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# Exploring perceived risk and resilience of Flemish farmers

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*Abstract: Farm(er) resilience is defined as the capacity of farmers to appropriately react to challenges. In this paper we assume that farmers, when exposed to a disturbance, can be resilient in three different ways: by exploiting their coping, adaptive, and transformative capacities. The aims of this paper are to explore how farmers perceive their own (farm's) resilience, in relation to these three concepts; and to examine how these resilience perceptions relate to their risk perception, attitude and behaviour, and to their other features of farms and farm households (such as use of family labour). Data was obtained through a survey amongst Flemish farmers and analysed in an explorative way. Preliminary results indicate that many Flemish farmers consider their farms to be robust, however, fewer indicate to have adaptive capacities, and fewest to be able to transform their farms. The research will provide insight into characteristics of farms and farming systems that potentially enhance resilience capacities of farmers, which is currently lacking in resilience literature.*

***Keywords**: farmers, perceived resilience, risk management, Flanders*

## Introduction

European farmers are being pressured by manifold social, economic, institutional and environmental pressures (Meuwissen *et al.* 2019). Their ability to cope with various challenges and to adapt their farming strategies to changing circumstances will determine the amount and direction of future agricultural development in terms of structural and demographic adjustments of farms and farming systems. Farm resilience comprises the capacity of farmers – or farm households – to cope with disturbances by both absorbing shocks and adapting to or anticipating severe or prolonged stresses (Folke *et al.* 2010, Darnhofer 2014). On-farm innovations are mostly related to adaptations and transformations, and will likely be increasingly necessary in the future as a reaction to cumulating stresses. Understanding how farmers perceive their (farm's) resilience is needed to guide the development of policy instruments and other measures that aim to increase farm(er) resilience. To feed the discussion on how the resilience of farm(er)s, and especially the adaptive and transformative capacities, can be enhanced, this paper empirically explores farmers' perceived resilience; how it links with their risk perception, risk attitude and risk management; and what factors of farms and the farm household situation are related to these perceptions.

## Method

Resilience is defined as the capacity of farmers to appropriately react to challenges. In this paper we assume that farmers, when exposed to a disturbance, can be resilient in three different ways: by exploiting their coping, adaptive, and transformative capacities. Resilience through coping means that a farmer is robust to a disturbance, *i.e.*, (s)he may experience impact from it, but (s)he is able to quickly recover from the disturbance without having to implement changes. Resilience through adapting means that a farmer implements changes in the farm management as a reaction to challenge. Resilience through transforming means that a farmer radically changes the way of farming because business as

usual is not considered an option anymore. To measure perceived resilience of farmers, this reasoning was translated into 12 Likert scale items which are presented in Table 1.

| Item | Statement used in survey |
|---|---|
| R1 | After something challenging has happened, it is easy for my farm to bounce back to its current profitability |
| *R2* | *As a farmer, it is hard to manage my farm in such a way that it recovers quickly from shocks* |
| R3 | Personally I find it easy to get back to normal after a setback |
| R4 | A big shock will not heavily affect me, as I have enough options to deal with this shock on my farm |
| A1 | If needed, my farm can adopt new activities, varieties, or technologies in response to challenging situations |
| A2 | As a farmer, I can easily adapt myself to challenging situations. |
| A3 | In times of change, I am good at adapting myself and facing up to agricultural challenges. |
| *A4* | *My farm is not flexible and can hardly be adjusted to deal with a changing environment.* |
| T1 | For me, it is easy to make decisions that result in a transformation |
| *T2* | *I am in trouble if external circumstances would drastically change, as it is hard to reorganise my farm* |
| T3 | After facing a challenging period on my farm, I still have the ability to radically reorganise my farm |
| T4 | If needed, I can easily make major changes that would transform my farm |

***Table 1. Survey statements for capturing farmers' perceived resilience, feeding into 12 items reflecting self-assessed farm(er) resilience.*** *All items are measured on a 7-point Likert-scale ranging from 1 (totally disagree) to 7 (totally agree). Reverse-scaled items are in italics.*

A survey on risk and resilience, that was conducted for the SURE-Farm project in the period August – November 2018, was initially distributed among all farmers (around 600) who are member of the Flemish FADN network. In total, 408 surveys were returned, of which 330 observations without missing values. Next to control variables - such as education, farming sector, farm cycle and farm legal status - the survey gauged farmers' risk perceptions, including perceived severity and impact of potential disturbances, as well as their risk attitudes, their involvement in networks, and their openness to innovations. Most items were measured on a 7-point Likert scale. Additionally, the survey asked what risk management strategies have been implemented during the past five years and how well farmers consider their farm to be robust, adaptable, or transformable, using 12 items. The survey data was analysed using STATA software through descriptive analyses, exploratory and confirmatory factor analyses, and will be further analysed through cluster analyses and simple inference analyses such as correlations.

