

# Following fertilizer leads to farms, golf courses, landscaping amid algae blooms

September 23, 2018

It's a matter of money. We can clean up the water, but at a price. We can live without fertilizer, but we don't want to. Someday there will be a reckoning. Before that happens, much, much more will be written on this topic.

Read the original article here in [News-Press](#).

Comments by OSFR historian Jim Tatum.

-A river is like a life: once taken, it cannot be brought back-

---

**News-Press.**

# Following fertilizer leads to farms, golf courses, landscaping amid algae blooms

[David Dorsey](#), Fort Myers News-Press Published 3:00 p.m. ET Sept. 19, 2018 | Updated 3:34 p.m. ET Sept. 19, 2018



(Photo: Andrew West/The News-Press, )

CONNECT [TWEET](#) [LINKED IN](#) COMMENT EMAIL MORE

Follow the fertilizer.

One of the suspected culprits of the toxic algae blooms that have plagued south Florida waterways since June can be traced to farms and groves, lawns and golf courses, landscaping and Orlando theme parks. Even local governments may be feeding the blooms. Septic tank leakage has factored as well.

And, environmental experts said, climate change behind fiercer storms and increased heat can bear some blame.

But the trail to the truth, like the polluted water itself, appears murky.

A look at Florida's fertilizer use by the numbers. Wochit

When the water level in Lake Okeechobee approaches 15 feet above sea level, water managers following orders from Congress drain the lake into the Caloosahatchee and/or St. Lucie Rivers. This releases a steady stream of nutrient-rich waters into the rivers, which have resulted in the algae blooms.

Fertilizer abounds on lands north of the lake, along the Kissimmee River and west of Orlando, the headwaters of that river.

Fertilizer can be found south of the lake, where 41 billion gallons of water, enough to fill about 78,000 Olympic-sized swimming pools, were back-pumped last year by the South Florida Water Management District because of flooding dangers to sugar farms and residential areas in Clewiston and other small towns.

And it can be found along the Caloosahatchee River's watershed, regardless of the lake water releases.

Following the fertilizer leads to asking: What's the line between having healthy farms and grass with having healthy waterways?

Hundreds of people protesting Florida's water quality turned out for the "Death March" for clean water. They will parade through downtown Fort Myers protesting red tide and toxic algae and also reminded people to get out and vote. Andrea Melendez/The News-Press/USA Today

## **The short answer**

"The answer to that is you get phosphorous in the soil down to moderate amounts that are adequate for crops but not so high that they pollute the water," said Steve Carpenter, who studies soil at the University of Wisconsin. He's a lake ecologist who analyzes the over-enrichment of soil and lake ecosystems that lead to toxic algae blooms and fish kills.

"Farmers are not necessarily against that," Carpenter said of using fertilizer wisely. "We have some groups here in Wisconsin who are really interested in managing their farms to protect the

water. It doesn't have to be a big political fight. It becomes more an issue of how we mobilize the farmers so they can make the money still, and we lower the phosphorous levels to protect the water.

"There are ways to work with farmers to find solutions in a common interest."

The fertilizer business has been booming. In the U.S., it is on track to generate about \$150 billion a year, according to the Fertilizer Institute, a Washington, D.C., lobbying group that advocates for 95 percent of the U.S. fertilizer manufacturers. By comparison, Florida sugar farming is a \$2 billion business, and Florida citrus farming accounts for about \$5 billion. "What we doing is promoting the best practice management to farmers," said Kathy Mathers, vice president of public affairs with the Fertilizer Institute. "We have about \$7 million we have committed to research at universities throughout the country. We're trying to maintain the balance between being profitable and limiting environmental impact."

Mike Roberts, vice president of Griffin Fertilizer Company, one of the top five fertilizer companies in Florida, presides over a \$50 million to \$70 million annual slice of that fertilizer pie. He said he's eager to educate the public as public perceptions paint his industry as a culprit of algae blooms.

"Agriculture, in general, has shrunk in Florida," Roberts, a Frostproof resident, said while visiting the Citrus Expo at the Lee County Civic Center. "At one point, there was almost one million acres of citrus in Florida."

