Science Societies

Classroom to career: Wale Adewunmi

By Alison Jennings

May 15, 2026

MUSTANG
SURVIVAL
J.D

Wale Adewunmi, SSSA member and Certified Professional Soil Scientist.

Our Classroom to Career series spotlights members who began as students and grew into thriving professionals. This installment features Wale Adewunmi, who used certification and Society resources to boost his career as a scientist working in a non-traditional field.

Not everyone who enters college knows what they're going to do after graduation. Many students switch majors sometime during their degree, and some undergraduates discover their true calling only well after matriculation. Environmental soil scientist Wale Adewunmi is like many of his peers—before college, he didn't even realize that soil science was its own discipline, much less was a valid career path. "Soil was forever associated with agriculture and that's the end," he says. He took his first-ever soil science class during his undergraduate studies in Agronomy, and he was immediately surprised by the complexity of the field.

"The professor was introducing concepts like soil pH, soil chemistry, soil temperature, and some other things," recalls Adewunmi. "And I sat there thinking she's confused. 'How could you be bringing these elegant chemistry terms and mixing them with dirt?' But the more she went on, the more intrigued I became."

His curiosity morphed into a career. Adewunmi went on to finish his degree in Agronomy before continuing his education in Soil and Environmental Science. Now, he

has more than 30 years of experience as an environmental soil scientist where he applies his knowledge to unconventional environmental issues such as biosolids production and management, water quality issues, hazardous waste management, and emerging contaminants in soil and water.

Building biosolids

Since 1998, Adewunmi has been a Certified Professional Soil Scientist (CPSS). Individuals with the appropriate degree and experience are eligible for certification through the Soil Science Society of America. Getting certified was a timely career move, especially because of the kinds of people he started working with as an early career scientist, says Adewunmi. Certification improved his standing among his colleagues and better prepared him to work in a field that was outside of academia.

"I work with mechanical engineers, electrical engineers, civil engineers, and chemical engineers. Many of them have a professional engineering license (PE), so being a CPSS increases my credibility with them and with the rest of the staff."

“[Being a CPSS] is important because of the people I work with. I work with engineers,” says Adewunmi. “I work with mechanical engineers, electrical engineers, civil engineers, and chemical engineers. Many of them have a professional engineering license (PE), so being a CPSS increases my credibility with them and with the rest of the staff.”

Adewunmi spent the bulk of his career at a regional wastewater treatment facility in New Jersey. There, he developed a way to transform waste products into safe, nutrient-rich fertilizer for crops and other land-based management opportunities.

Domestic wastewater plants’ treatment process generates two product streams: liquids (effluent) and solids (sludge). But what do you do with that sludge? If you’re a soil scientist, you might think of ways to treat that sludge to make it into fertilizer—a biosolid. But developing such a product—one with such rigorous safety standards—was a challenge.

For these biosolids to become an effective fertilizer, the developers needed to be able to establish its environmental stability and know the plant- and soil-important properties of the product. But when Adewunmi started working at the facility, there wasn’t adequate previous work done to fill in these knowledge gaps—he was truly starting from scratch.

“When I joined this company, they had no idea what the bulk density of this product was," he recalls. "They had no idea what testing methods to use and how much biosolids to apply to a specific soil.”

So, he did a lot of chemical analyses in addition to field research to find out key details of this product: bulk density, nutrient value, mineralization rate, application rates for farms, and more. “I did all that to bring this product to life,” he says.

He kept asking questions about the science behind the treatment process. More bench chemistry studies enhanced the production process and led to an improved product. And more field studies answered questions about the effluent and its receiving waterbody.

Lab work is like an investigation. You, the researcher, have questions you want to answer. But before you begin experiments, you do background research. “We ask questions,” says Adewunmi. “We want to solve problems. We want to know why something is behaving the way it is.”

One question Adewunmi had when he started working at the wastewater plant was about the amounts of nutrients (organic nitrogen) in the biosolids that would be available to crops when applied to fields. “I had to look at our [Society] journals,” he says. “I identified some scientists and researchers who had been working in [my field], although with a different type of biosolids and in different parts of the country. I had conversations with them.”

Making crop-safe fertilizer out of sludge

Did you know that U.S. sewage policies aren’t that old? Up until the early 1970s, many American cities were dumping raw sewage into the ocean, rivers, streams, and other local waterways. We’ve come a long way since then: Since 1972, the Clean Water Act has regulated sewage treatment as a response to growing concerns about water pollution. Through legislation, we can ensure that our waters are clean and that the

by-products of waste are treated properly.

