

Study finds growing evidence of global warming threat to future food supplies

January 15 2013



(Phys.org)—Increasingly hot summer weather could cause a fall in crop yields over the next two decades unless farming techniques are improved more quickly, scientists at the University have found.

[High temperatures](#) are having an increasingly damaging effect on maize (sweetcorn) in France – the largest supplier of the crop to the UK – which may explain a recent slowdown in the trend towards higher yields, according to researchers at the Universities of Leeds, Reading and Exeter.

Improvements in agricultural technology, such as fertilisers and new [crop varieties](#), will need to increase yields by up to 12% by the 2020s to be confident about offsetting future decreases in yield from [heat stress](#).

However, the current rate of improvement, driven by [technological innovation](#), is not quick enough to meet such a high target, says research published today in the journal [Global Change Biology](#).

Professor Andrew Challinor, from the University of Leeds' School of Earth & Environment, said: "Feeding a growing population as climate changes is a major challenge, especially since the land available for agricultural expansion is limited. Supplies of the major food crops could be at risk unless we plan for future climates."

Dr Ed Hawkins, from the National Centre for Atmospheric Science (NCAS) at the University of Reading, said:

"Our research rings alarm bells for future food security. Over the last 50 years, developments in agriculture, such as fertilisers and irrigation, have increased yields of the world's staple foods, but we're starting to see a slowdown in yield increases. Our research into maize suggests the increasing frequency of hot days across the world might explain some of this slowdown.

"We expect hot days to become more frequent still, and our work on maize suggests that current advances in agriculture are too slow to offset the expected damage to crops from heat stress in the future."

The study shows that over the last 50 years, yields of maize in France have become less sensitive to variations in the amount of rain over the summer and relatively more sensitive to temperature. This is likely due to increased irrigation and hence reduced dependence on natural rainfall. This means that temperature may be more significant than rainfall for

future yields.

The number of days with temperatures over 32 degrees C has more than doubled in some parts of France over the last 50 years. Many other land areas show similar increases. By the 2020s, temperatures over 32 degrees C could occur over large areas of France where previously they were uncommon. Without agricultural development, this increase in hot days could decrease yields of French maize by more than 10% relative to current yield, the research found.

More information: The paper 'Increasing influence of heat stress on French maize yields from the 1960s to the 2030s' has been published in *Global Change Biology*. [DOI: 10.1111/gcb.12069](https://doi.org/10.1111/gcb.12069)
dx.doi.org/10.1111/gcb.12069

Provided by University of Leeds

Citation: Study finds growing evidence of global warming threat to future food supplies (2013, January 15) retrieved 24 April 2024 from <https://phys.org/news/2013-01-evidence-global-threat-future-food.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.