

The impact of extreme climate events on agricultural production in the EU



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The European agricultural sector is expected to be increasingly exposed to extreme events under climate change. Adaptation solutions must be implemented to help farmers mitigate and recover from climate disasters. The European Union policies can contribute to support these solutions in Member States.

The study

provides an overview of the impacts of extreme weather events on the agricultural sector in the European Union. It also examines the adaptive solutions and possible policy responses to make agriculture more climate resilient.

Key findings

Climate extremes are increasing across Europe with pronounced regional differences. Northern Europe and mountainous regions will likely see more heavy precipitation extremes, while Southern Europe will face severe drought and temperature extremes; Central Europe will endure both heat extremes and increased heavy precipitation.

Most crops will suffer heavy yield damage in case of drought, frosts, or floods. Grassland is also susceptible to drought, causing cascading impacts on the livestock sector. Productions vulnerable to climate extremes include maize (heat), tubers (flooding), fruits (late spring frost) and soybean (high yield variability).

Available solutions to make agriculture more climate-resilient mostly involve knowledge production and risk management tools, as well as individual adaptation measures implemented at farm scale.

Institutional adaptation solutions supported by public or private entities include **the setting up of climate change observatories and early warning systems; and the promotion of risk management tools** to reduce farmers' economic losses after climatic disasters and support the necessary investments to recover.

At farm-level, adaptation strategies can increase resilience, protect assets or stabilize income. Multiple solutions (e.g., investments, farming practices, etc.) can be combined for greater efficiency **in a systemic approach with improved resilience of the farming system to climate extremes.**

In EU policies, the **management of extreme climate events in the agricultural sector mostly deals with floods and drought.** Other extreme events (heatwaves, frost, etc.) are less well addressed. Moreover, **synergies between water management policies, agricultural policies and climate policies remain limited.**



While the challenge of better integrating climate change adaptation issues - in particular in the face of increasing climate extreme events - is high, the analysis of the CAP strategic plans (CSPs) showed that:

- **Member States promote in their CSPs a wide range of interventions favourable to the prevention of flood damages, but also drought and water scarcity damages,** notably through eco-schemes, sectoral interventions, ENVCLIM interventions and INVEST interventions.



- The effective articulation/complementarity of these interventions to promote systemic approaches at farm and sectoral level, to efficiently adapt to climate change, is difficult to assess at this stage. **CAP interventions generally support single practices, which do not allow for ambitious paradigm shifts.**
- **Risk management tools (e.g., insurance) are not sufficiently promoted**, although their contribution to the adaptation of the agricultural sector is significant.
- While some interventions appear ambitious, **their real impact will depend on their uptake by farmers** and how they will be implemented regionally.

Policy recommendations

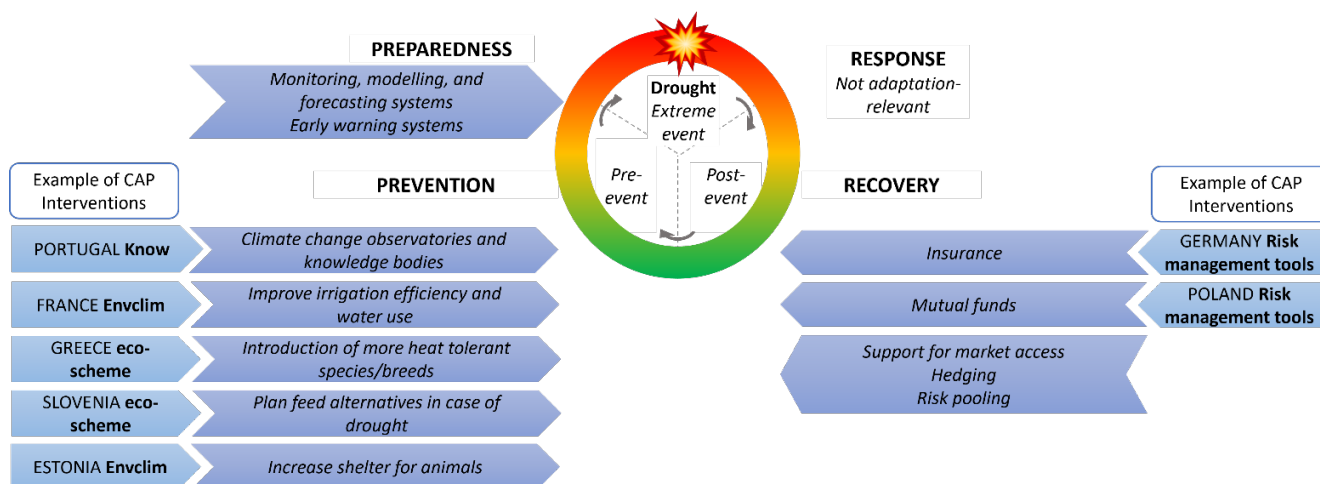
It will be crucial to analyse in the coming years which instruments have been effectively mobilized, **to properly assess the contribution of individual CSPs to the overall objective of adapting the European agricultural sector to climate change.**

To improve the resilience of EU farming systems to severe climate events, **systemic approaches at farm level should be fostered by CAP interventions.** In this regard, specific mechanisms, e.g., point-based, result-oriented, and system-based approaches, should be more developed in the CSP, to target ambitious adaptation solutions.

More effort should be done on supporting the deployment of risk management tools. However, support for insurance schemes is an ex-post measure (supporting recovery from an adverse climate event) that should not overshadow ex-ante measures (promoting prevention, preparedness and response) at farm level.

Finally, **synergies between water management policies, agricultural policies and climate policies need to be strengthened**, through a better integration of flood risk management and drought risk management into CAP strategic plans.

Figure: Crisis management cycle and example of promoted interventions, by different MS, to tackle drought issues



Source: Authors

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The present note is based on the study *The impact of extreme climate events on agricultural production in the EU*, authored by: Oréade-Brèche: Alice DEVOT, Lucie ROYER, Elisa CARON GIAUFFRET, Vincent AYRAL; Ramboll: Delphine DERYNG, Blandine ARVIS, Laetitia GIRAUD, Ecologic Institute:

Josselin ROUILLARD published in: April 2023

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