

### Executive Summary

Risk and risk management are essential elements of agriculture and affect the wellbeing of farm households. Farmers react to production, market and institutional risks and challenges by taking measures on or off the farm. Such risk management measures are often costly and have implications for up- and downstream industries as well as the environment. The risk exposure of European farms is increasing. For example, climate change will increase the frequency and magnitude of extreme weather events like droughts, heatwaves and heavy rainfalls that potentially have detrimental effects on agricultural production.

Thus, the adaptive capacity and risk management options in European agriculture need to be improved. Policy shall support this process. Policies are needed to support a diversity of risk management solutions and not only focus on a few solutions. Strategies to cope with risk often go beyond the level of the individual farm. Cooperation, learning and sharing of risks play a vital role in European agriculture and shall be strengthened. Thus, coordinated policies targeting beyond the individual farm and considering all the stakeholders involved in the risk management strategies are needed to ensure their effective implementation. Moreover, policies need to facilitate to take full advantage of the rapid technological progress and improved data availability (e.g. based on satellite imagery) to develop a wider set of risk management strategies.

**Risk exposure and perception are heterogeneous across countries, sectors and farms.**

### SURE-Farm

In the SURE-Farm (Towards SUSTainable and RESilient EU FARMing systems) project we aim to inform policy responses through two objectives. First, we investigate farm- and farm-household behaviour in the context of risk and risk management. Second, we investigate the strategies of beyond farm actors and a wider spectrum of risk management options. For example, we highlight the relevance of widening the focus beyond traditional financial risk management instruments, and demonstrate the potential for novel insurance mechanisms, e.g. based on satellite data, to cope with increasing production risks.

### Diverse risk management strategies used to deal with differing range of challenges

Through a survey of 1,152 farms in 11 case study regions across Europe, we found that the use of risk management strategies is highly heterogeneous across countries and farms. In general, farms that specialize in arable and perennial crops use more different risk management instruments than livestock or mixed farms. For example, the off-farm strategies hedging and insurance use are far less common in animal compared to arable production. Yet, some risk management instruments are well adopted by all farm types. More specifically, cooperation across farms, such as membership in cooperatives and learning from others and their experiences, is an important risk management strategy. Among on-farm risk management strategies, working harder to secure production in hard times and maintaining financial savings for hard times are found across all farm types.

#### HETEROGENEOUS CHALLENGES ACROSS STATES, SECTORS AND FARMS



**Risk Management strategies go beyond the farm level, involving a diversity of stakeholders.**

We used the personal histories of family farms, and business histories of corporate farms in five different country contexts, to identify phases in the separate production, demographic and policy adaptive cycles (and consequences of interactions between them) as they have impacted on individuals and their business enterprises. Challenges discussed by farmers ranged across a spectrum from purely internal factors arising from within the farming family and farm system, through combinations of factors to uniquely external pressures. Internal factors, such as intergenerational change, family breakdown, illness and death were more prominent in the narratives than external factors.

Many external factors were perceived largely as noise, and only infrequently generated a conscious response. The most frequent responses to both cycle and shock stimuli were robust. Prolonged trends resulted primarily in adaptation. Transformations were relatively infrequent and not radical. We found that farming systems are not well-equipped for either a rapid move away from direct payments or to respond to climate change. A further key insight was that there were increasing signs of change from farming as a vocation to more business focused, larger scale agriculture, with the latter narrators showing a reduced attachment to land. This will have implications for rural communities, the environment, food security and land quality.

### **Risk management strategies emerge as the result of farmers' decision making influenced by a variety of actors**

Additional farmer interviews were conducted in 11 case studies, together with an exercise to map farmers' influencers on decision-making. The aim was to better understand the role of farmers' learning in enhancing resilience capacities. The main influencers on decision-making were individuals such as family members, advisors (e.g. agronomists, vets, accountants) and other farmers. Influential organisations include associations or cooperatives that the farmers belong to, with the internet an important source of information. An important aspect is the degree to which farmers trust their influencers. Farmers' attitudes, values, beliefs and motivations influence their decisions. Farmers employ a range of learning strategies, such as seeking out information, learning new skills, experimentation and learning from others. Important attributes that facilitate learning are being open to new ideas, reflexivity, flexibility and supportive social networks.

### **Involving all actors for better risk management**

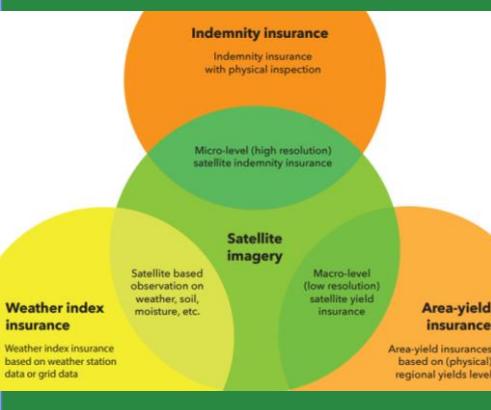
Our project aims to integrate various stakeholders to map future pathways for risk management in European agriculture. To this end, a co-creation platform and focus groups are used. We aim to identify improved risk management tools as results of the innovative participation of the stakeholders both at European level but also with local stakeholders in all 11 case studies. Risk management improvements are found by identifying, enhancing and improving the roles of the actors involved in the strategies.



For example, stakeholders from the extensive sheep sector in Spain agree that improvements in weather insurance need to be reached to better cover losses for droughts in grassland areas. Improved weather insurance will raise the insurance penetration in the extensive livestock sector. Farms ability to invest, even under high risk exposure, also need to be supported by a strengthened loan guarantees program and new saving instruments. A proactive attitude from farmers and financial training sessions from farmers' organization also are desired.

### Novel risk management approaches available

To cope with increasing climatic risk exposure of European agriculture existing risk management strategies have to be enriched with novel approaches. The SURE-Farm project investigates the potential of innovative insurance solutions such as weather index insurances, area yield insurance or satellite based insurance solutions (see Figure on the left side). We find that these can complement traditional insurance solutions for some farms because they especially allow the establishment of efficient insurance mechanisms for previously uninsured crops (e.g. pastures and meadows) as well as under-insured risks such as droughts (Vroege et al., 2019). Ongoing technological developments such as remote sensing will enable more effective, cheap and inclusive insurance mechanisms.



### Policy Implications

Risk exposure and risk management are largely heterogeneous across countries, sectors and farms and take place on and off the farm. This heterogeneity is the result of diverse farm structures but also of heterogeneous subjective attitudes, perceptions and norms as well as institutional trajectories. Thus, policies are needed that support a diversity of risk management solutions and not only focus on a few solutions. Strategies to cope with risk often go beyond the level of the individual farm. Cooperation, learning and sharing of risks play a vital role in European agriculture and shall be strengthened. Thus, coordinated policies targeting beyond the individual farm and considering all the stakeholders involved in the risk management strategies are needed to ensure their effective implementation. Moreover, policies need to enable long term strategies, e.g. for dealing with intergenerational change, and need to address identified obstacles to change (e.g. cultural, legal, social welfare and policy). Finally, rapid technological progress and improved data availability enable the development of a wider set of risk management strategies. One example are new insurance solutions, e.g. based on satellite imagery, which will complement existing approaches. Policies shall enable that a wide and diverse set of insurance solutions can develop, e.g. by providing access to high quality data and removing structural disadvantages compared to traditional insurances. Thus, a policy environment that facilitates and supports this kind of innovations is needed.

Policies need to consider a diversity and long-term strategies with a multi-actor approach and strengthen innovations in products design.

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