

Feeding the future world



The impacts of climate change on food production will affect us all. It is important that research and funding are available to minimize these effects and support the most vulnerable.

Agriculture and food is a large economic sector, and supports the livelihoods of many. Yet, when considering food and climate change, sometimes the focus is on the environmental impact of dietary choices. However, for many, this is a luxury they cannot consider as food security – having reliable access to sufficient, affordable and nutritious food – is a major concern. Climate change will exacerbate food security¹, not only by affecting production, but for producers there could be reduced income as a result of addressing the challenges that climate change brings.

With food being transported around the world, it can be easy to become accustomed to having all produce available throughout the seasons, leading to a disconnect from the natural cycle and its vulnerability to weather and climate change. Data are available on climate change impacts on many crops, including key crops such as maize, rice, soybean and wheat², across the world, including projections under different scenarios. Yet, converting this knowledge into practice to ensure food security for all requires substantial efforts.

There are many ways in which climate change can influence food production, from the more apparent such as temperature extremes (both hot and cold), water availability (too much and too little) and shifting seasons, to some potentially less obvious such as changes in pollinators and a decline in their essential role, and marine heatwaves and circulation changes altering fish and seafood stocks.



Most of the world's farms are smallholder farms, and many are from the poorest communities³. These farms often have high yields relative to their small land size and produce a substantial proportion of global food, but it is labour-intensive work, with small profits, and the costs associated with climate change are reducing their ability to survive. A recent study found that all survey respondents, smallholder forest and farm producers with up to 10 hectares of land, had experienced some effect from climate change, whether that be related to water availability and timing, or pests and disease increases⁴. This results in 20–40% of individual annual income being spent to adapt and maintain production and livelihood. While the terminology and definitions used may vary when considering food producers, we should focus on the essential role they play in feeding the world, and ensure that they are supported to grow sustainable agriculture.

A United Nations report focusing on the challenges of climate change, poverty and hunger in Asia and the Pacific finds that with increasing climate hazards, such as heat, drought and floods, not only are crops and agricultural production directly impacted, but there is a loss of labour productivity that is essential for small farms to be viable⁵. If extreme events displace people, even for a

short time, there is no one to work the land and the loss of income increases vulnerability.

Research on adaptation, to shifting temperatures and water availability, as well as innovation are necessary. We need to grow understanding of the factors that can influence yield, such as soil quality⁶, as well as to optimize farming practices, develop crop variants and support the adoption of technology as appropriate⁷. But it is not sufficient to just identify and develop climate-resilient crop varieties, they need to be accepted and adopted by farmers, which can be challenging due to availability and information on the crop varieties⁸.

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