Citrus farmer says we are all to blame for Southwest Florida water woes. Andrew West, News-Press

Citrus farming fell by 2 percent in 2017 to 447,012 acres,

according to a Citrus Industry study, the lowest since tracking began in 1966.

Roberts encourages his farming clients to follow the 4R Advocate Program for fertilizer. That stands for “right source, right rate, right time and right place to create optimal crop production, soil health and environmental considerations,” devised by the institute.

“It’s not a haphazard thing what we do,” Roberts said. “It’s not like we just go out there and fertilize.”

An estimated 44,700 tons of nitrogen and 9,000 tons of phosphorus are used each year by Florida citrus farms. The amount used by sugar farms is tougher to estimate, as neither of the two largest sugar companies, U.S. Sugar and Florida Crystals, would divulge their fertilizer information.

## **Farmers care**

Wayne Simmons, a citrus farmer in LaBelle, owns 25 acres of orange groves fronting the Caloosahatchee River, which had algae blooming in green, ribbon-like streaks adjacent to his property a few weeks ago after the Lake Okeechobee releases.

Ron Hamel, retired from 30 years as executive vice president and general manager of Gulf Citrus Growers, showed photographs of the algae blooms in the river off his Fort Myers home. Both men said they were appalled by the algae, because they have been stewards of the land.

“If I don’t have the river, I don’t have my livelihood,” Simmons said. “I most certainly would never do anything to hurt my lifeblood.”

Simmons, who grew up in Plant City and graduated from the University of Florida with a degree in citrus production, applies fertilizer three times a year: spring, summer and fall. He uses a 15-2-18 mix, meaning 15 percent nitrogen, 2 percent phosphorous and 18 percent potassium.

Simmons said he spent about \$2,000 per acre to produce a \$500 profit. He said about \$400 of his expenses went to fertilizer and that if he quit using fertilizer, he would quit seeing a profit and most likely would lose money.

“If we quit fertilizing, you’d be buying your oranges from another country,” Simmons said.

Simmons, Hamel, current Gulf Citrus Growers Executive Vice President Steve Smith and Kelly Morgan, the director of the Southwest Florida Research and Education Center in Immokalee, met at the Gulf Citrus Growers headquarters in Fort Myers to explain how agriculture has been at the forefront of preventing algae blooms, not causing them.

Morgan helped write the “best management practices” for farming in the early 1990s.

“We found out in some of the drainage waterways that there were a lot of nitrates, and they were coming from fertilizer,” Morgan said of his research at the time in north central Florida. “The nitrogen had built up. The Department of Environmental Protection did a study throughout the state.”

The best management practices went into effect, and a decade later, the waterways cleared up, Morgan said.

Smith showed satellite photographs of algae blooms on Lake Okeechobee but no blooms in retention ponds on a citrus farm. This supported his theory that agricultural runoff wasn’t the

key culprit of the blooms.

But even with the best management practices in place, the algae blooms were bound to happen, Morgan said.

“I’m surprised that they haven’t reached this level before now,” Morgan said. “The conditions have been favorable for some time.”

Efforts to help minimize water quality issues throughout Lee County continued Monday August 13, 2018. Crews today continued to work near the Clipper Bay condos in Cape Coral, north of Cape Coral Bridge and just east of Del Prado Boulevard. The county has created a test program to remove the blue-green algae from some of its most impacted waterways using a \$700,000 grant from the state Department of Environmental Protection. It will remove, process, treat and dispose of harmful algae blooms from select test sites in unincorporated Lee County and affected municipalities, most notably Cape Coral. During the weekend the County processed 30,000 gallons of algae material. The County expects to process between 300,000 and 400,000 gallons as part of this test program. Ricardo Rolon / The News-Press

All four men shared the theory of the “perfect storm” in the form of Hurricane Irma in September 2017 and rains that were 204 percent above normal in parts of the state in June. This put additional strain on the lake’s dike, prompting more releases into the rivers. It also drained more nutrients from the ground, not necessarily from fertilizer, into waterways.