And how do you create biosolids from waste? There are many ways, but in Adewunmi's facility, they first needed to remove as much water as possible from sludge before applying quick lime (CaO, calcium oxide). This quick lime reacts with any remaining moisture in the sludge. This reaction is exothermic—it generates heat. That heat kills any pathogens in the sludge. Adewunmi says that per federal law, the temperature needs to reach a minimum of 52°C, but that the sludge in his facility often reached much higher temperatures.

Quick lime also elevates the pH of the waste product, which prevents potential disease vectors (flies, rodents, etc.) from wanting to make contact with the material. This material is then packaged, and the newly formed biosolids become a marketable material that can be added to agricultural or sports fields, highway medians, forests, or reclamation areas.

Facilities produce either Class A or Class B biosolids. Adewunmi's plant produced Class A biosolids, which are held to a more rigorous standard and can often be safely applied to crop fields without restrictions.

Fresh biosolids are transferred to the facility floor soon after sludge and quicklime are mixed together. Photo courtesy of Wale Adewunmi.

Reaching out to fellow soil and environmental scientists gave the young employee the insight he needed to keep going. "[People] need a Society home, a professional home, to let them know that when you go out to work and you run into problems, you have this vast army of scientists behind you," he says. "You have access to them by being a member of the Societies."

“[People] need a Society home, a professional home, to let them know that when you go out to work and you run into problems, you have this vast army of scientists behind you. You have access to them by being a member of the Societies."

After some more investigation, Adewunmi was able to report his findings to the New Jersey Department of Environmental Protection. He was confident in his work because of these collaborations and conversations, and the individuals he had reached out to turned into lifelong connections. “As I grew older in my profession and in what I do, I see these people at the annual meetings. We interact regularly. And the relationships still go on till today,” he says.

As he moved up the career ladder, Adewunmi took on more administrative responsibility, ensuring facility-wide environmental and regulatory compliance. He ended up as part of a team managing a 24-hour operation that treated 147,000,000 gallons of water each day, seven days a week, 365 days a year. On top of this, he managed a power plant that combusts landfill gas (a by-product of the decomposing material in landfills) to generate 13 megawatts of electricity daily. Now, Adewunmi owns a consulting company, doing very similar work as before, just for clients.

Dr. Wale Adewunmi collects real-time data used in water quality modeling to show the impact of the effluent discharge on the bay (waterbody) receiving it. Photo courtesy of Wale Adewunmi.

To the future soil scientists…

To give back, Adewunmi has an extensive history volunteering for Society committees. His current appointment with the SSSA's K–12 Outreach Committee has personal ties—he wants others to be introduced to soil science a lot earlier in their education than he was.

The idea behind the committee is that if students are introduced to soil science concepts earlier, they might develop an interest in the field, hopefully choosing to pursue soil studies in college or even graduate school. To help introduce soil to pre-college students, the committee develops resources for teachers, so they can teach

basic science concepts under a soil-focused lens, like using topsoil or peat moss instead of water to learn about pH. By “sowing seeds” of soil science in students’ minds, the committee hopes to grow a new, large generation of future soil scientists.

“[It’s] probably the busiest committee. But it's also gratifying that we are promoting our Societies. And we are introducing our science to a younger audience and equipping teachers to be able to teach soil science in elementary and high schools.”

Dr. Wale Adewunmi teaches kids about soil textures at the 2016 ASA, CSSA, and SSSA Annual Meeting (now called CANVAS) in Phoenix, AZ. Photo courtesy of Wale Adewunmi.

Adewunmi ends by encouraging these future graduate students to pursue many kinds of opportunities after graduation, even if they’re outside of academia. As an industry man himself, he wishes that graduate school emphasized the importance of industry positions as much as they do traditional academic ones because academia is just one side of the research coin. “If an opportunity comes from the private sector, from industry, [students] should embrace it. … And when they go there, they should go there with gusto,” he says. “Maybe they don't think [they’re qualified]. Yes, they are. … They have that degree behind them. They have the certification behind them.”

And with a new generation of soil scientists, we are more equipped to investigate any kind of questions we might have: Questions about agricultural management, human welfare, the environment, ecosystem restoration, food security, and more.

More Classroom to Career

Back to issue

Back to home

Rate this article

Text © . The authors. CC BY-NC-ND 4.0. Except where otherwise noted, images are subject to copyright. Any reuse without express permission from the copyright owner is prohibited.