

Climate Change: Implications for Agriculture

Key Findings from the Intergovernmental Panel on Climate Change Fifth Assessment Report

June 2014







Climate change impacts are projected to raise global average surface temperature 2.6–4.8°C by 2100.

Climate-related impacts are already reducing crop yields in some parts of the world, a trend that is projected to continue as temperatures rise further.

Combined with increasing food demand, global temperature increases of 4°C or more would pose large risks to food security globally and regionally.



Staple crops affected include:

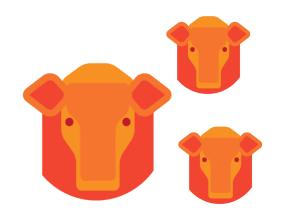
- Wheat
- Maize
- Rice

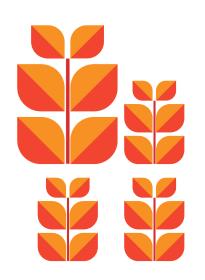
Greenhouse gas (GHG) emissions from agriculture comprised about 10–12% of man-made GHG emissions in 2010.

The agricultural sector is the largest contributor of non-carbon GHGs, such as methane.

If temperatures increase by 3°C or more, agricultural adaptive capacity is projected to be exceeded in regions closest to the equator.

The agricultural sector has **significant potential** to make cuts in GHG emissions.





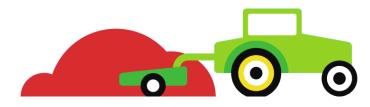
Opportunities for mitigation include:

- Reducing emissions from land use change
- Land management
- Livestock management

Capture and storage of carbon in soil and biomass.

Economy-wide emissions from energy use can be reduced, under certain conditions, by replacing fossil fuels with biofuels.







The potential for reducing GHG emissions from agriculture through changes in consumption could be substantially higher than technical mitigation options.

Approaches include:

- Reducing food waste
- Reducing overconsumption in regions where this is prevalent
- Changing diets towards less GHGintensive food (e.g. substitution of animal products with plant-based food)



Farmers can adapt to some changes, but there is a limit to what can be managed.

Climate change is projected to:

- Increase price volatility for agricultural commodities
- Reduce food quality

Overall, climate change is projected to cause food production to fall, with lower yields from major crops.

These projected impacts will occur in the context of simultaneously rising crop demand.

The agricultural industry's own interests are best served by ambitious approaches to adaptation and to cutting emissions.





For more information

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