FOOD IN CONFLICT

Local nuclear war disrupts global food security*Proc. Natl Acad. Sci. USA* **117**, 7071–7081 (2020)

The detonation of nuclear weapons releases large amounts of soot into the atmosphere resulting in rapid temperature decreases, reduced sunlight and functional atmospheric changes. The consequences of this kind of event on global food systems are poorly understood — few studies, if any, look at the consequences of global cooling. Jägermeyr and colleagues modelled the potential global impacts of limited nuclear conflict, in their model, in the region of India and Pakistan.

Jägermeyr and colleagues use six global mechanistic crop models and the global gridded crop model approach to simulate the impact of a five teragram soot emission on maize, wheat, rice and soybean yield, and the resulting global trade repercussions. The model shows that a global 1.8 °C decrease would be more harmful to global agriculture than a global 1.8 °C increase, and the effects would last five to ten years. Food production shocks, in these circumstances, would be worse than any extreme event recorded by FAOSTAT since 1961, with 71 countries experiencing a decrease in food availability of 20% or more. Current global grain reserves would be depleted within one year following conflict. Crop development and maturity would slow due to reduced sunlight and lower temperatures, with 20–50% reduction in Northern Hemisphere (higher than 30° N) crop production.

Historically, events like volcanic eruptions, wildfires, corruption, disease and war resulted in — within limited geographical regions — food insecurity and famine. This study demonstrates how today's increasingly interconnected food systems have the potential to propagate local shocks on a global scale.

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Published online: 17 April 2020

<https://doi.org/10.1038/s43016-020-0069-y>