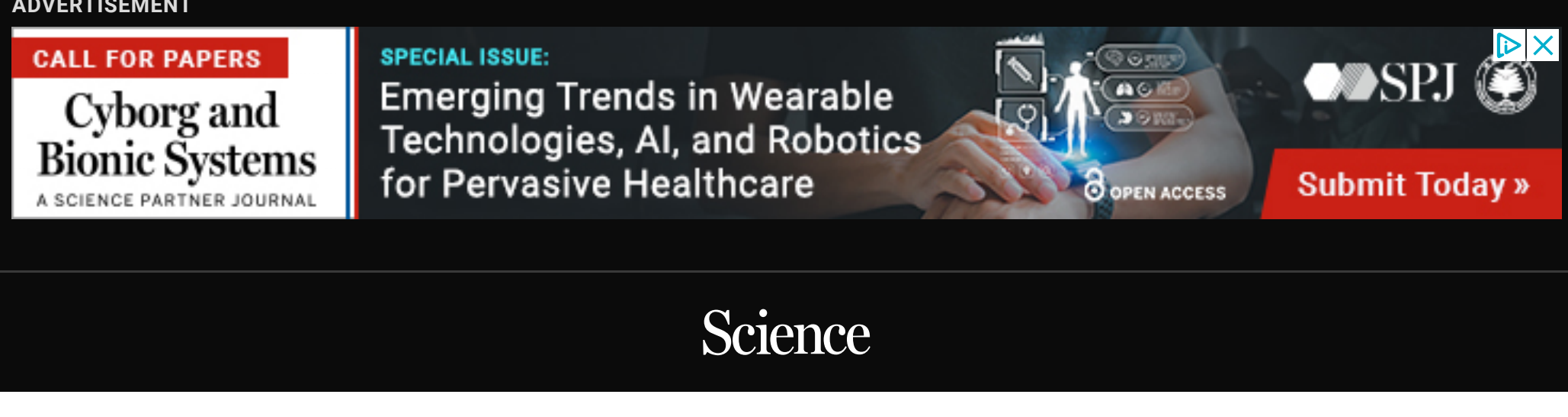

NEWS | HEALTH

Common weed killer may be harming infants

Rise of farmers spraying glyphosate correlated with drop in birthweight in large study

21 JAN 2025 • 1:10 PM ET • BY ERIK STOKSTAD

Round-up Ready soybeans tolerate the weed killer glyphosate and led to a massive increase in its use. JIM WEST/ALAMY

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Babies in rural counties of the United States that use a common weed killer are born slightly earlier and underweight, a large study finds. These changes, although small on average, could result in learning disabilities and an increased risk of infection, researchers reported last week in the *Proceedings of the National Academy of Sciences*, resulting in more than $1 billion in health care costs nationwide each year.

It's a "very compelling and rigorous" study, says Eyal Frank, an environmental economist at the University of Chicago who was not involved. For the most vulnerable infants, in historically disadvantaged groups, the effect was significantly greater. "That's the most alarming finding," he says. Still, Frank and others note the research can't prove the chemical known as glyphosate is to blame. For one thing, the study did not directly measure individual exposure to the active ingredient in the weed killer.

More than 127,000 tons of glyphosate are sprayed on U.S. fields each year, and the U.S. Environmental Protection Agency (EPA) and other regulatory agencies say it is safe to use with proper precautions. But some research suggests glyphosate can disrupt reproductive hormones in laboratory animals. In people, a small study in 2018 linked glyphosate exposure to slightly shorter pregnancy.

Edward Rubin, an environmental economist at the University of Oregon, and graduate student Emmett Reynier decided to take a broad look at the effect of glyphosate. With the introduction of soybeans genetically modified to tolerate glyphosate in 1996, farmers could spray the weed killer without harming their crops. This allowed cheap and easy control of all kinds of weeds without plowing, which erodes soil. Over the next few years, glyphosate-tolerant corn and cotton plants also came to dominate U.S. farmland.

To look for effects on infants, Rubin and Reynier analyzed data on gestation time and birthweight of more than 10 million babies born between 1990 and 2013 in rural counties. They compared the birth data with estimated amounts of glyphosate and other agrochemicals sprayed per square kilometer in the counties, published by the U.S. Geological Survey.

Low birthweight is an important predictor of health problems, such as delayed cognitive development, and raises the risk of infection and noncommunicable diseases such as diabetes and cardiovascular disease.

Between 1990 and 1996, there was no difference in birthweight or pregnancy length between counties, the team found. After biotech crops came onto the market, however, birthweight began to drop in counties where more biotech crops are grown and sprayed with glyphosate. By 2005, babies born in counties dominated by biotech corn, soy, and cotton weighed on average about 30 grams less than those born in rural counties that mostly grow other kinds of crops on which glyphosate is not used. Babies were also born 1.5 days sooner in places where glyphosate was common.

