Linking climate change perceptions to adaptation and mitigation action

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Climatic Change

Aims and scope

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Abstract

One of the main contributors to anthropogenic climate change is agriculture, although, paradoxically, the sector is also very vulnerable to climate change effects, in particular extreme weather events. The agricultural sector can however make a significant contribution to climate change mitigation through increasing or sustaining soil carbon levels. The perception and action of farmers to anticipated climate change may be a significant determinant of both climate change impacts and mitigation efforts in agriculture. This is the first national-scale study of the perception of climate change by farmers and their associated farming practices regarding mitigation and adaptation. We find that Danish farmers realise that climate change will affect them in the future, and that many are already affected and are taking action to prevent future losses. Almost one fourth of the farmers surveyed stated that they include climate change mitigation in soil management planning. The majority of Danish farmers are already adapting to the effects of climate change, especially through maintaining or expanding drainage areas to reduce the impact of heavy rain, but also by changing soil management practices to increase water infiltration capacity. The study reveals the paradoxical finding that farmers, although believing that climate change is real, and having experienced losses due to adverse climatic events, do not tend to connect the two phenomena. Also there seems to be no link between perceptions of climate change and adaptation/mitigation action. Knowledge gained from this study can be useful for future policymaking on the effect of farm management practices in relation to climate change. Acknowledging farmers' attitudes and beliefs may be an important component in understanding the responsiveness of the agricultural sector to initiatives to reduce emissions from farming and to improve the robustness of agricultural systems to climate change.

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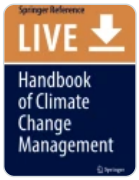

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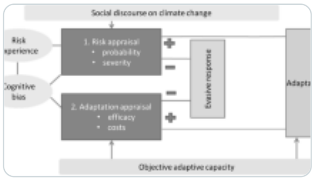

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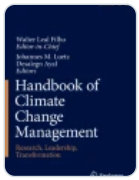

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Agriculture Attitudes Climate Change Mitigation Climate-Change Adaptation Climate Change Management Environmental Communication

Notes

1. Using the same methods as in Zandersen et al. (2016). The emissions from Danish agriculture was 12.9 MtC (DEA 2015) in 2005, equivalent to a need of a reducion 2.6 MtC (20 % of 12.9 MtC). Total carbon stock in Danish agricultural soil is estimated to 383.4 MtC (Zandersen et al. 2016). Emission reduction share of total SOC in agricultural soil =0.7 % (=2.6/383.4)

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