

# Episode 7 - The Hidden Secret to Our Survival



## FULL EPISODE TRANSCRIPT

With your host

**Hayley Weatherburn**

## Episode 7: **The Hidden Secret to Our Survival**

Welcome to **Thriving with Nature**, a podcast that gives you the tools you need to live a modern lifestyle that helps regenerate our planet. And now your host, Hayley Weatherburn.

Hello, Thrivers! Welcome to Episode Seven. I'm so excited to be talking to you today! As some of you already know, I've been doing the *Soil Advocacy Training with Kiss The Ground*. And it's been more than profound, so much information, so many things to share with you and with the world. I feel about how amazing soil is. And what's interesting is we didn't know until recently, as early as 1986 (to) 1996, have been some quite massive discoveries into what is going on that we couldn't see before. And it just gives us permission. We are where we are because we did the best we did (and) we did the best with what we knew. And now, we know so much more. And I want to share with you today a little bit of a summary of what I've been learning with Kiss The Ground.

In today's presentation, (it) is going to be called **The Secret to Our Survival**. It's hidden from plain sight. So, it's not only this secret is to our survival, this secret is to us thriving - our human health and the planet's health.

We didn't really know how the soil worked, as I said before. And so, only recently has this secret of the soil become apparent. The summary of it is, '*the soil is alive and it has an innate intelligence*'. (It's) just like you and I know (that) we have this innate intelligence.

Our body breathes without us really thinking about it. There're a hundred trillion cells inside of us that know what they need to know for us to perform in this physical body. Isn't that amazing? And inside the soil, which a lot of us have been calling dirt, is completely different. The difference between dirt and soil is *life*. (It) is an *organic matter*. So, there is this innate intelligence. Soil has life in it. Dirt is just dead. It's nothing. And at the moment, the UN's figure is that we only have 60 years left of this livable soil, this healthy soil. So, there's a lot we need to do.

What happens in healthy soil? So, I want to tell you (about it). Before I tell you the secret of the soil, I want to tell you what's happening in a healthy soil.

When soil is healthy, it increases the soil carbon. It reverses climate change. So, it draws the carbon that is suffocating our planet at the moment, down deep into the soil where it (is) saved in there and it becomes food. It's life down inside the soil. It's built into other things. It increases the water holding capacity and infiltration. When the secret of the soil structures the soil in a certain way, it improves drought tolerance. And water doesn't wash away. It gets absorbed into the earth and down into the aquifers and it reverses those drought areas. It increases soil aggregation and soil life so that it becomes more fertile and more able to feed the world. So, the more fertile soil, the more areas you can plant and grow fruit and veggies and therefore, no longer have people starving. And it increases the nutrient availability and retention inside the fruits and vegetables, in which, as you know from last year's episode, I'm very passionate about.

So, what is this secret inside the soil? Well, my friends, you and I are about to go on a journey. Does anyone remember *Honey, I Shrunk the Kids*? That 1980s movie? Well, right now you and I are going to shrink down to the size or into the micro world where you can't even see it. In *Honey, I Shrunk the Kids*, you could still see them with a magnifying glass. (In) this, you need a microscope. So, we're going as small as you would to be able to be seen in a microscope.

So, imagine yourself, you're shrinking, shrinking down, down into this world like *Honey, I Shrunk the Kids*. And where are you going to find yourself? Imagine one of your favorite plants. Maybe, it's in a garden. Maybe, it's in a forest. And I want you to place yourself on one of the leaves of that plant as this tiny, tiny, micro-human. And on that plant, you're going to see these little monster-eating things, little green monster-eating things. (Only that) they don't eat monsters, they eat carbon dioxide. These are little stir matters. We call them carbon dioxide monsters. Because utilizing the sun's energy, they eat the carbon dioxide and they take from the carbon dioxide the carbon; and the hydrogen oxygen from water and turn it into this delicious sugary carbohydrate. (It's) something similar in the human world (which) would be like cookies. And they turn it into that and they use that. They take it down into the plant and they use that to help it grow. But they know, just like you and I know, if we just drink sugary substances always, we wouldn't be healthy. We need nutrients.

More than 50% of this beautiful sugary carbohydrate, the plant takes down the trunk down under the world. So just imagine you're riding this little sugary substance down through the trees. I'm going to call them capillaries, but they're not called capillaries, but down through the little tubes of the tree, down, down, down into the roots. And you're going right to the end of the roots. And you're now going to find yourself in what we call the rhizosphere.

In the rhizosphere, it's down where all the ends of the roots are. And what you're going to notice when you get to the end of the roots, you realize that these roots can't directly have the ability to digest the soil. They can't just pull the nutrients from the soil. They don't have that ability. There is an interdependency that allows them to get more and more nutrients by utilizing this secret of the soil. And (those are) the microbes, the fungi, the bacteria, the nematodes, the protozoa. There is a life in the soil and I like to call it the marketplace.