The amount of data allowed the scientists to rule out the possibility that changes in other herbicides and agrochemicals were at work. They also considered other possible influences on infant birthweight, such as the impact of unemployment.

The average change in birthweight—slightly less than a 1% decline—is relatively small. But Rubin notes it cancels the birthweight boost seen in infants when their mothers receive government food benefits that are intended to improve child health, a program that costs billions of dollars each year.

Rubin and Reynier also estimated the lifelong health costs of premature birth, including postnatal care, special education, and lower earnings as adults. The overall health costs from the average 0.6% decrease in gestation time associated with glyphosate exposure amount to about $1.1 billion annually. That estimate is "really novel and useful," says Carly Hyland, an environmental health scientist at the University of California, Berkeley.

Environmental injustice is also at play, Rubin says. Children of Black or unmarried parents were more than 60 times as likely to have low or very low birthweight, with nearly twice as much decrease in weight. "That suggests some really big effects," Rubin says.

A few studies have found more severe harm in other countries. Two papers published in 2023 found higher rates of infant mortality and childhood cancer in farming areas in Brazil, where glyphosate application rates are twice as high as in the US.

Cynthia Curl, an environmental health scientist and epidemiologist at Boise State University, says "an important limitation" of the U.S. study was its reliance on county-wide glyphosate use rather than individual exposure data. "I like to see measurements in the mother during the pregnancy," adds Lynn Goldman, a pediatrician and epidemiologist at George Washington University.

Nevertheless the new results should concern regulators, Goldman says. "EPA definitely needs to look at this." The safety of approved pesticides must be reevaluated every 15 years; EPA has delayed its review of glyphosate and now expects to complete it next year. President Donald Trump's administration could push the review further back, however.

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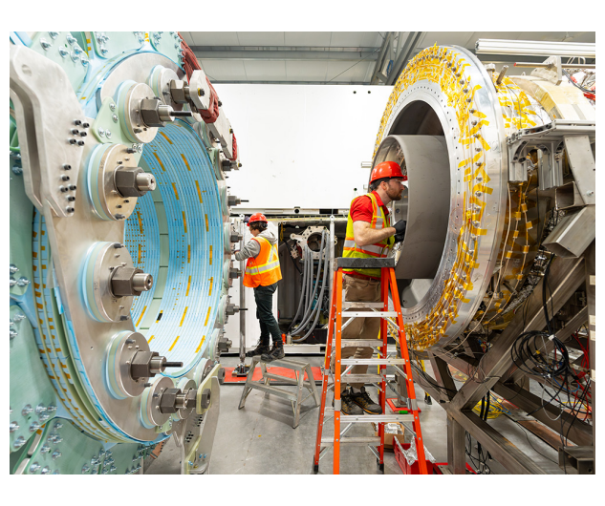

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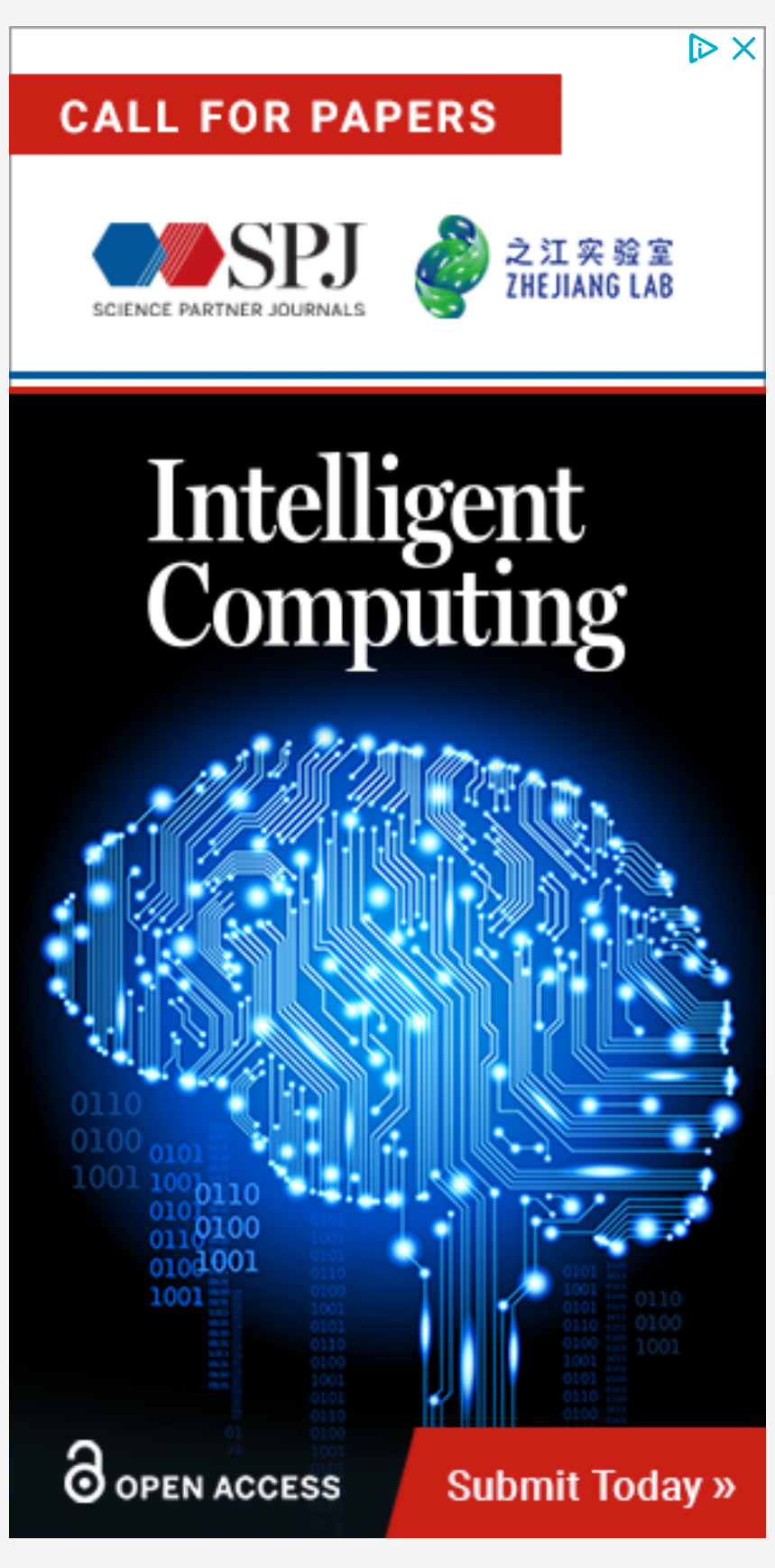

