

# IS YOUR SOIL HEALTHY?

BY SAM KISE



Past farmer and current soil adviser Brady Krchnavy wants to improve your soil health with mycorrhizal fungi.

BRADY KRCHNAVY  
Founder of New Age Farming LLC



Tilling your fields every year is inevitable, but did you know that digging, stirring, and overturning your soil actually kills many of the good fungi and bacteria you need to maintain soil health? Luckily, there are ways to improve soil health and help your crops thrive again, including fungi called mycorrhizae. Expert in the field and New Age Farming founder Brady Krchnavy sat down to talk with me about mycorrhizal fungi and how it can help farmers get better yields from their crops, as well as how it can improve soil health in your fields.

## ABOUT NEW AGE FARMING LLC.

"New Age Farming LLC is a company based in North Dakota that specializes in Mycorrhizal Fungi. We have been working with farmers and universities on the research and development of Mycorrhizal Fungi for many years. We are the experts and lead the 'field' in helping farmers to healthier soil and a more sustainable future."

– New Age Farming's Website, [farmfungi.com](http://farmfungi.com)



These fields' yields have grown exponentially after using mycorrhizal fungi!

## ORIGINS OF NEW AGE FARMING

After years of unintentionally ruining your soil and having to invest thousands of dollars in fertilizer, you may wonder—where does it end? Often, the fertilizer and seed needed to ensure a viable crop is so expensive that you hardly make a profit on your yield. While Brady Krchnavy was managing a farm radio station, he found the simple solution: mycorrhizal fungi. Since then, he and his company, New Age Farming, have researched and developed a mix of eight species of fungi that will work with your crops' root systems to help them grow further and uptake more nutrients and water.

Krchnavy grew up farming with his family in Lisbon, ND, about 90 miles southwest of Fargo. He always had a passion for farming and has always looked for ways to improve farmers' lives and ROI. Soil health, because it is so important to farmers, was one of the main things he had been looking to improve.

"We've been beating up our soils for more than a century," he said. Soil health continues to decline because of our farming practices, including deep tillage, anhydrous use, fumigation, harmful fungicides, repeated harmful herbicide use, and compaction, to name a few.

## DID YOU KNOW?

Research suggests that a type of mycorrhizal fungi might have been a key factor enabling plant terrestrialization, or the movement of aquatic plants to land.

Photos Courtesy of New Age Farming LLC



## DID YOU KNOW?

**"Mycorrhiza" is a term used to describe many different kinds of fungi, all of which form symbiotic relationships with plants.**

### WHAT IS MYCORRHIZAL FUNGI?

Mycorrhizal fungi, or mycorrhizae, are naturally occurring soil fungi that are essential to plant life.

"It's beneficial fungi that, through all of the years of tillage, we've basically killed in all of our soil because the UV light kills it," Krchnavy said. "Every time we dig, we're tipping up the soil, and it's killing the fungi. We've been doing that for over 100 years. Anhydrous ammonia and other synthetic fertilizer use also kills it with chemicals."

Through Krchnavy's research, he's found that mycorrhizal fungi can not only improve soil health but increase crop yield and decrease input costs over time.

"When farmers put these spores next to or on the seed (with seed treating equipment or in-furrow) and that seed germinates, they go

into the root, colonize, and basically widen and deepen the root system. They'll grow off of that root system and bring back nutrients and water to the plant, and in return, the crops are bigger, stronger, and healthier. In this symbiotic relationship, the plant—through photosynthesis—sends down starches and sugars to keep the fungi growing and keep them going out looking for more nutrients and water to bring back to the plant's roots. So it's a relationship between the plant and the fungi," he said.

After the fungi have colonized in the root, not only do your crops grow more vigorously, the weeds will be less prominent, too. Krchnavy explains that because the fungi are bringing nutrients to your crops, they will starve non-mycorrhizal weeds of nutrients and water, making weeds less vigorous in your fields.

### MYCORRHIZAL FUNGI AND REGENERATING SOIL HEALTH

Though his company sells to many farms who continue to till their lands, Krchnavy said that applying mycorrhizal fungi spores to your crops is adjacent to—and will assist with—regenerative farming methods.

"I've got some farmers that have been with me six or seven years, and they don't use my product anymore, because they've switched their farm practices to keep the fungi in their soil. They don't till as deeply anymore, or strip-till. They just leave the lower root zone alone and plant right into it. At that point, you are regenerating your soil. You're getting your soil back in good health, and you're building your fungi levels the way they should be," he said.

This soil regeneration is vital for the world's food supply, as many fields

nowadays cannot produce as healthy and as nutritious crops due to poor soil health.

