

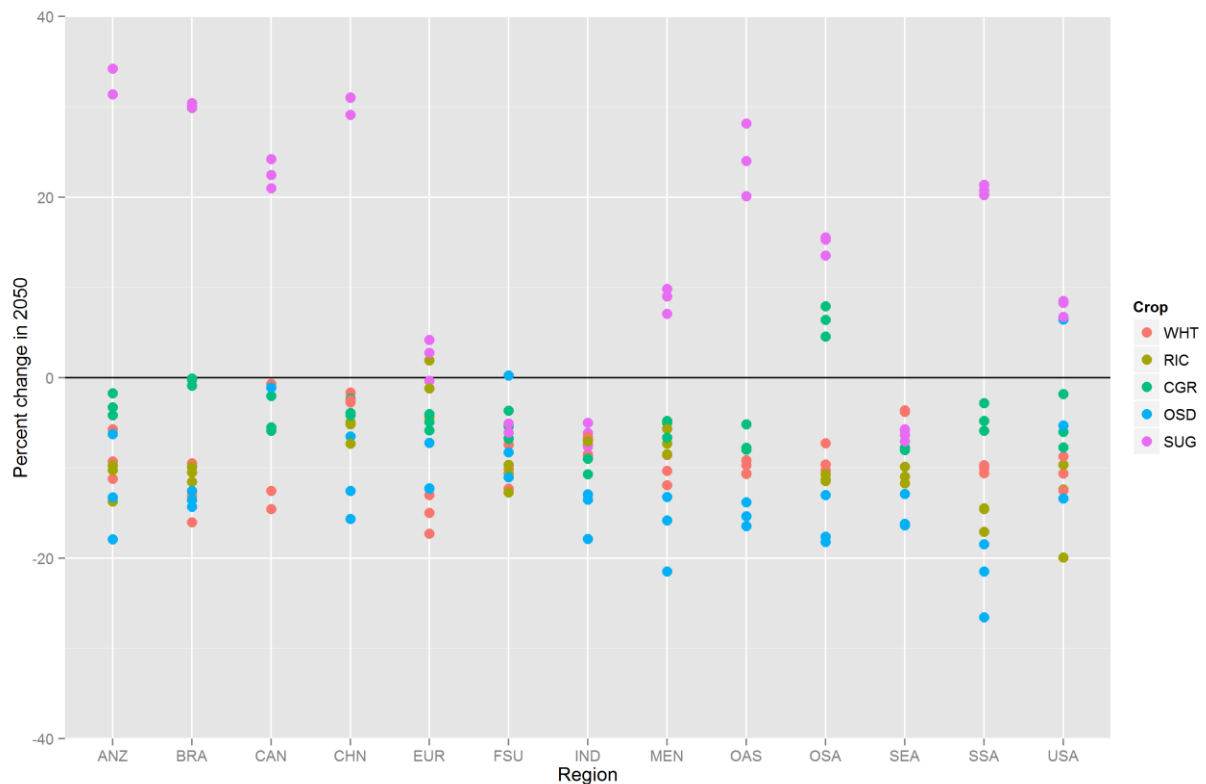
# Climate Change Impacts on Agriculture in 2050 under a Range of Socioeconomic and Emissions Scenarios

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## SUMMARY

Previous studies have combined climate, crop and economic models to examine the impact of climate change on agricultural production and food security, but results have varied widely due to differences in models, scenarios and input data. Recent work has examined (and narrowed) these differences through systematic model intercomparison using a high-emissions pathway to highlight the differences. This paper extends that analysis to explore a range of plausible socioeconomic scenarios and emission pathways. Results from multiple climate, crop and economic models are combined to examine the global and regional impacts of climate change on agricultural yields, area, production, consumption, prices and trade for coarse grains, rice, wheat, oilseeds and sugar crops to 2050.

Estimated climate impacts are similar to but somewhat smaller than those of earlier work focusing on a high-emissions pathway. Yield impacts increase at high emissions levels and vary with changes in population, income and technology, but are reduced in all cases by endogenous changes in prices and other variables.



Exogenous impacts of climate change on crop yields, by world region, under SSP 2 and RCP 6.0 (percent change relative to SSP 2 baseline in 2050)