FIELD NOTES on CLIMATE

Rebuilding Soil Health Through Regenerative Agriculture

Transcript

What does a slice of soil reveal about climate change?

Ami Eckard-Lee: What are some things you do to study soil and observe it and collect it?

Nate Lawrence: We collect a lot of it. And so to do that we typically rely on something called a core. So a soil core is just a vertical column of soil that we're extracting from a field. And it allows us to look a lot deeper into the soil. So this is what this soil looks like in cross-section. What we basically have is a little bit higher soil organic matter at the top, which we can see from darker color.

Ami: Okay.

Nate: You can actually see some of the old plant material that's kind of half decomposed. And as we look down,that soil organic matter tends to taper off. We don't see a whole lot of layers to the cake. And likely what we're seeing here is an impact of tillage over 150 years.

Ami: Oh.

Rylee Nelson: So tillage is where you're turning over the soil with a plow. On conventional crop farms, they do it a lot to prepare their soil for planting their crops. One bad thing about it is that it releases all that carbon and organic matter into the atmosphere, which contributes to global warming, and climate change. So the top soil is that top layer of soil, and it's where most of the organic matter in the soil is stored, and all the nutrients and carbon. So if that topsoil layer blows away and there's not much of it left, those plants aren't going to be able to establish a good root structure and grow and get their nutrients

that they need. So that's another problem that conventional farming is creating because of tilling and all those sort of methods. Whereas on our farm, there's always something in the soil. It's important to us that we are building up the soil helps with our grazing so that we can sequester that carbon in the soil.

How can adding trees to farms make soil and crops stronger?

Ami Eckard-Lee: So what is the goal of the Savannah Institute?

Nate Lawrence: The Savannah Institute is a nonprofit organization that works to advance agroforestry, which means farming with trees on purpose or using trees on farms to do something useful for the farm. So there's an ecological principle
that says that the more diverse our ecosystems are, they should be more effective at capturing energy from the sun, maybe also at capturing nutrients from the soil, promoting soil health, and thereby pull some of that carbon dioxide out of the atmosphere and help mitigate some of the impacts of climate change. So behind us, we see one example of what that can look like. This is a silvopasture. It's grazed by sheep and we've planted trees into the pasture.

Ami: What's silvopasture?

Nate: Silvo. So Latin for tree. So silvopasture is a tree pasture. The trees are chestnuts. So the trees both produce something that we can eat. And they also provide shade for the sheep. There are several other examples of how trees can be employed on farms. To our left we have another system where we're growing rows of crops between trees, in this case hazelnuts. This is called alley cropping.
So again, we can harvest something from the tree. Hazelnuts. And then in between the trees were also growing crops that we can harvest as well. We're

hoping to implement different types of ag practices, produce our food a little bit differently, and if we get it right, the soil health that we've lost, we can actually start to regain.