

A tricky job assessing the vulnerability of agriculture

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Lotten Wirehn, postdoc at Linköping University. Credit: Linköping University

There's still a lot we don't know about the vulnerability of our agriculture to climate change. This is according to a recent doctoral thesis from Linköping University. The thesis also shows that current methods for

assessing climate change vulnerability have problems and require improvement.

Agriculture is sensitive to changed [climatic conditions](#). In [agriculture](#) in the Nordic region, the positive effects of [climate](#) change are often mentioned, e.g. that higher temperatures and more precipitation can open up for new crops or larger harvests. But the fact is, we don't know for sure how climate change will affect Nordic agriculture.

"My research shows that there is still a lot we don't know, in terms of the adaptation of agriculture, for instance to more intense summer droughts or soil preparation in spring. If we're not successful in this, we can miss out on the potential benefits of climate change. Even if agriculture could benefit, we still need to manage the changes, and consider, for instance, new types of crops and shifts in the growing seasons", says Lotten Wiréhn at Environmental Change, Department of Thematic Studies, Linköping University.

She has written a doctoral thesis on Scandinavian agriculture's [vulnerability](#) to climate change.

One of the key results of the thesis concerns the [method](#) normally used to calculate vulnerability to [climate change](#), a composite index, which measures vulnerability as defined by the Intergovernmental Panel on Climate Change. The thesis shows that presenting the vulnerability of agriculture in a single index could be insufficient, because different actors use the indicators in different ways.

By studying various methods for measuring vulnerability, Lotten Wiréhn saw that in 34 of 36 cases, the results of the methods differed considerably. This was due to variations in weighting and composition of indicators. As well, assessments are dependent on the aspects used to define vulnerability, and how the indicators are used to represent these

aspects. The thesis shows that experts in the agricultural sector have different views on what various indicators represent. For instance, the proportion of irrigated land is classified as an indicator of sensitivity, while in other cases the same indicator is classified as adaptation capacity.

Planners, researchers and other actors need to be aware that there's a level of uncertainty built into the method. For this reason, there should be more discussion about how indicators and composite indices are used. Geographical visualisation can be used to make assessments more transparent, which means more relevant information for understanding where and how vulnerability arises.

More information: Lotten Wiréhn, Climate vulnerability assessment methodology: Agriculture under climate change in the Nordic region, (2017). [DOI: 10.3384/diss.diva-143226](https://doi.org/10.3384/diss.diva-143226)

Provided by Linköping University

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