

How the Shippensburg University Campus Farm is Facing Pennsylvania's "Dead Soil" Problem

BY IAN SHERLOCK - APR 30, 2024



The light brown dust covered a pile of small stones. It is dry, so dry that not even a drop of water would quench the thirst of the lifeless landscape. When you try to hold the dirt in your hands, it just falls between your fingers, leaving a layer of dust.

This description may sound like that of a desert. In reality, it's the description of a soil sample that has been drained of its nutrients from a Pennsylvania farm.

PA's over-farmed and over-fertilized fields pose two key issues: dead soil and water pollution.

Everywhere you go in Pennsylvania, a farm seems like a stone's throw away.

With over 52,000 farms in the state making use of just under twenty-five percent of the land, according to [The Nature Conservancy](#), PA's agriculture is difficult to miss.

Yet, according to research conducted by [WalletHub](#), PA ranks No. 23 out of the 50 states regarding environmental friendliness. The study considered each state's overall environmental quality, eco-friendly behaviors and climate-change contributions.

What's hurting PA's score besides the dead soil? According to research conducted at [Penn State University](#), one of the primary culprits is water pollution from "excess nutrients and sediment runoff."

The Shippensburg University Farm aims to solve these issues through various programs that educate geography earth science, and biology students through sustainable agricultural practices that bring life back to the farm's soil.

"Our goal is to help university students develop A. an awareness of some of these problems but also B. to understand that each person has a part to play and can make meaningful contributions to those grand challenges," said Sean Cornell, an associate professor in Shippensburg University's geography and earth science department.

The campus farm teaches students and various community groups two key ways to regenerate overfarmed soil and prevent pollution from unsafe fertilizers.

Soil is the foundation. There's no arguing that this is why the farm prioritizes this area of sustainability. The campus farm focuses on redeveloping the soil through its extensive multi-step process.

"Dead Soil"

Step one of the regeneration process is analyzing and acknowledging the "dead soil."

"We're regenerating the soil that had been depleted by prior types of agriculture on that area," says Cornell about the ground that the campus farm operates on.



Compost

“A lot of the stuff we use to plant in is compost from Reisner (Shippensburg University’s Dinning Hall),” says Brandon Fanus, the farm’s graduate assistant. “We’re doing a compost program through ShipCompost, and we use that to make some great soil.”

ShipComposts is a student-led program the farm started through the [Center for Land Use and Sustainability](#) to collect the various ingredients necessary to regenerate the farm's soil without using harsh chemicals.

The farm employs a student worker through the Ship Sails Program who gathers the food waste from Reisner every Tuesday and Thursday. They then run the waste through a pulper to make the larger pieces of food scraps into more manageable waste.



Woodchips and leaves are other necessary ingredients in the compost equation. According to Fanus, the farm sources its wood sustainably by repurposing chips and waste made from local businesses.

As for the leaves, Fanus said, “All the leaves that the grounds crew gather up are taken here and used instead of being dumped elsewhere.



Once the necessary components are gathered, they are combined with dead soil in mixing barrels on the farm. These barrels break down the compost and spread the nutrients evenly through the dirt.

The same Ship Sails worker who gathered the food scraps will rotate the mixing barrels twice a week. The mixing is necessary so that everything in the barrel receives equal amounts of heat.



“So eventually, the stuff that’s on the bottom, because of the pressure and heat that builds up, that’s going to break down much faster,” says Fanus. “So you will want to spin it to make sure that you will get stuff broken down pretty evenly.”

The End Result and Moving Forward

After this process is completed, the replenished soil is ready to be used on the farm. The process not only brings the dead soil back to life but also provides a sustainable way to fertilize the crops the group grows, preventing the use of dangerous chemicals that can pollute water sources. “We don’t use any chemicals on any of our crops,” says Fanus.

The campus arm looks to expand this operation in the coming months.

“We just got certified for an off-campus site where we’re going to be making large compost rows,” says Fanus. “Eventually, we want to be running all of the food waste from Shippensburg Univeristy.”



Drawbacks to this Solution

The biggest issue with regenerative agriculture through compost is how time-consuming and labor-intensive the process is.

In the [Connecticut Department of Energy and Environmental Protection's](#) step-by-step guide to composting, they say that the process can take anywhere from two weeks to two years. Taking this much time isn't much of an issue in a learning environment for the campus farm, but this poses a great issue to large-scale farming operations that need to meet food demands on national and global scales.

The process is labor-intensive, but the campus farm is looking to combat this issue through a partnership with Green League, a Shippensburg University Campus Group that supports sustainability through education and learning opportunities.

"Most Green League students help out on farm days and help out with the farm in producing everything it produces," says freshman Green League member Ren Wolford.

The farm supports its operation through groups like Green League, the geography and earth science/biology departments, first-year seminar classes and various other educational programs on campus.

Cornell says, "Any student, faculty, or staff member at the university is 100% invited to participate."

Another issue with the campus farms solution is its lack of promotion and campus awareness. Cornell, Fanus and Wolford all three made comments about people not knowing what the campus farm does.

In a digital age, the campus farm lacks a social media presence that is vital to competing with other campus groups and organizations. Getting people involved with the farm is vital not only in the operation but also when trying to educate people on topics such as sustainability and soil redevelopment.

The campus farm's last Instagram [post](#) was 21 weeks ago, wishing students luck on final exams during the fall semester of 2023.

What Other Benefits Make this Solution Worthwhile?

According to the [US Composting Council's website](#) (USCC), this operation solves more than just soil regeneration and runoff pollution.

The process that the campus farm uses also promotes healthier plant growth than traditional agriculture practices. Through extensive research, the USCC has determined that the balanced soil density from composting prevents growth suppression and plant diseases.

They also determined that the balance in composted soil's density allows plants to retain nutrients and decrease the number of weeds that pop up. When weeds do arise, the campus farm takes sustainable measures to combat the problem.

Other Sustainable Practices

Meet Almond, one of two goats on the farm that act as natural weed killers. Fanus and Cornell both discussed how the goats graze the crop rows and eat any pesky weeds that can steal vital nutrients from the soil.

The other benefit of using goats is that they help with the weed problem without using dangerous pesticides that can pollute waterways.



The campus farm practices what it preaches on sustainability down to the smallest details. Even the table used in the greenhouse is being repurposed.

“You might notice these are lunch tables,” says Fanus. “They were getting sold by one of the local schools, so Dr. Cornell went and bought them for about \$6.”



“Now we’re using them as rows instead of going to the trash we might as well use them,” Fanus added.

A Broader Look at the Problem and Solution

Farming plays a massive role in PA’s economy, and the problems posed by overfarming land can’t be overlooked.

Over-arming soil not only drains the dirt of its nutrients but also forces farmers to use dangerous chemicals to promote growth. These chemicals cause water pollution that generates a whole slew of other problems.

The campus farm looks to solve these issues through its sustainable practices and educational services.

From composting and regenerating the dead soil to partnering with classes and groups such as Green Leauge and Ship Sails, the farm uses a labor-intensive solution that takes time to educate those involved.

The solution may not be changing the framing practices statewide, but it would have a huge impact on the campus land the farm uses and all those involved. Educating future geography earth science, and biology students at Shippensburg on regenerative farming can have an impact on the future.

“Our students, members of Green League and everyone who comes down there (campus farm) are putting in their sweat equity, so to speak,” says Cornell. “That’s really helping them connect to the broader issues.”