

# Researchers predict fewer, pricier strawberries as temperatures warm

July 17 2024

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Strawberries could be fewer and more expensive because of higher temperatures caused by climate change, according to research from the University of Waterloo.

Using a new method of analysis, the researchers found that a rise in temperature of 3 degrees Fahrenheit could reduce strawberry yields by up to 40%. Canada is a major importer of [strawberries](#) from California. In 2022, Canadian imports of strawberries from California were worth US\$322.8 million.

"This research shows how [climate change](#) can directly impact the foods we love, emphasizing the importance of sustainable farming practices to maintain a stable food supply for everyone," said Dr. Poornima Unnikrishnan, a postdoctoral fellow in the Department of Systems Design Engineering at Waterloo.

Sustainable farming practices could include optimizing irrigation to ensure adequate water supply during [heat waves](#), using [drip irrigation](#) and scheduling operations to avoid peak periods of hot weather as well as using shading plants and installing shade structures to mitigate [heat stress](#).

The research team included Unnikrishnan, Dr. Kumaraswamy Ponnambalam, who is also from Systems Design Engineering at Waterloo, and Dr. Fakhri Karray, from the Mohamed bin Zayed University of Artificial Intelligence in Abu Dhabi. They started their analysis with strawberries because of their popularity and notoriously short shelf life. They say these results suggest potential implications for the availability of all produce imported from California.

The researchers used a model that predicts probability of yield loss by linking air [temperature](#) anomalies and strawberry yield. This process allowed for the measurement of greater variability over time and the most accurate findings to date.

"We hope the better understanding of the influence of rising temperatures on crop yield will help in the development of sustainable

agriculture responses from the government and farmers," Ponnambalam said. "There is an urgent need for farmers to adopt new strategies to cope with global warming."

Strawberries are one of the most lucrative commodities for the economies of California and the United States. The 2022 market for strawberries alone was worth more than US\$3 billion.

The paper, "[Influence of Regional Temperature Anomalies on Strawberry Yield: A Study Using Multivariate Copula Analysis](#)", appears in the journal *Sustainability*.

**More information:** Poornima Unnikrishnan et al, Influence of Regional Temperature Anomalies on Strawberry Yield: A Study Using Multivariate Copula Analysis, *Sustainability* (2024). [DOI: 10.3390/su16093523](#)

Provided by University of Waterloo

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