“We had more rainfall than we’ve ever had,” Smith said. “Then we had a hurricane that stirred everything in the lake. Then we had the warmest winter on record. And then the releases pushed everything through.”

Florida soil is naturally abundant in phosphorous. The bulk of the nation’s phosphorous in fertilizer comes from Florida’s mines, most of which are owned by the company Mosaic. For decades, farms over-fertilized before the best management

practices being put in place, said Karl Havens, professor of aquatic ecology at the University of Florida.

“What about the pollution that was released from the old farms, three, four decades ago?,” Havens said. “Where is all that stuff? Where did it go? Well, it’s downstream. Some of it is in the lake, at the bottom of the lake. When you get heavy rains like we’ve had, some of that stuff gets flushed out in the water.

“It’s called legacy phosphorous. There’s enough of that legacy phosphorous to where it would take 50 years of flushing to get it all out of there.”

## Local landscaping

Following the fertilizer goes beyond farms.

A 2009 ordinance in Lee County prohibits the residential use of phosphorous and nitrogen between June 1 and Sept. 30, during the rainy season. But the ordinance exempts public property and golf courses in addition to farmlands.

The Lee County government has taken an educational stance toward informing residents of the environmental hazards of phosphorous and nitrogen use during the rainy season. The county is spending \$75,000 this year, with the City of Sanibel contributing \$20,000, on fertilizer education. This includes six billboards throughout the county and TV advertisements broadcast between May and June promoting its year-round [FertilizeSmart.com](http://FertilizeSmart.com) website, which launched in 2014.

The county partially practices what it preaches.

The county spends \$216,000 a year on 380 tons of fertilizer, about 57 tons of nitrogen, spread across 275.5 acres of athletic

fields, which are exempt from the summer nitrogen and phosphorous ban. The county dropped all use of phosphorous several years ago, spokeswoman Betsy Clayton said.

The City of Fort Myers used 9.5 tons of nitrogen and 1,628 pounds of phosphorous, spread this year over the combined 188 acres of golf courses at Eastwood and Fort Myers country clubs.

The City of Cape Coral parks and recreation department spends about \$38,560 a year on fertilizing its 86 acres of city lands and does not use nitrogen or phosphorous during the residential ban. It uses nitrogen but not phosphorous during the rest of the year.

## Far from home

One hundred and fifty miles from Lee County, fertilizer runoff from Clermont, Disney World and other developments west of Orlando, ends up in the headwaters of the Kissimmee River, experts said. This creates a flow of nutrient runoff into Lake Okeechobee.

More: [What actions are taken to reduce harmful nutrient runoff from Florida homes?](#)

Executives from Brightview Landscaping, which manages the landscaping at Disney World and has contracts in Lee County, did not return messages seeking comment about the amount of fertilizer it uses. Neither did other landscaping businesses in the Orlando area.

Some Lee County landscapers who fertilize declined to comment, but Eric Davis, who co-owns Get Smart Lawn and Pest Control, responded.

Davis called the laws flawed.

“We do not apply nitrogen or phosphorous to homes,” Davis said of the rainy season. His company applies iron and potassium instead. “Golf courses and agriculture do not have to follow that. They put a restriction on us and said the water would get clearer. And it never did. It’s because they did not apply the ordinance to golf courses, and they did not apply it to farms.

“It’s illegal for me to apply nitrogen, but it’s not illegal to buy it. Who’s going to arrest a homeowner for applying it after they bought it at Home Depot?”

More: [How can we curtail nitrogen in fertilizer and harmful nutrient pollution in our watershed?](#)

Home Depot and Lowe’s and other stores sell fertilizers that can be purchased locally even when they are banned. A Home Depot spokesperson said the company did so within the law, which prohibits applying the fertilizer to residences, not buying or selling it to residents.

The City of Naples last October [did away with a ban on phosphorous and nitrogen use in fertilizer that had been in effect between June 1 and Sept. 30.](#) Instead, the ban on those two nutrients has been revised to “when soils are saturated, heavy rain is likely, or during a storm or flood watch/warning.” This matches Collier County’s guidelines.

