

Topic: Projecting climate change impacts on agriculture in European regions

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Future climate change, yield variation, and impacts on farm management: a case study at a pilot regions in Finland.

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Crop production in northern regions such as in Finland is projected to benefit from longer growing seasons brought by future climate change. However, production is also facing multiple challenges under more frequent and extreme weather. More frequent drought stress, heat stress and other environment-related constraints may lead to higher yield variability in different regions and increase the yield risks faced by farmers. Changes in yield potential and relative profitability between crops caused by climate change is likely to be different in different regions. The purpose of this paper is to develop a method to evaluate the impacts of adaptation and mitigation options on farms with different socio-economic characteristics. Both socio-economic and biophysical factors affect rational decision-making process at a farm level and production decisions. Based on the results from carefully chosen climate models under three SRES scenarios, together with different market price scenarios, we attempt to identify how future changes in mean yields and yield variation caused by climate change in two regions in Finland may affect local farm land allocation and farming management practice. We study how management choices such as crop choice, crop rotation, fertilization, crop protection and liming are affected and if these changes are in synergy or in conflict with mitigation. This study contributes to the development of integrated modelling methods needed to assess impacts of global changes on farming systems.