"They've wrecked some fields with the salt-based starter fertilizers they put down. You can see those white spots in the spring. Those really white fields won't even grow weeds. That's how badly our practices have wrecked them. There's nothing left biologically, and that's not sustainable," Krchnavy said. "New Age Farming is currently trial-running a product that breaks down these complex salts so rain can naturally filter them through our soils and out of our top soils."

Luckily, Krchnavy says that using mycorrhizal fungi can help revitalize the fields that seem irreparable and void of soil health structure. "It takes time but it can be done."

A crop's root system will expand greatly with mycorrhizal fungi, like the roots pictures here, according to Krchnavy.



Here is an example of the salty fields Krchnavy is trying to revitalize.



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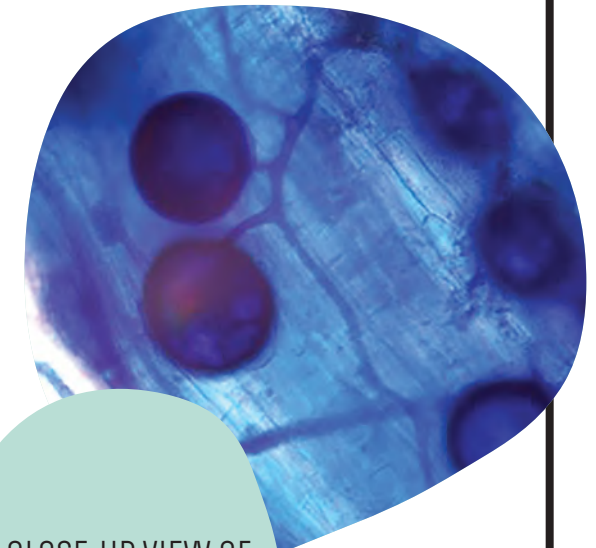
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THESE SCIENTISTS ARE HARD AT WORK TO PERFECT THE MYCORRHIZAL FUNGI FORMULA THAT NEW AGE FARMING USES IN THEIR PRODUCTS!



A CLOSE-UP VIEW OF MYCORRHIZAL FUNGI.

## KNOW YOUR CROPS' NEEDS

Most things that are meant to help your crops grow are also harmful to your soil long-term. However, mycorrhizal fungi are not harmful to your soil or any crops. It's 100% organic, so there are no chemicals in it that could damage crops. At worst, the fungi will be neutral for your crops.

"There are plants that will not use it—non-mycorrhizal plants. Most of them are in the brassica family. So when you think about non-mycorrhizal crops, you would think of sugar beet, mustard, kale, radish, turnip, or canola. Anything that's got that bulb underground with the big leaves on top is probably non-mycorrhizal," Krchnavy explained. "They do not use fungi to grow. They use bacteria, so it does not help them but it doesn't hurt them. The spores will just stay there in the ground and wait for your wheat, corn, beans, or whatever mycorrhizal crop you're putting in next."

However, Krchnavy does warn against putting mycorrhizal fungi in the ground before you plant your non-mycorrhizal crops because the harvest-season tilling could kill the new fungi you just applied. Instead, he suggests you put the fungi in the ground right after you harvest your non-mycorrhizal crops.

"When you [grow] sugar beets, you till the field to get fertilizer and lime down, and [then you] plant the sugar beets. Sometimes you go out and cultivate in between the rows to keep the weeds out. You then come with the lifter and tear up the ground lifting the beets out, and [finally] you come in one or two more times to level everything back out," Krchnavy said. "So you're tilling that field probably four to six times throughout the year. That is obliterating any fungi you may have had. Sugar beets are really, really hard on soil. That's why it's really important to get the fungi in the ground right after the sugar beets are harvested—get the fungi in the ground and get it working for you on your next two or three crops in your rotation."

This may seem counterproductive because of winter's chilly temperatures and the freezing ground, but New Age Farming's mycorrhizal fungi can stay alive in temperatures from -50 to 140 degrees. This means you can start regenerating your soil after the growing season ends with cover crops and have healthier soil for the next growing season.

If your crop fields need a boost or you are just worried about your field's soil health, mycorrhizal fungi may be your solution. Check out New Age Farming's websites for more information on these beneficial crop fungi.

## DID YOU KNOW?

NDSU's Soil Testing Lab will test your soil health and chemical content for you! More information on testing is available at:

[ndsu.edu/snrns/services/soil\\_testing\\_lab](https://ndsu.edu/snrns/services/soil_testing_lab)

## LEARN MORE ABOUT MYCORRHIZAL FUNGI AND NEW AGE FARMING

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