prove critical to enhance the environmental sustainability of food production. To this end, a major question pertains to whether the definition of the ecoschemes as per pillar 1 will be ambitious enough in all member states to meet the F2F objectives. Although the current negotiations may foster incremental evolutions in the right direction, there seems to be a significant gap between the ambition of the F2F and the concrete measures that are being implemented through the CAP. In addition, policy tools that could support specific productions in a targeted manner (i.e., coupled subsidies and quotas) could be mobilized to support protein crops or limit animal productions; their use vis-à-vis WTO rules would indeed be justified through the environmental objectives they fulfil.

3. CONCLUSION: A MATTER OF COLLECTIVE ACTION

The considerable challenges underlying the protein transition often lead FVC actors to pass the buck and designate one another as responsible for making the first move and driving the change. This is a result of the (real or perceived) risks – be they economic or political - associated to engaging in long-term strategic changes. In the case of private businesses (producers, processors, retailers), unilateral action to change production or supply may jeopardize their economic profitability. On the other hand, decision-makers can suffer from political backlash or private actors' opposition when proposing ambitious policies. As a consequence, both public and private actors turn to consumers who, in turn, condemn their reluctance to change the food system in which they are embedded. To overcome this unfortunate deadlock, simultaneous action must be taken at all levels of the food system to foster a cumulative effect towards change. Value chain actors and policymakers will have to raise their ambition to respond to citizens' pressure by working at two levels: firstly, by developing niche initiatives within specific value chains and connecting them together to reinforce their joint impact (e.g. structuring domestic supply chains for protein crops, promoting the integration of plant-based meals in schools at the municipal level); and secondly, by collectively exerting pressure on the current political and economic framework in which they operate.

Key sources for further information

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Box 2: Participants to the VALUMICS Workshop Series

This document is the outcome of a workshop series dialogue carried out from November 6th 2020 to January 12th 2021 in the framework of the VALUMICS project, to which the following stakeholders took part and contributed:

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