

EPISODE
CLOSED CAPTION
SCRIPT



SEARCHING FOR SUSTAINABILITY
FARMING PRACTICES
AND SUSTAINABILITY

Prof. Doug Reinemann - Where ever you practice agriculture on this planet, the primary condition that you're concerned about is the soil. So, the type of soil, the depth of soil, the slope, all have an enormous amount to do with the way that you manage that land in order to maintain the health of the soil the sustainability of the soil, the ability of the soil to continue to produce crops and food.

Soil...(x5)

And it always comes back to, protect that soil. Because the health of our soil, basically, reflects the health of our plants, and the productivity of our plants and our forages, which directly relates to the health of our cows. And if all of that is in balance we have got a very environmentally and economically sustainable operation.

James Syburg - So, all of these minds are coming together and what they are all realizing independently is that the soil has a tremendous role in correcting each individual issue, and the intersection for all of these areas whether its climate change, whether its human health, whether its animal health, environmental health. The one intersecting point, the one dot where all the lines cross through, is the soil.

Jim Munsch - The other non-sustainable issue. Its soil. We are losing soil to grow crops in at a fairly high rate. It takes 100 years to build an inch of soil, this is science. As we erode these soils away, you suddenly have five or six inches of soil that can be lost over 100 years and only one inch will be replaced. This may seem very severe to somebody who is 60 to 70 years old, but it is going to be severe for their offspring's offspring's offspring.

James Syburg - There are scientists around the world that are looking at the fact that in some parts of the world there's only about 60 years' worth of topsoil left. And in some parts of the country even in North America, we have soils that are so degraded, that the farmers are not actually farming on topsoil anymore they're farming the subsoil. The soil that was below the topsoil.

Joe Tomandl - We can lose an incredible amount of soil if we don't protect it. And if we lose our soil, we lose our farm. We have all seen the phenomenon of these intense rains. We're standing here in a day where we just got a two-inch rain north of here in less than an hour. They're serious. And the only way that keeps soil on the ground during these rain events is permanent ground cover. One of the biggest things to keep it where it is, it needs to be underneath the roots and underneath our plants in order for them to grow. And that's how we continue to increase the organic matter on our farm and in our soils. We can't afford runoff; we can't afford soil erosion.

James Syburg - When you talk about soil health, organic matter or the organic content in soil is one of the key indicators and it's huge. Organic matter is where the nutrients are stored, organic matter is where the beneficial biology is housed. It holds two and a half to three times it's weight in water. So, it is also where we can mitigate storm water run-off and also store water in fields instead of having it runoff which benefits both the environment and the neighbors around the farm, as well as the farm. For every one percent we can raise a farm field, or soil's organic matter, for every one percent, we can store an additional 16,500 gallons of water per acre. But it also is going to help keep ground water clean and surface waters clean. Organic matter in soil is the sponge. So, if you hold it and it doesn't run away, it

doesn't take the valuable soil, the valuable topsoil itself with it, and it doesn't take the nutrients with it. By increasing the organic matter, that's not only going to have the biology that's going to naturally cycle the nitrogen and other nutrients from the atmosphere, but it is going to hold on to any of those inputs you apply, whether it's manures, organic, or conventional fertilizers.

Rick Adamski – Organic matter is a part of life. It's a continuum, the circle of life. Organic matter is nothing more than living and dead matter in the soil that's contributing to the mineral elements, the water, the air, that's where the essence of life is really being formed where you take the photosynthesis, the sun energy, and some miracle happens in that soil and it's actually enhanced by the organic matter so that it multiplies. So, when we discount that organic matter level in the soil then we have to buy in nutrients. We gotta buy in phosphorus, or potassium, or nitrogen whereas we can reduce those purchases or even eliminate them with just enhancing the organic matter level in the soil. Maybe we don't need irrigation or not as much irrigation. Maybe we don't need a drainage system to get rid of excess water with just extra organic matter in the soil.

So, when we till the ground regularly were exposing the ground several times in the course of a year and its loosening the structure that's in place. So if you make it vulnerable to a rainfall event and we have had more and more heavy rainfall events that soil is not being held together by the roots of the plant and it can be washed away very easily and every time you till the land you're actually oxidizing that carbon and it's actually, what's captured in the soil is going back into the atmosphere. So, you have to depend more and more upon purchased fertilizers, whereas the organic matter that is the equivalent of multiple bags of fertilizer as long as you have a viable live organic matter in the soil.

Brent Petersen – We've destroyed a lot of the glues and the organic matter that are in our soil our existing soils by doing the tillage. So, when we're doing the cover crops and doing the no till what we're trying to do were trying to reestablish the organic matter that's in the soils, the glomalin that's in the soils, which is basically the glue of the soils that holds these soils together and to try and stop the sediment and nutrient runoff and also increase the infiltration in these soils here as well.

James Syburg - The truth about adopting more sustainable agricultural practices you know through, the use of biomimicry and increasing organic matter and biological life in your soil and reducing inputs, is that it can be done it's happening on farms and on our farm we've been able to take some fields in as little as five years and increase the organic matter one percent that equates to hundreds of thousands of gallons of water, additional water, that wasn't stored in those fields before being stored in those fields. That for me as a farmer means my crops drink that. That for me as a farmer in this community means that the water from my farm doesn't make it to the lake.