

## Extended Abstract

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<b>Paper/Poster Title</b>	<b>Fostering resilience of farming systems: principles and strategies</b>
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Abstract prepared for presentation at the 96<sup>th</sup> Annual Conference of the Agricultural Economics Society, K U Leuven, Belgium

4<sup>th</sup> – 6<sup>th</sup> April 2022

<b>Abstract</b>	<i>200 words max</i>
<p>Farming systems resilience is an increasingly used concept in policy and stakeholder circles. However, since resilience is a latent construct, clear indicators do not exist, which hampers empirical research with a view to provide recommendation as to how to foster resilience. This paper reports on a qualitative study in 7 case study regions across Europe, which set out to analyse past resilience and derive implications for policy makers to enable resilience. The cross-case comparison resulted in 6 key principles for enhancing resilience in EU farming systems. To implement these principles, a policy dialogue is needed. We performed such policy dialogue in each case study and identified a number of concrete strategies and policies to enhance resilience.</p>	
<b>Keywords</b>	Risk, Resilience, Farming Systems
<b>JEL Code</b>	Agricultural Economics
<b>Introduction</b>	<i>100 – 250 words</i>
<p>Farming systems (FS) operate in biophysical, political, social, economic and cultural environments which are often far from stable. Frequently or unfavourably changing conditions can affect FS performance, i.e., the delivery of FS functions (such as food production or ecosystem services). The dimension and direction of the changes of the environment are often uncertain and there are many unknown unknowns, i.e., events that cannot be imagined currently, let alone that their likelihood is known. Hence, safeguarding the functions of FS requires more than traditional risk management, which often assumes that the possible states of the future environment are known and that probabilities can be attached to each state, i.e., we know which shocks might occur and with which probability. Hence, the institutional and socio-economic environment in which FS are embedded should at the same time provide some direction to FS, but also help farmers keeping their options open and facilitate their flexible and smooth responses, in other words, the enabling environment should support farming systems' resilience. Whereas there have been a considerable number of conceptual and theoretical papers about farming system resilience, more operational studies and concrete recommendations remain lacking. This is to some extent due to the latent nature of resilience, as it is a capacity that can only be observed when external pressures are large enough. Therefore, procedural and/or quantitative indicators for assessing resilience are hard to define. This paper reports on a qualitative study building on concepts from systems thinking to evaluated the</p>	

resilience of farming systems and to provide more concrete recommendations for fostering resilient farming systems.

**Methodology**

*100 – 250 words*

We used a qualitative methodology inspired by systems science. First, in each case study, the research team listed the main challenges to the farming systems for the past decade. Second, the potential and actual impact of these challenges to the farming systems were qualitatively assessed. Third, the research team in each case study assessed to what extent, during each of those identified challenges, anticipatory, coping and responsive capacities were present and which attributes of the farming system contributed to this. Fourth, in each case study, a further analysis was performed based on systems sciences, and more specifically systems archetypes, a stylized representation of system failures. Fifth, a cross-case comparison was performed, which led to the identification of key principles for enabling resilience. In a second stage, participatory workshops with key stakeholder were held in each case study region, to formulate a number of concrete recommendations for complying with those principles.

**Results**

*100 – 250 words*

Our analysis reveals 4 patterns that are common across all case studies that undermine farming system resilience, being (1) the shifting the burden archetype; (2) the eroding goals archetype; (3) the limits to growth archetype and; (4) the success to the successful archetype. Based on this, we defined 6 principles for enhancing resilience: (1) when a FS cannot cope with a, the enabling environment should provide temporary resources to cope with the adverse consequences of the shock, but only to buy time while working on the real remedy; (2) when shocks occur, resources should be shifted towards building anticipatory and responsive capacity, to prevent addiction to external solutions and to increase future coping capacity of the FS; (3) the enabling environment should assist the FS to detect, assess and address long-term trends that challenge the future resilience of the FS in a way that increases future robustness, including through adaptation or transformation to that trend in the long run; (4) the enabling environment should foster a potential diversity of responses, rather than focusing too much on a limited set of actions strengthening resilience; (5) the ensemble of the FS and its enabling environment should develop a sufficient degree of ambidexterity, that is, find a balance in putting resources in immediate versus future challenges; (6) There needs to be more systemic in-depth analysis of the root causes of challenges on the one hand, and of the drivers of FS vulnerability to these challenges on the other hand, to avoid a redefinition of the problem and the implementation of solutions that don't fix the real problem. During participatory workshop sessions in each case study, we identified a number of concrete recommendations for policy makers to adhere to these principles. While



some of case-study specific, a cross-case comparison revealed that substantial similarities and allowed to provide some general recommendations.

**Discussion and Conclusion**

*100 – 250 words*

Farming system resilience is at the forefront of policy making and of discussion among farming system stakeholders. However, because resilience is a latent construct, research leading to concrete recommendations is missing. We performed a qualitative study across 7 farming systems in Europe and identified 6 key principles for fostering farming system resilience. Based on participatory workshops, we further identified a set of concrete strategies and policies to comply with these principles.