## Results

Figure 1 suggests that Flemish farmers perceive their farms to be low to moderately resilient. The perceived robustness is closer to a normal distribution compared to the perceived adaptability and transformability distributions that appear more right-skewed respectively. This indicates that Flemish farmers tend to perceive their farm as able to recover from shocks and bounce back to the former, familiar situation; and they tend to disagree to be able to easily adapt or transform their farms when confronted with challenge. This signals a specific vulnerability that might jeopardize future farming system resilience. Further analyses aim to identify which specific characteristics of farmers, farms and farm households might explain differences in resilience perceptions of farmers.

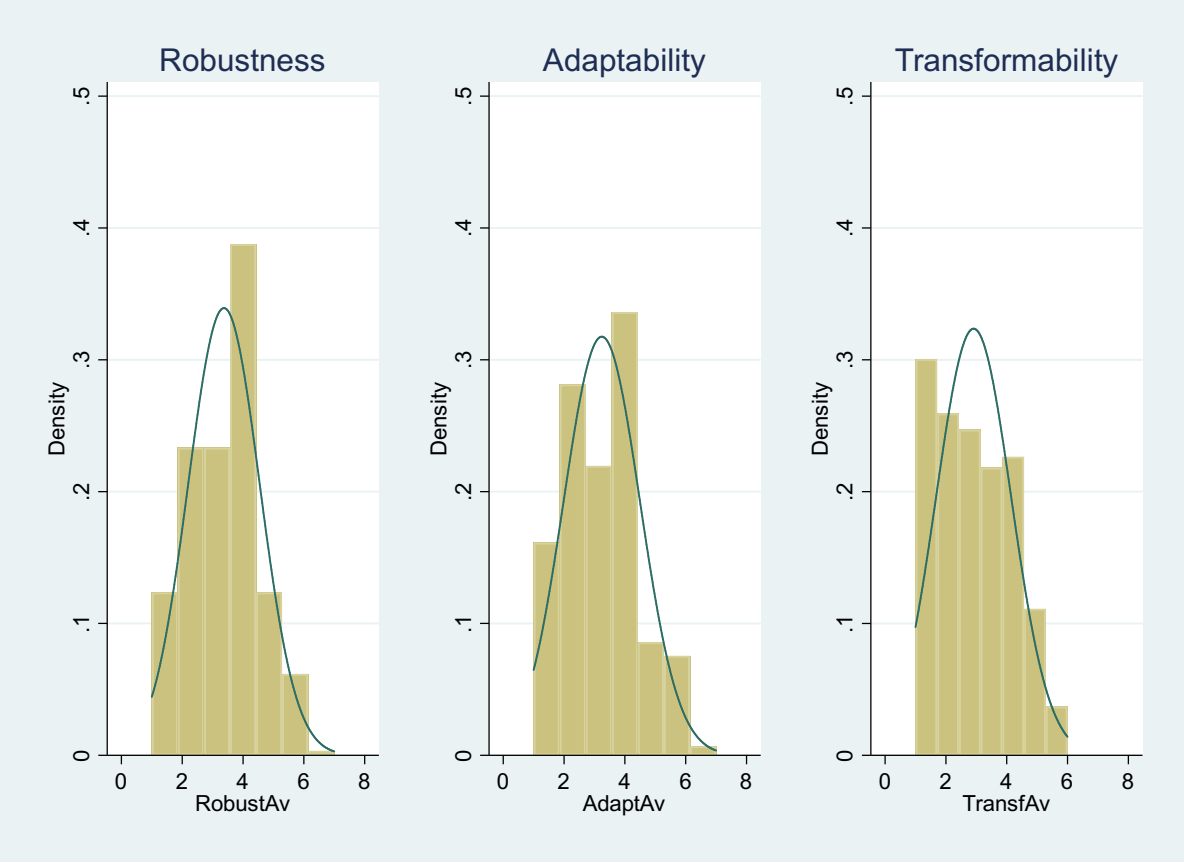


***Figure 1. Perceived resilience of Flemish farmers as measured through the items presented in Table 1, thus by distinguishing between their perceived robustness, adaptability, and transformability.*** *Averages of the Likert scores were taken.*

## Conclusion and outlook

Understanding how farmers perceive the resilience of their farms is needed to guide the development of policy instruments and other measures that aim to increase farm(er) resilience. This study contributes to the discussion of how to improve farming system resilience by investigating farmers perceived resilience and how it relates to risk attitudes, risk perceptions, risk management behaviour, farmers' networks and implementation of innovation, and farm structural characteristics. The results at this moment are still preliminary. Further analyses aim to create a broader understanding of perceived resilience and how it relates to objective factors like age and external labour usage, and to subjective factors like self-assessed openness to adopt innovative techniques. Furthermore, a cluster analysis will be performed, and the survey data will be coupled with FADN accountancy data to explore links between perceived resilience and farm structural and financial characteristics such as size, diversity, intensity and performance. These relations will be analysed in an explorative way, using descriptive and simple inference analyses such as correlations. We expect the findings of this exploration into farmers'

perceived resilience and associations with farm(er) characteristics will contain useful information for guiding future research on farm resilience and risk management.

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