So, imagine yourself, you're stepping through on the cusp (or) on the edge of the roots, there, down in the soil and it's like walking into a big fruit and vegetable market and it's busy and it's bustling. And I want you to imagine those fruits and veggies are the exudates. That's the cellulose, the carbohydrate you rode all the way down into the soil. It's now in the form of, for the sake of this metaphor, looking like fruits and vegetables at the market. And you see bustling around almost like alien-like, these little bacteria and fungi that want to get some of these exudates. And in exchange, you look at their little wallets that they're exchanging across to the roots is all the nutrients, the beautiful nutrients that the plant needs to help make it grow. And these fungi and bacteria know (that) the more nutrients they give this plant and make it healthier, the more delicious options of these exudates that they can eat and consume for themselves to make it grow.

This bustling marketplace is absolutely awesome. I would just want to tell you a little bit about these characters. The bacteria can produce themselves. Some of them can produce over a thousand different nutrients depending on what the plant will need. Some of the fungi are mycorrhizal fungi for example. I don't want you to imagine mycorrhizal fungi like a web (or) just a root system of fungi that can go (down the soil). It can actually grow kilometers to find the nutrients it needs. It can even (be) in big droughts, bring across some water if it's needed. It can connect to other plants. It can connect into the soil and find what the plant needs so that it can come back and get in

exchange for those nutrients, that beautiful, delicious, sugary substance. So, it's this beautiful interrelationship between the roots and the soils.

And I want you to imagine that this beautiful marketplace is hustling and bustling. But, if we took away that marketplace and we just hooked the plant up to a drip for example. If we just hooked it up to, (for example) when you're sick and you've got just liquid plasma with a bit of nutrients just to keep us surviving, it helps us for a little while. This little drip bag (is) what fertilizer is. It's enough to just make the plant look and be well but it doesn't necessarily do all the different functions that this whole marketplace does. Not only does this marketplace exchange for nutrients (but) because of the hustle and bustle and because of the area it creates, it actually protects the plant. And these bacteria can be on the leaves. It can be on the branches. It can be on the fruits and veggies it's producing to help protect it from pests.

It's because it is bio-diverse. The more biodiverse the soil food web, the more protection it has. And not only does these fungi and bacteria down in this marketplace, they actually start to build with their own (soil). Once they're eating that exudates, they're building the soil. They're creating structures in the soil. Let's call them apartments and places where they can structure. Then, if we look at the soil food web which are the predators of these bacteria and fungi which are (called) nematodes and protozoa where they start eating certain bacteria and from their excrement is also plant-soluble nutrients.

And so, to make sure that those microorganisms don't go out crazy and become a pest themselves, what does nature do? It creates more predators. (That's why) we've got earthworms. Then, you've got arthropods which are insects. Then, you've got birds and you've got other little grub-eating mammals.

What nature does is (it) creates this amazing soil food web and everything in it. Once it dies, it creates more life. It's more organic matter to feed more bacteria which will give more nutrients to the plant. It's this complex yet simple soil food web.

And as humans, when we decide, 'Hang on. We're going to kill off this soil food web. We'll use chemicals. We hook the plants up to a drip which is the fertilizer. And wonder why these plants get pests because there isn't all this complex bio-diverse bacteria on the leaves (or) on everywhere to help protect it from all these pests.' And as a human, we are trying to replace this complex soil food web. So as a farmer, you can imagine it's

exhausting to try and completely constantly fight against something because it's out of balance.

But what all we need to do is nurture and feed the soil food web and make sure that's in balance and it will do the rest. It has that innate intelligence. It's absolutely amazing. And not only because of what the structures (are but) because of, for example, fungi creates this 'glomalin-ic'. It creates glue-like and the fungi is kind of rope-like. With this glue and the rope the fungi becomes like, (it) begins to hold the soil together and sort of holds it like a bag of peas. (It's) like with ropes around and glued together. And because there's spaces in between the different particles, water can go through, insects can go through, air can come through. And this structured soil (does) not only collects the carbon (from them). And because what these bacteria and fungi are feeding on the carbon and then experimenting and then creating these soil aggregates these clumps, the carbon gets stored down in there. But also, because there's all these gaps, we can think of the bag of peas when you saw the ropes and glue around the bag of peas, the water gets pulled through and goes all the way down through and gets filtered.

And something that I learned only recently is that the water gets cleaned by the bacteria. Bacteria see the contaminants as food and again, they can turn that into nutrients. And so, by the time the water filters down through this soil food web, through the structured soil, down into the aquifers, there's that beautiful fresh water that comes up through springs that are delicious. Instead of, if you think of dirt where it's compact and water lands on it and it just runs off and if there was anything that was good at (it that) runs it off and takes it down the river, those (are the) chemicals that takes it down the river and the drought cycle remains.

