



VU Research Portal

Assessing the role of farm-level adaptation in limiting the local economic impacts of more frequent extreme weather events in Dutch arable farming systems

Diogo, V.; Reidsma, P.; Schaap, B.; Koomen, E.

published in

Book of abstracts
2017

document version

Publisher's PDF, also known as Version of record

[Link to publication in VU Research Portal](#)

citation for published version (APA)

Diogo, V., Reidsma, P., Schaap, B., & Koomen, E. (2017). Assessing the role of farm-level adaptation in limiting the local economic impacts of more frequent extreme weather events in Dutch arable farming systems. In N. Fodor (Ed.), *Book of abstracts: MACSUR 2017 Science Conference* (pp. 62). (FACCE MACSUR Reports; Vol. 10, No. supplement)..

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal ?

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

E-mail address:

vuresearchportal.ub@vu.nl

Topic: Projecting climate change impacts on agriculture in European regions

Submitting author: Diogo, Vasco

E-mail address: vdiogo@feweb.vu.nl

Affiliation: VU Amsterdam, Netherlands

Assessing the role of farm-level adaptation in limiting the local economic impacts of more frequent extreme weather events in Dutch arable farming systems.

Diogo, V., P. Reidsma, B. Schaap, E. Koomen

The expected increase in extreme events frequency is likely to considerably affect future crop productivity. Appropriate adaptation measures in agricultural systems should be identified according to the main climate risks expected in a region and taking into account the role of decisions made at the farm level. Yet, there is limited understanding of the interplay between local production capabilities, regional climatic changes and more general socio-economic conditions. We propose a method that combines local productivity factors, economic factors, crop-specific sensitivity to climatic extremes, and climate change scenarios, to assess future economic impacts of extreme events on agricultural systems. Our assessment is spatially explicit and uses discounted time series of cash flows taking into account expected impacts on yield and crop quality, to estimate changes in the expected net present value of agricultural systems. We also assess the economic feasibility of a portfolio of adaptation measures by considering their initial investments, annual costs, and effectiveness in reducing crop damage. We apply the method to investigate potential economic impacts of extreme events in arable farming systems in the Netherlands in period around 2050. We find that the expected increase in frequency can substantially undermine the economic viability of Dutch arable farming systems. The results indicate considerable differences among regions: some regions are severely impacted by all extremes, while others consistently demonstrate high resilience. Though the exact magnitude of the impacts remains highly uncertain, adaptation measures should nevertheless be regarded as no-regret strategies, since they alleviate both economic impacts and uncertainty around impact magnitude.