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## Food systems and climate change

### Impact and adaptation in cropping and livestock

Afshin Ghahramani and Saman Seneweera

#### Abstract

The negative effects of climate change on crop and animal production are evident across the world, slowing agricultural growth rates and declining the production rate. The grain and grass quality are also observed to decline under climate change, as are important concentrations of proteins and most essential nutrients such as zinc and iron. It is fortunate that there are potential adaptation options to reconfigure existing agricultural systems and offset negative impacts of climate change. Observations have demonstrated that trends in global carbon dioxide (CO<sub>2</sub>) emissions, atmospheric CO<sub>2</sub> concentrations, sea-level rise and global temperatures are consistent with the future projections of high emission scenarios. More research focus is therefore needed on more transformative adaptations in order to cope with climate change. Transformative adaptations are significant changes in current systems, for example, changes in the nature, configuration, and location of farms that are under threat. These adaptations can be associated with difficulties if their effectiveness is not assessed and producers and policy makers are not well informed.

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