

Based on analysis of 460 farmers surveyed in 2022

Climate change at farm level: perceptions and behavior

Justification

Climate change tends to be addressed by accurate statistics and informing scenarios but could be **perceived in an abstract way**. Delving into **farmers' awareness and perception** enables policymakers to better understanding of **climate change' realities at the local level**, which is essential for **policy formulation and implementation**.

Key takeaways

- ❖ Farmers are aware of climate change and their effects on crops and livestock.
- ❖ Warming temperatures and extreme events (heatwaves, droughts and floods) are the main perceived impacts, but also their effects on crops (new pest infections and less reliable water supply).
- ❖ Farmers' responses include reducing the use of fertilizers or increasing their efficiency; crop diversification and rotation; and contracting insurances to face extreme events.
- ❖ Climate services are essential to anticipate reactions to erratic rainfall patterns and floods.
- ❖ However, some adaptation barriers have been identified: Lack or poor government support; high cost of investment at farm level; and climate change denial or skepticism.

What's the issue?

- Climate change is both a **physical and social phenomenon** and **farmers are not blank slates**: they socially construct risk from their experiences.
- **Perception is a complex process, is alive**, encompassing **psychological constructs** (e.g., previous knowledge, beliefs, attitudes, and concerns about if and how climate changes).
- Understanding **heuristics of climate change perceptions** are imperative for **informed decisions** and the first step to **minimizing maladaptation practices**.
- Examining **farmers' attitudes** is relevant because 1) challenges often seem more urgent when perceived as local, and 2) farmers can provide first-hand local observations.



MODFABE project

The project aims to increase the robustness of decision-making processes by modelling farmers and irrigation districts' perceptions and adaptive capacity to climate change.

Data was collected from interviews to 13 irrigation districts and a survey to 460 farmers from the Lombardy region.

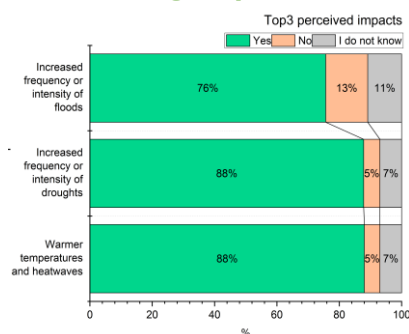
Modelling human behavior can be used for policy experimentation, testing the effectiveness of strategies and measures to face climate change.

What we know?

Climate change awareness

- Climate change is the single most **serious problem** (85%)
- **Multifunctionality** is slightly **more exposed** to climate change than **crops and livestock** (92% vs 88/85%)
- **Individuals** are more responsible than EU and economic sectors for tackling adaptation actions (88% vs 74/69%)

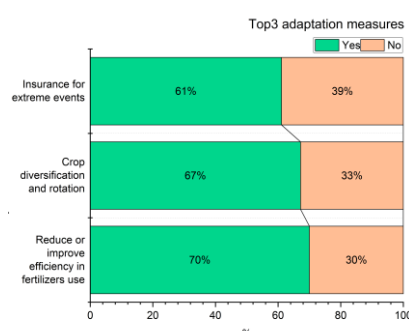
Climate change impacts



Less perceived:

- Rainy season comes earlier
- Increased rainfall or extended rainy season
- ✓ **Uncertainty** about changes in nutrient dynamics

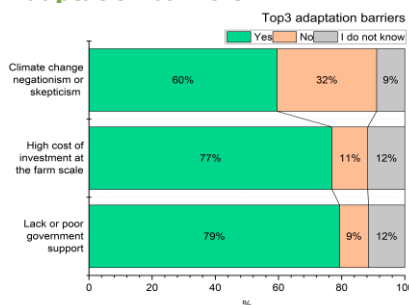
Adaptation measures



Less implemented:

- Alternative water sources
- Crops to/from Livestock
- Biomass/Biofuels
- ✓ **Climate services** become widespread (79%)

Adaptation barriers



Less considered:

- Lack of **information**
- Lack of **new technologies**
- ✓ **Attitudes:**
 - Denial
 - Business as-usual

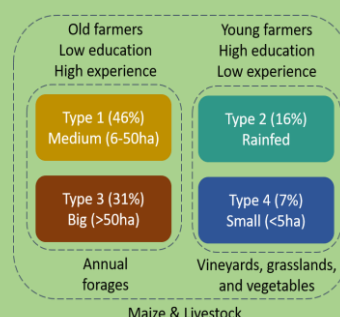
Farmer profile



Man, 45-64y, higher education, experience >30y, irrigation district membership, non off-farm activity, no succession intention



Size >20ha, irrigated, conventional crops (maize), livestock, fertilizers use, irrigation canal as water source



Insides for policy formulation

- Farmers' experiences can be tested to identify common patterns transferable to local policy-makers
- Farmer and farming profiles are driving factors when defining interventions to increase adaptive capacity.

Acknowledgements

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More information

This brief was prepared by Dr. Sandra Ricart (Politecnico di Milano), with inputs from Engr. Claudio Gandolfi (University of Milan) and Prof. Andrea Castelletti (Politecnico di Milano). The brief is based on findings of the works conducted between 2020 and 2022 and available at the MODFABE website: <https://modfabe.deib.polimi.it/>
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