

Farms are focus of studies on drinking water toxin

August 11 2014, by John Seewer



In this Aug. 3, 2014 file photo, algae is seen near the City of Toledo water intake crib in Lake Erie, about 2.5 miles off the shore of Curtice, Ohio. Environmentalists, scientists and farmers agree that agriculture runoff is feeding the blue-green algae blooms on Lake Erie that are linked to the toxins found in the drinking water of 400,000 people last weekend. But how much of a role do the farms play? Researchers know some of the answers, yet there are still many unknowns. (AP Photo/Haraz N. Ghanbari)

Scientists and farmers agree that phosphorus from agriculture runoff is



feeding the blue-green algae blooms on Lake Erie linked to a toxin found in the drinking water of 400,000 people in Ohio and southeastern Michigan last week.

Ohio's political leaders are calling for more studies to find out why the blooms are increasing and how to control them. A number of environmental groups say it's time for strict regulations on the <u>agriculture industry</u>.

But how much of a role do the farms play? Researchers already know some of the answers, yet there are still many unknowns.

THE SOURCES

The debate over the algae blooms that produce the toxins found in Toledo's water starts with what is causing them.

Scientists say climate change has brought on more heavy spring rains that are washing fertilizers off farm fields and lawns and causing sewer overflows in cities. All of those combine to dump more phosphorus in the rivers and streams that flow into the lake.

At the same time, scientists believe invasive zebra mussels in Lake Erie have disrupted the food chain so much that it has helped the algae flourish.

Then there is the question of where all the phosphorus is coming from. It's found in farm fertilizers, livestock manure and raw sewage.

The Ohio Phosphorus Task Force—a group in Ohio representing the agriculture industry, environmental researchers and state



regulators—concluded nearly two years ago that agriculture was the leading source of the phosphorus. Some researchers say it's as much as two-thirds from agriculture.



In this Aug. 4, 2014 file photo, Toledo Mayor D. Michael Collins raises a glass of tap water before drinking it during a news conference in Toledo, Ohio. Environmentalists, scientists and farmers agree that agriculture runoff is feeding the blue-green algae blooms on Lake Erie that are linked to the toxins found in the drinking water of 400,000 people last weekend. But how much of a role do the farms play? Researchers know some of the answers, yet there are still many unknowns. (AP Photo/Paul Sancya)

That's mainly because half the phosphorus in the lake comes down the Maumee River, which drains 3 million acres (1.2 million hectares) of farmland before flowing through Toledo and into the lake—not far from where last week's algae bloom overwhelmed Toledo's water intake.



THE UNKNOWNS

While it's now widely accepted that much of the phosphorus is coming from farmland, what's much more difficult to pin down is exactly where and why.

There's an assumption that farmers are simply overfertilizing their fields. Soil tests have shown that about 30 percent of fields have more phosphorus than they need. Cutting down on fertilizing that land would help with the problem.

But industry sales figures also show that farmers are using much less fertilizer because of advanced technology that allows them to apply it just where it's needed. The amount of <u>phosphorus fertilizer</u> sold in Ohio in 2011 was less than half that sold in the mid-1990s.

Another assumption is that the main source of phosphorus is the manure produced by large livestock operations and megadairies, which have increased dramatically over the past two decades along with the <u>algae</u> <u>blooms</u>.

But there's not enough monitoring right now to know if those megafarms are the culprit, researchers say. "Without soil tests it's totally impossible to determine," said Jeff Reutter, head of the Ohio Sea Grant research lab.

Less than 20 percent of all the agriculture-related phosphorus in western Lake Erie comes from <u>livestock manure</u> while 80 percent is from commercial fertilizer, according to the U.S. Department of Agriculture's Natural Resource Conservation Service.



What isn't known is how many of those livestock farms are contributing to the phosphorus problem by spreading manure onto frozen and snowcovered fields in the winter, allowing the phosphorus to wash away and end up in the lake.



In this Aug. 4, 2014 file photo, Aretha Howard carries a case of bottled water to her car in Toledo, Ohio. Environmentalists, scientists and farmers agree that agriculture runoff is feeding the blue-green algae blooms on Lake Erie that are linked to the toxins found in the drinking water of 400,000 people last weekend. But how much of a role do the farms play? Researchers know some of the answers, yet there are still many unknowns. (AP Photo/Paul Sancya)

The USDA recommends against putting manure on frozen ground. "The extent of how often that happens is a great unknown," said Steve Davis, a watershed specialist in Ohio with the Natural Resource Conservation Service. "It's certainly one of the first things that should stop."



THE SOLUTIONS

The only way to reduce phosphorus in the lake is to control runoff from all sources—farms, sewage systems and leaking septic tanks. Agriculture leaders within Ohio say they are committed to doing that and much research is underway to see what works best.

The farm industry is heavily promoting the idea of using the right amount of fertilizer at the right time and place. Ohio's biggest and most influential agriculture groups also are putting money into research on how to keep phosphorus on the fields.

Among the practices they are looking at are injecting fertilizer into the ground rather than spreading it in pellets on the fields and planting cover crops such as legumes to help soil absorb the <u>phosphorus</u>.



In this Aug. 3, 2014 file photo, Ohio Air National Guard Senior Airman Nick Wander fills a 400 gallon military water buffalo with fresh drinking water at



Woodward High School in Toledo, Ohio. Environmentalists, scientists and farmers agree that agriculture runoff is feeding the blue-green algae blooms on Lake Erie that are linked to the toxins found in the drinking water of 400,000 people last weekend. But how much of a role do the farms play? Researchers know some of the answers, yet there are still many unknowns. (AP Photo/Haraz N. Ghanbari)

One other area being closely looked at is whether a move in the 1980s to reduce soil erosion by encouraging farmers not to heavily plow their fields has contributed to fertilizer runoff.

While researchers say these are all good ideas, it's not clear how effective they will be.

"That's where the questions still remain. What's going to work?" said Laura Johnston, a research scientist at the National Center for Water Quality Research at Heidelberg University in Ohio.

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