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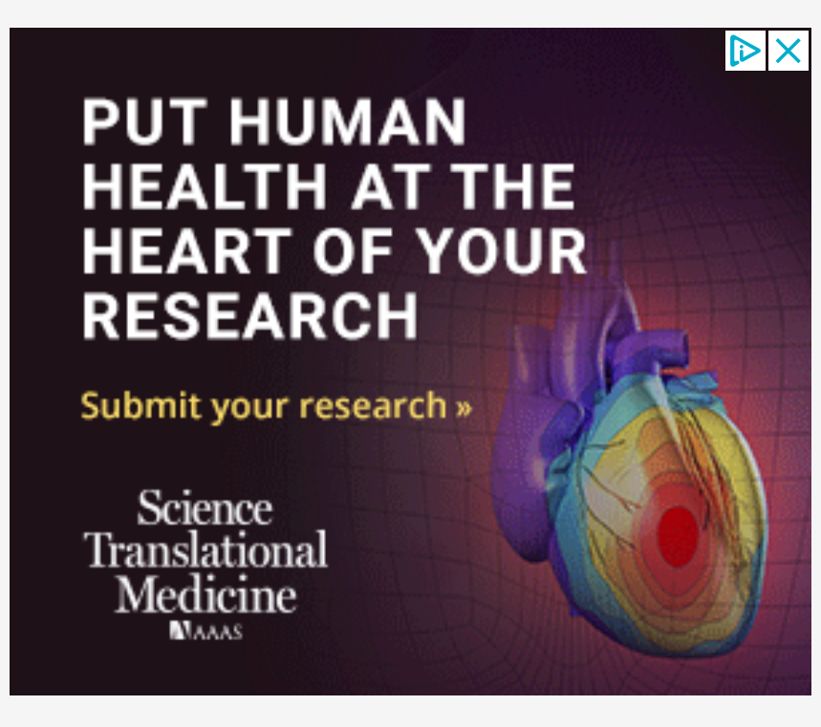

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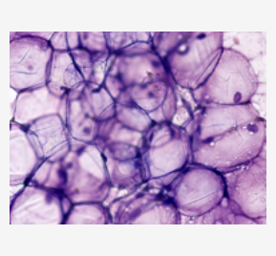

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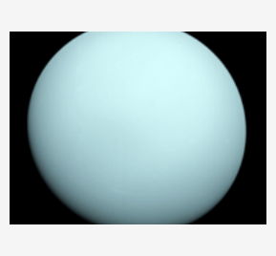

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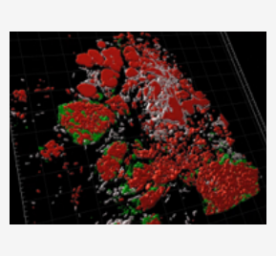

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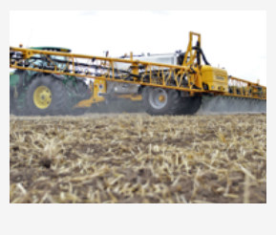

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