

Statistical analysis predicts long-term drop in chicken fertility rates

April 16 2025, by Adam Russell



Dropping broiler chicken fertility rates would result in decreased production efficiency, which in turn increases costs for the industry and ultimately consumers. The research provided the first clear assessment of the egg fertility issue and a forecast for the future if corrective measures aren't taken within the poultry industry. Credit: Laura McKenzie/Texas A&M University Division of Marketing and Communications

A new study shows chicken fertility rates in U.S. broiler eggs could decline to approximately 60% by 2050. That decline could lead to chicken production issues and higher costs for consumers.

The study, "How concerned should we be about broiler breeder fertility declines?," by Cara Cash, a graduate student in the Texas A&M College of Agriculture and Life Sciences Department of Poultry Science, was recently [published](#) in *Poultry Science*. Graduate student Kolton Witherspoon also contributed to the research.

To assess fertility trends, researchers analyzed data from the U.S. Department of Agriculture National Agricultural Statistics Service from 2013 to 2022. Their analysis revealed significant declines in essential production metrics, including hatchability, chick viability and production efficiency.

"The analysis validates concerns that have circulated in the poultry industry for years," said Giri Athrey, Ph.D., study co-author and avian geneticist and associate professor in the Department of Poultry Science.

"This study is the first to paint a clear picture of the problem and forecast future declines. The more that gap grows, the greater the expense will be for the industry to meet [consumer demand](#) and the more likely those [economic impacts](#) will trickle into grocery stores."

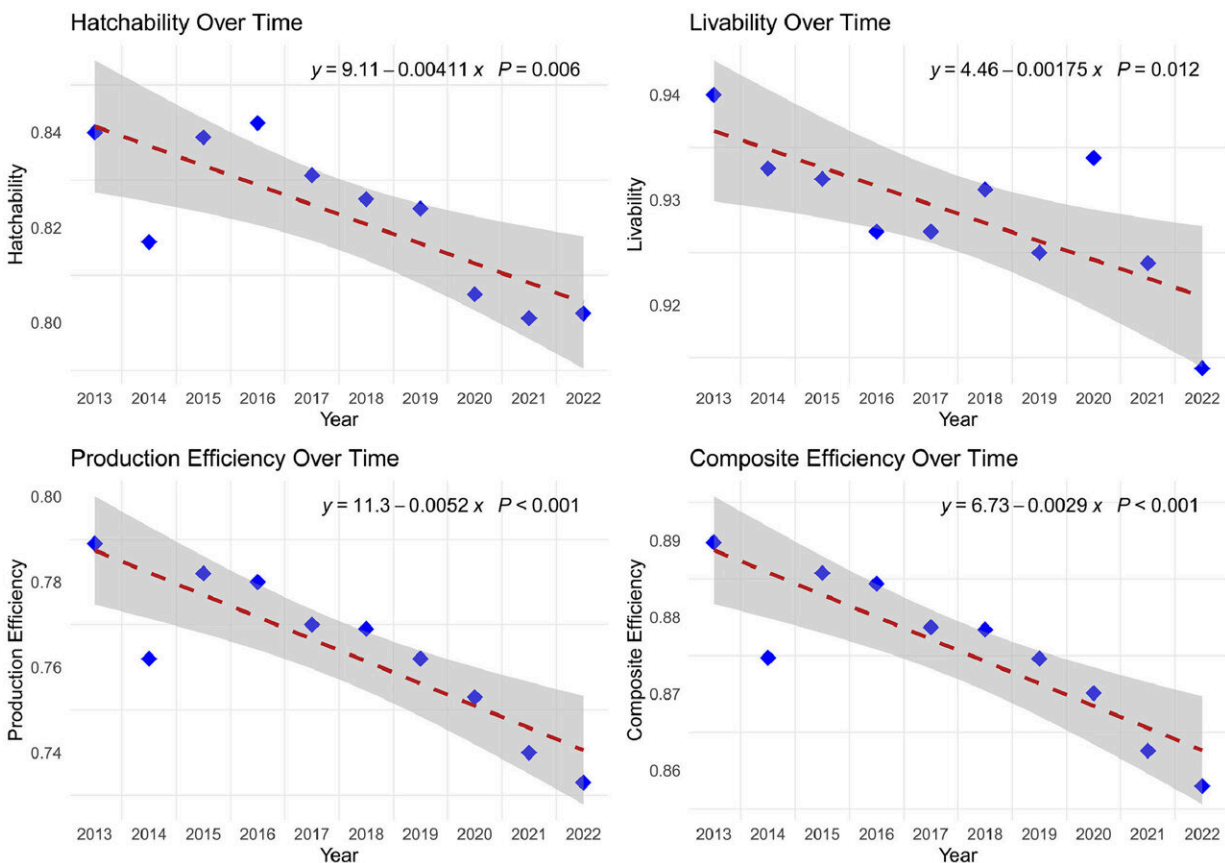
Broiler chicken fertility rates drop

Athrey said the publication identified an alarming trend that had been talked about within the [poultry industry](#) for years. It provides a statistically and scientifically supported prediction of continued hatchability declines in broiler chicken eggs.

Hatchability refers to the percentage of fertile eggs that successfully

hatch into healthy chicks during incubation. Athrey said approximately 12 billion eggs are needed each year to produce to 9 billion [broiler chickens](#)—a success rate of 75%.

If [current trends](#) continue, the analysis suggests hatchability rates could fall to 60% by 2050.



Results from a statistical analysis of the trends in key broiler production parameters between 2013-2022. Credit: *Poultry Science* (2025). DOI: 10.1016/j.psj.2025.104992

Chicken fertility rates fuel meat production

The study comes as demand for U.S. chicken meat continues to increase. From 2013 to 2022, U.S. production increased from 18.85 million to 23.15 million tonnes. During that same period, annual per capita chicken consumption jumped from just over 82 pounds to almost 101 pounds.

Broiler breeding fertility rates are a foundational component to sustaining that growth. In response to declining fertility, producers have increased the number of eggs set—an approach Athrey said can also increase costs across the supply chain.

Study confirms industry concerns

To support deeper analysis, the research team developed a Broiler Breeder Performance Index, a tool that incorporates hatchability and production indicators to model fertility trends over time. The study also explores potential contributing factors, including management practices and genetic selection strategies.

Athrey said the findings highlight the need for further research to explore [sustainable solutions](#) to poultry [fertility rates](#) and broiler hatchability.

"Our goal was to better understand what the data can tell us about long-term fertility trends," Athrey said. "These findings may help inform future research into improving reproductive performance in broiler breeders."

More information: Cara Cash et al, How concerned should we be about broiler breeder fertility declines?, *Poultry Science* (2025). [DOI: 10.1016/j.psj.2025.104992](https://doi.org/10.1016/j.psj.2025.104992)

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