Q&A from Pesticides & the Chesapeake Bay ConferenceDecember 1, 2023 –

Some questions were answered live and those answered below were typed in by presenters.

Asker: Margie Roswell
Question: I'd like to see human fecal matter microbiome diversity testing done in relation to proximity to pesticide applications and consumption.
Answer: Me too! I found this article really interesting from a diet diversity perspective: https://newatlas.com/gut-bacteria-foraging-farming-diet-study/57280/

Asker: Ann English, DEP
Question: Happy to report my husband and I on our farm have eliminated chemical agriculture and using the soil-food-web lab reports are seeing life return to previously dead soil/ dirt. It has taken several years and the recovery is slow. Adding woodchips has helped to expedite the reintroduction of fungi (baseline showed ZERO fungi of any kind).
Answer: Awesome, Ann. Fungi are the future of food!

Asker: Richard Ochs
Question: Could you describe the physics of tillage and compaction? It seems counterintuitive that loosening the soil somehow compacts it.
Answer: Directly below the tillage zone, we often see formation of a "hard pan" compaction layer. Commercial fertilizers can make this layer even more difficult to aerate, and that is an issue for our plant roots.

Asker: Art Milholland
Question: Do ticks have any ecological value?
Answer: They likely do in natural settings, but I prefer to let chickens eat them on my land. Even what we call pathogens and pests, have a purpose in the biosphere. In some cases, by preventing another species from overrunning the environment.

Asker: Anonymous Attendee
Question: Are there any differences between the composting approach you teach and the standards required to maintain USDA Organic Certification?
Answer: During the last 40-some years, as we developed the Soil Food Web Approach, we found that we needed to change the focus of making compost. Please visit the Soil Foodweb website (www.soilfoodweb.com)

Asker: Anonymous Attendee
Question: Can any dirt be turned back into soil, anywhere in the world, or are some situations impossible to fix?
Answer: Almost anywhere. There may be unique limitations to overcome in different locations (contamination, climate, etc.), but we see a great response to these methods all over the world.

Asker: Anonymous Attendee

Question: How do pesticide applications affect the soil microorganisms?
Answer: Most pesticides are directly harmful to soil organisms, especially fungi, protozoa, and nematodes

Asker: Anna Gray, People & Pollinators Action Network
Question: What would the steps be for a large-scale industrial farm to switch to regenerative farming?
Answer: It starts with a mindset shift. We want to see even large producers work on a smaller plot of land to show themselves how it works. Adam York and others are working on a large scale, delivering biological solutions with pivot irrigation and other mechanized systems.

Asker: Ann English, DEP
Question: One challenge is in the non-native invasive (NNI) removal situation - how to use this approach to treat areas that are overrun with invasives that are dominating e.g. old fields that have been taken out of production/ abandoned.
Answer: Invasives are a persistent issue! If the plant is relatively early-successional, it likely loves disturbance and bacterial-dominated soils. In many cases, we find a reduction in weedy plant pressure as the soil fungal community recovers.

Asker: Michael Ichniowski
Question: What is the best way to improve soil in a home garden or raised bed?
Answer: The basics of conservation/regen agriculture apply at any scale:
https://www.echocommunity.org/resources/2494c049-7310-4773-ad49-fe2699331125
Reduce disturbance, increase diversification, keep the soil covered with living plants…

Asker: bunnyladouceur
Question: How do you harvest root crops, such as potatoes without damaging the soil structure?
Answer: The key here is not to forbid any soil disturbance, because, it is necessary at times. But rather to reduce it or find creative ways to mitigate the harm to soil life. So, if you harvest root crops, what cover can you seed right after? What amendments can help heal the required damage? Can the land be rotated to a different crop at some point, increasing diversity?

Asker: Anonymous Attendee
Question: Do you have a good reference on plant immunity?
Answer: You might find this paper helpful:
https://www.sciencedirect.com/science/article/abs/pii/S1369526608001003

Asker: Michael Ichniowski
Question: Heavy metals can get taken up by plants and get into the food. There is a problem with food contamination from lead, cadmium and arsenic to name a few. Is this preventable?
Answer: With the right microbes, heavy metals can be sequestered by beneficial bacteria and fungi in organic matter. But you have to have the required organisms functioning --- the right conditions for the microbes to do what they do so well.

Asker: Dhan Parker
Question: What are the best organic herbicide products for controlling invasive plant species?
Answer: Weeds require a very different nutrient-cycling system than crop plants. Please find more information on the Soil Food Web website.

Asker: Art Milholland
Question: What exactly are "biologicals"?
Answer: This can mean a lot of things, including expensive product off the shelf that claim to contain microorganisms. We prefer the locally adapted biological community in compost made locally.

Asker: Michael Ichniowski
Question: Thanks, Adam and Elaine, for your very helpful replies!
Answer: Thank you! Check out our web site, www.soilfoodweb.com for more info!