

The sustainability challenges of Hungarian agriculture

The agri-food sector is facing serious challenges and two of the key drivers of its ongoing transformation are digitalisation and greening. These are also the main directions of the Green Deal and the new CAP post 2023.

However, there is a risk that post-socialist countries with strong roots in mechanisation and industrial agriculture, such as Hungary, will only focus on technological agricultural development. The Hungarian sectoral development strategies examined confirmed this hypothesis, as the primary objective of these documents is to improve sectoral competitiveness through digitisation efforts. On the other hand, this means that policy makers treat sustainability as a secondary issue. Our results show that the agri-environmental and greening measures supported under the CAP have so far failed to achieve significant results, and the sustainability of the Hungarian agri-food sector has deteriorated over the last almost two decades. It is therefore essential to achieve results in the field of environmental sustainability and to change the perception that EU proposals are often presented as a 'dark green' narrative in public debates in Hungary. Attitude change requires wider social mobilisation and knowledge transfer.

From a sustainability perspective, we can identify five policy gaps in the Hungarian strategies: (1) the lack of an ecologisation approach, (2) climate change is not given sufficient attention, (3) complex landscape management is not reflected in the documents, (4) inequalities between farmers are increased by the proposed measures, (5) the Digital Food Strategy does not address healthy food consumption and food waste.

At the European level, we agree with the recommendations of previous research (Pe'er et al. 2020; Recanati, et al. 2019), such as the transformation of the CAP into a new integrated agri-food policy. However, there is also a need to further reduce bureaucracy and resolve inconsistencies in agricultural support schemes. While steps towards indicator-based monitoring are a step forward, there is also a need to strengthen the monitoring systems of the CAP to ensure that Member States are making real progress towards the EU's common goals.

At the national level, the Hungarian agricultural sector and policy makers should outline a more balanced approach to development, with a greater emphasis on environmental issues. The benefits of digitalisation and greening complement each other while strengthening the inclusiveness of development policy. In conclusion, a wide range of practices need to be adopted to improve the environmental, economic and social sustainability of agriculture. Both organic farming, precision agriculture and the circular economy framework can help bridge the gap between traditional and environmentally friendly practices and yields (Batlles-dela Fuente et al., 2022). One potential example of this could be organic landscape management, which includes the cultivation of old landscape varieties. In addition to increasing species richness, protective forest strips also improve the microclimate. Biodiversity islands" (wildflower meadows modelled on natural vegetation) planted between arable fields can counteract the effects of intensive cultivation on biodiversity. In relation to data-driven improvements, the lack of data on the amount and location of food waste generated should be a priority. This is also true for agricultural by-products, whose energy recovery is currently low.

There is also a need to improve coordination and cooperation between policies that affect rural areas, such as nature conservation and tourism. As regards the food industry, the promotion of

healthy food production should be an objective of the Digital Food Strategy. Agricultural companies should be encouraged to educate consumers to promote healthy food consumption and reduce food waste.

At a practical level, we propose the use of agricultural practices that respond to climate change, help reduce GHG emissions, improve carbon sequestration, reduce soil degradation, protect soil moisture and ultimately restore ecosystem services. In order to help farmers, training of extension agents on methods and improvement options adapted to the farm is needed. To achieve this, a generational change of farmers is necessary, without which neither organic nor precision agriculture can work. The 2020 Agricultural Census has also demonstrated the problems associated with generational change, which are even evident in the absorption capacity of resources.

As regards (public) funding, priority support for activities that directly support adaptation to climate change should be considered. Our future research plans will focus on comparing precision and organic farming at farm level in the drought-stricken Danube-Tisza basin. We plan to assess and quantify the advantages and disadvantages of the two production methods, as in the future we will have to farm under similar conditions in several lowland regions.

[CAPTIVATE](#) project, funded under the Erasmus + program of the European Union, is dedicated to knowledge transfer and vocational training of farmers and agricultural advisors related to the current EU strategic lines, such as the Green Deal, Farm to Fork Strategy and Organic Action Plan. One of the CAPTIVATE's main objectives is that farmers better understand conditionality, eco-scheme and rural development regulations, they choose and participate in the certain schemes with more responsibility and awareness, carrying out the new CAP measures more effectively.

References

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