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Climate change exacerbates the environmental impacts of agriculture

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Abstract

Agriculture's global environmental impacts are widely expected to continue expanding, driven by population and economic growth and dietary changes. This Review highlights climate change as an additional amplifier of agriculture's environmental impacts, by reducing agricultural productivity, reducing the efficacy of agrochemicals, increasing soil erosion, accelerating the growth and expanding the range of crop diseases and pests, and increasing land clearing. We identify multiple pathways through which climate change intensifies agricultural greenhouse gas emissions, creating a potentially powerful climate change-reinforcing feedback loop. The challenges raised by climate change underscore the urgent need to transition to sustainable, climate-resilient agricultural systems. This requires investments that both accelerate adoption of proven solutions that provide multiple benefits, and that discover and scale new beneficial processes and food products.

Keywords: climate change, environmental impact of agriculture, agricultural productivity, soil erosion, crop p

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