

Anyone Growing with Biochar?

What is this new thing called **biochar**? Well, first of all, it is not new. The Amazon Indians made it thousands of years ago and called it terra preta, or black earth. Today that same vintage terra preta is being mined and sold as a viable soil that was created by humans three or four thousand years ago! It is a 'forever' soil that never loses its nutrients. In Latin, bio means life and the biochar stands for charcoal. So, it translates to charcoal with life. Now what does that mean? In the simplest form it is simply carbon, acting like a big magnet at a microscopic level, that can be loaded with minerals and inoculated with oodles of microbes to provide plants with an endless source of everything they require.

Improved water holding capacity, mineral storage, providing a home for beneficial microbes, stabilizing soil acidity levels and removing toxins from the soil matrix are just some of the listed benefits of biochar. You may unknowingly already be making your own biochar if you have a water filter that uses a carbon filter or if you have a fish tank with a filter that uses charcoal to clean the water. Some researchers claim that a tablespoon of biochar has the equivalent surface area of an acre of land!



I bought a wonderful commercial product this year called SoilMatrix, but also build my own biochar and have experimented with different batches for a couple of years. I have made it from charcoal from wood ash, hardwood charcoal sold for a barbecue and also from coal that I throw into a garden blender.

Some of you may recall an article from two years back called, Growing in Gravel, where I inoculated the planting holes in our Food Forest with a clay/biochar slurry. Those were my first biochar experiments using pulverized coal and, even though it is hard to measure something like that unless it is under controlled conditions, the passing of time has revealed some very interesting results that one could dispute, if they so desired.

Out of 18 biochar plantings, every single plant is robust and growing great. My best observation with

biochar's effects on plants is with a male Arctic Kiwi. Out of 49 rooted cuttings, I planted one in a good

soil with a handful of biochar. All the rest were just planted in the good soil. The kiwi planted with biochar put on about 10 inches of woody growth last season compared to the others. Now, here is the wow factor that really makes one look twice. This plant had about a dozen flowers at nine months of age yet kiwis normally take three to five years before they flower! He was used to pollinate a large female Arctic Kiwi this year that has produced several hundred tasty fruits.



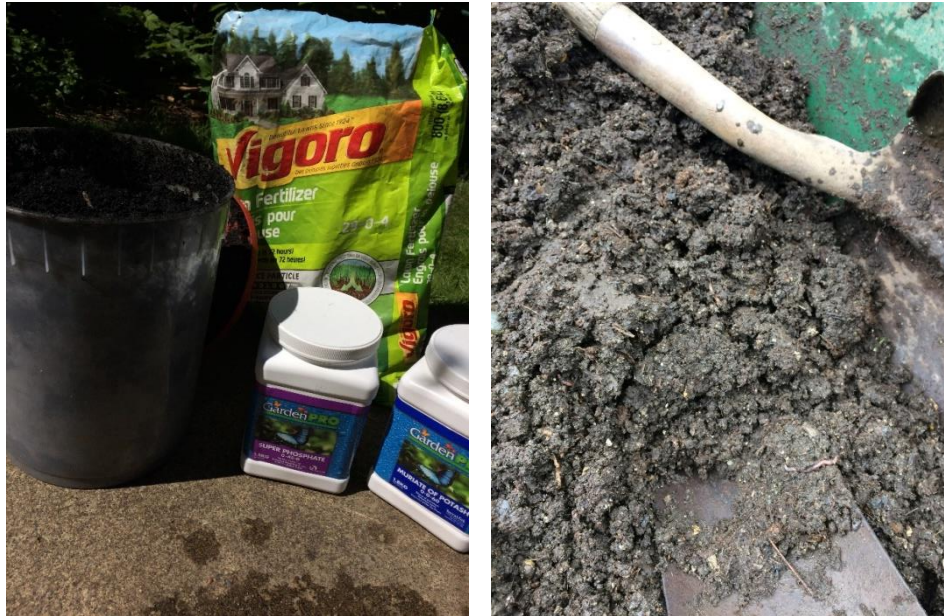
I did the same experiment with some pine nut trees that were grown from seed and the biochar plant is more than double the size of its cohorts. Our cherry tree planted in biochar just turned two years old yet is over eight feet tall. It actually flowered and set fruit! I can't prove anything other than to provide my observations that, in my mind, speak for them-selves. All of our raised beds have been top dressed with biochar this year and we also use it for all plants that are grown in pots.

carbon molecule making them unavailable to the plant. Same with water. If dry, it could suck up all the water in the soil and attach it to the carbon again. I thought it was interesting that one night I left out a tub of biochar when it rained. In the morning, everything had puddles but the tub of biochar was bone dry because it was like a mega-sponge that absorbed all the water.

Biochar can be detrimental to plants in that it can bond with all the nutrients and fix them to the



So how is this stuff made, you ask? Well, this is just the way I do it. First, I prepare 7 litres of powdered charcoal in a big ice cream tub with a good lid. Then I take an assortment of natural ingredients like organic fertilizers, micro nutrients, bat guano, seaweed and a bit of sulphur and use the blender to turn them into a coarse powder. Added to this mix are blended super fertilizers such as 29-0-4, 0-45-0 and 0-0-60. You would almost think I am trying to kill my poor plants with such strong fertilizers but it doesn't end up that way at all.



Once all the ingredients are mixed together they sit in the tub for a couple days and get turned or shaken whenever the opportunity presents itself. This is now a fertilized concentrate that is loaded with nutrients and minerals. Now we are ready for the next step, which is to inoculate the mix with living microbes.

Worm castings are supposed to be the best ingredient for microbes and in the springtime, are readily available. But any good compost would also do. Take one litre of compost or worm castings and mix it in the tub. Add half a litre of flour as food for these microbes to grow and then add about one litre of pure water. This should be well mixed and should be damp but not wet. Set this aside for about four days while the microbes grow exponentially and attach themselves to the enormous surface area of the carbon.

We are almost ready to apply the seventh batch of home made biochar we have made this year. I will sift 60 litres of my best compost into a wheelbarrow and will mix in my loaded and inoculated charcoal from the tub. This mix can be used as a top dressing in existing beds or it can be mixed with soil for planting. It makes a very black soil and any plants that touch this stuff seem to grow like magic.

This entire process can cost around \$25 to \$30 to make and takes about a week. But it only covers about 40 square feet, which is not a lot. At the time of writing, our latest biochar

experiment is under-way with a special Paw Paw tree to see if it can be induced to flower. The biochar will be spread out evenly over the lawn where the tree lives. This will then get a layer of pure compost, then the entire area will be covered by paper to ensure the grass doesn't pop through. This will be covered by regular soil for a couple of inches; then wood chips will be placed on the top to act as a mulch. The concept is to convert the soil from a bacterial biomass into a fungal biomass where these forest plants would normally live in the wild.

I am very pleased with the results observed by concocting and applying this mix...