You need the soil food web to build this delicious structure that's underneath the plants. And as I said before, when you have these beautiful (nutrients), the beautiful soil food web, the bacteria and the fungi on the leaves (and) on the plants, it protects it.

If you have a plant that has some kind of white dust or something, there is an imbalance there. There's something missing from your soil food web. And that's what you've got to look for. What is it asking you to do? How do you feed and bring back the balance? Now, an easy way to do that is have a compost, worm compost, compost. Just one layer of compost can help bring back the soil food web really quickly.

So, that's why I've got my vermicomposting, my worm compost. I've already poured some of the worm tea so the water and the castings that have come down from the worm compost into my plants to start to build (and) rebuild the soil food web.

And another thing I've heard from, not only from the *Anastasia* books but also from the medical medium which I know on instruction, many gut health books. (It indicates that) if you're picking a fruit or vegetable straight from this garden that has a healthy, balanced bio-diverse soil food web, the bacteria that's on the fruit actually can go into your gut, into your own immune system. And not only does (it go to) the gut outside, there's so many diseases that are linked to an imbalance in our own personal gut health. A lot of chemicals have killed off the human biome inside our own guts. So, eating these fresh fruits and vegetables that have this beautiful bacteria that helps protect and brings it into your gut helps. It heals.

I can already feel from my own balance eating how the fact (that) I don't, here's too much information, get gassy as much anymore. Because I'm making sure that if I'm getting food from a healthy source and I know there's no chemicals, I won't wash the fruit and vegetables, I will eat it straight. I'll even lick the tomato because I know I'm getting some healthy bacteria. And since I've been doing that and you've got to be very careful because you don't want to be doing that when there's chemicals being used, because that's what's killing the microbiome inside your intestines.

What's the secret to the soil? What has innate intelligence? The **microbes**. The microbes are the key. And we need to be the gardeners, the zoologists of the microbes, the zookeepers, if you will.

So, how do we nurture the microbes? There's **five principles**. (It's) the *least amount of disturbance*. No more tilling. No more ripping up the soil or turning it and all that kind of stuff. No more fertilizers. We need to have it covered. We need to have the living root system allowing that to happen. So, having cover crops the least disturbance. (In) the living root system, allowing that to grow and build stronger and stronger.

*Soil armor*. Protect the soil with a layer of compost and a layer of organic material. Do not have bare soil. Bare soil can heat up so much and it can kill those beautiful microbes inside.

Then, *animal integration*. This is all part of that soil food web. You've got your birds, chickens that can go and eat some of the bugs to keep them in balance and then, poop out some fertilizer. (It's) the same as ducks. (It's) the same as cows (or) goats. If you're like me that lives in a suburban area, I have worms. That's my animal integration.

And then, what I like to do is *I try and behave like an animal*. I'll prune a bit because as animals, we'd sort of munch on a bit of plants which sends out signals to make the plant grow and be stronger. Obviously, I don't have fertilizer. I might have to (put) manure. I don't have manure coming in but that's something that I may look around locally to me and find if there's any manure I can get. There's definitely plenty of cows around here.

And then, *increased biodiversity* is the fifth principle. So, (it's) not just mono-cropping. Inside your garden have different fruits and veggies, have herbs all in one area. Because the different plants attract different bacteria into the soil. And the more diverse bacteria you have, the more diverse fungi and microbes you have in that soil, the stronger it will be.

Now, here's a quote from Roger Savory and I just think it's really profound:

*“Twenty-six major civilizations have failed due to the collapse of agriculture. How arrogant would we be to presume the root cause of our collapse won't be the exact same thing.”* Rodger Savory

We now know what we can do to reverse it. And ironically, the root cause is how we have treated the root microbiome. Let's be nurturers. Get out of the way, get out of our own way, and allow the innate intelligence of microbes heal us from the ground up. It's the microbes that rule the world. Healthy soil microbiome equals healthy plants and animals equals healthy humans equals a healthy planet.

I would love to hear what you think of, my beautiful Thrivers, if you've got any comments or ideas. An amazing documentary I watched recently called the ***The Biggest Little Farm*** really shows this complex yet amazing soil food web, including the whole food web, right up to the predators of hawks, eagles and things like that. It's a really amazing story of a couple who wants to build a farm but build it in align with nature and to see the evolution of how that happened. And the observation is absolutely profound.

So, thank you so much for this week. Don't forget to subscribe. If you want to hear more, feel free to pop onto the website, [thrivingwithnature.com](http://thrivingwithnature.com) and share your comments and your thoughts of what you think and what you learned today. Thank you so much! You have an amazing day, Thrivers! Bye!