## **Big Sugar, big money**

U.S. Sugar and Florida Crystals, the two largest sugar companies in Florida, did not return phone calls seeking comment but responded via email.

Neither company would divulge their blends of fertilizer used. Both companies aimed the blame of nutrient pollution to the north of the lake, from where in most years, 99 percent of the

water flows.

The Florida Department of Environmental Protection and Department of Agriculture do not track the blends of fertilizer used in the Everglades Agricultural Area, where all of “big sugar” farmlands sit.

All 400,000 acres of the Everglades Agricultural Area (EAA) area sit where the lake’s natural flow used to go. The former headwaters of the Everglades, prior to the levees being built in 1930s and the dike being built and raised during the 1940s and ‘60s, have been converted into privately owned farmland.

All farms in the Everglades Agricultural Area have higher best management practices than the rest of the state, Morgan said. Legislation forced those farms to reduce phosphorous use by 20 percent.

Water advocates from both coasts of Florida gathered a boat ramp in Clewiston to protest bad water quality and algae blooms that are starting show up in Lake Okeechobee, the Caloosahatchee River and the St. Lucie River. Some Clewiston residents say they are getting a bad rap and that water coming from the Kissimmee River and Chain of Lakes is to blame for poor water quality. They want to slow the flow of water coming from the north.  
Andrew West/The News-Press

The dike around Lake Okeechobee that helped convert these lands from sawgrass to sugar farms also helped create fertile soil conditions, said Stewart Swanson, the Institute of Food and Agricultural Services extension agent for sugar cane. The “muck” soil of sugar cane farms is naturally rich in nitrogen, he said, meaning sugar farms should not even have to apply it.

The farms’ runoff typically flows south. But during flooded conditions like last year, the South Florida Water Management District back-pumps two canals that flow adjacent to sugar farms. The back-pumping would have included fertilizer runoff,

environmental experts said.

Water tests showed about 28 tons of phosphorus were in that back-pumped water last year, according to the South Florida Water Management District. Statistics on tonnage of nitrogen will not be available until March.

The back-pumping accounted for about 5 percent, up from the normal 1 percent, of the influx of water into the lake last year, with the majority of the nutrient runoff arriving from the Kissimmee River to the north, said Havens, who said back-pumping represented a small fraction of the nutrient-flow problem into the lake.

## **Climate change**

Following the algae blooms means more than following the fertilizer, Carpenter said from Wisconsin. He said it meant acknowledging the higher temperatures and heavier rain in 2017 and early 2018 were part of a changing climate caused by mankind's extensive use of fossil fuels.

"There's no organized plan to address climate change," Carpenter said. "But the one thing that we could do is figure out where these highly-polluted soils are and stabilize them so they stay out of streams.

"Make sure that something is growing on them. Stop dumping phosphorous on them, and try to plant crops that are really good at drawing down phosphorous. This is a hard thing to do. It's really going farm by farm and working with the farmers. Different farms have different sets of problems. Not every farm is the same. You can't really set a general policy. A one-size fits all policy."

Carpenter said he realized many do not believe fossil fuel use

and climate change to be related.

“It’s a heavily politicized issue,” he said. “But it’s real. Pretending that it’s not happening is not the way to solve the problem.”

Connect with this reporter: [David Dorsey \(Facebook\)](#), [@DavidADorsey \(Twitter\)](#).

## **Fertilizer by the numbers**

200: pounds of nitrogen per acre spread on citrus farms as recommended by the University of Florida Institute of Food and Agricultural Services.

40: pounds of phosphorous per acre on citrus farms

89: Million pounds of total nitrogen on the combined 447,012 acres of citrus farms in Florida

18: Million pounds of phosphorous on citrus farms in Florida

380: Tons of fertilizer (760,000 pounds) of fertilizer Lee County uses on 275.5 acres of athletic fields at an annual cost of \$216,000

101: Tons of nitrogen used by the City of Fort Myers on its two golf courses, Eastwood and the Fort Myers Country Club

8.6: Tons of phosphorous used on the two Fort Myers golf courses

0: Phosphorous used year-round by the City of Cape Coral