

# HEALTHY SOIL AMENDMENTS AND SUSTAINABILITY

By Bill West with Jennifer Grebenschikoff – May 2015

After sitting in on a few Whitwam composting classes and reading some articles, I wanted to pass along a comparison of amendments to feed and maintain a healthy productive garden. When we all start at VISTA our plots are filled with some very nice composted soil. We also amended the soil as this purchased soil still has some deficits. (the amendments formula is in our notebook located in the shed) But adding the amendments one time is not enough. Plants consume large amounts Nitrogen, Phosphorous, and Potassium as well as 9 or so other nutrients in smaller even micro quantities. To learn more about these nutrients, (and soil pH), click [here](#).

Over time your garden will need amendments. You will know it by the look of your plants. At this point you have three choices, common synthetic fertilizers, organic (and there is a range in this category) fertilizers, and the third choice, which David feels should be our goal, VISTA made composted material. The common synthetic route seems easy, inexpensive, and readily available at your local retailers. They offer variety of Nitrogen/Phosphorous/Potassium ratios like 5-6-6 and some even have the ratios for specific plants. Wait a minute, why specific ratios for certain plants? Now how do I decide the ratios? Turns out these synthetic fertilizers are quite harsh and getting the wrong ratios can damage some of your plants. Or they can create awesome growth but produce no fruit! Better get that soil analyzed while you are at it as that will throw things off as well! David's analogy is this: You have to cook for a large family reunion. Now consider the various allergies, one is a vegetarian, this one lactose intolerant, this one has celiac –yikes the list goes on! You are going to drive yourself crazy trying to make everyone happy. Your garden is like that, even pickier. For a farmer planting one crop it's easy to dial in the synthetic fertilizers once he has his soil tested, but for our gardens, getting it right with synthetics is a major task.

To add to that task of dialing in the right ratios, your plants also need more than N-P-K. Now I have to test for those and pH. Very complicated. But with synthetics you create additional problems. We all started with healthy living soil but by utilizing the inorganic synthetic fertilizers over time the soil loses its life and a key component that holds nutrients and water, humus. So now much of your inexpensive fertilizer washes away requiring frequent applications and more water. While the synthetic fertilizers make your plants look really pumped up, with less of the other 9 or so nutrients available and nothing to hold them in the soil, they are producing less nutrition.

A lifeless soil also means the plants have no help resisting plant pathogens, which can now thrive in your soil. Time to bring on the fumigants and pesticides and many other abundant petroleum based products. Your soil is depleted and you are now addicted to synthetic amendments. Not only has your family reunion gotten outrageously expensive, but many of your relatives are now sick and need expensive medical treatment! Still thinking you want to use synthetic fertilizers that can burn and kill your soil? Read on...

There are other problems as well. Aside from the high carbon footprint and other environmental and human costs associated with these fertilizers, a high percentage of this very water soluble nitrogen gets flushed into the aquifer and surface water. So much nitrogen makes its way into our waterways that, through the process of

eutrophication, dissolved oxygen is depleted. We now have an estimated 100,000 square miles of dead zone in our coastal areas. Zones completely devoid of any marine life! Most of that is in the Gulf of Mexico. In Carrollwood, homeowners use so much of these fertilizers that as you may have noticed we cannot run our fountains as the ponds are choked out with algae growth. So back to the reunion, as David says, why not make it easy and take them all to the Crazy Buffet. Now that option does not seem quite as expensive as I originally thought! Soil amendments are compatible with living organic soil, have a full range of nutrients, fix the nitrogen, and even add microbes or life. This brew also provides for immediate needs (liquids) and long term needs (granular). If you decide to buy organic fertilizers in the store be sure to look for the OMRI (Organic Materials Review Institute) certified logo. But to get to the Crazy Buffet level, there is another amendment required. Have you noticed the level of your soil going down? Some is settling but some soil is being converted to plants. Eventually aside from an amendment brew you will also have to add soil. David recommends adding composted soil every time you remove a plant and/or add a plant, or a total of about 1 inch of composted soil per season. For a 4' x16' bed that comes to 6 by 5 gallon buckets.

David will gladly sell us all these amendments, but he adds that we have another better choice. Add free amendments, in the form of garden and kitchen waste, to your compost pile. And then add this nutritious, low cost, living, sustainable composted material to your garden. This is the ultimate Crazy Buffet. Click [here](#) to see an excellent article on composting. Compost is a living brew of microbes, nutrients, and 60% humus. (Unpack those chips this is humus not hummus.) Compost made on site is a full spectrum living product that cannot be bought in a store. Packed with microbes this soil works for you 24-7.

Humans have microorganisms in our guts that break down food and provide essential nutrients. We feed them, they feed us. Compost provides/supports similar microbes that work with and communicate with the roots of plants. The plant roots and soil provide food for the microbes and the microbes excrete food for the plants in a form that easily accessible. Get this: if one part of the soil is lacking in nutrients, the microbes communicate this to the plant and stimulate the roots reach out to more nutritious areas! Some fungi's also can move nutrients through the soil as needed. How amazing is that! Also, the microbes in our gut do things to keep us healthy and support our immune system. Same with living compost! These microbes eat or out compete plant pathogens. They get especially good at eating the local plant pathogens when you are composting in the same general area as your garden. Adding compost to our gardens promotes healthier disease resistant plants.

Ok, now we have compost, are we done? Not quite!! Even the Crazy Buffet does not have baby formula.

David has noted that when you put in a seedling, its root system is not integrated with the soil of your garden and is dependent on those liquid amendments it's been fed in the seed trays. So until the roots have reached out into the soil you will have to add some fish emulsion per David's feed-starve cycle\*(See Below). Also see below on seedling hazards!\*\* Next, everyone ate too much and they need to loosen the belt! (running out of analogies) Microbes and roots need oxygen! One of our first lesson's from David, never step onto your garden soil, a compacted soil cannot breathe. David suggests that anytime you can, turn your soil over, and then top dress that area with

composted soil. We know it is hard to pull out what appear to be thriving plants as a particular growing season ends. But, to prepare for the next growing season, it is really important to turn as much soil as possible and mix in composted soil before planting the new season's crops. David says to do this deep turning twice a year.

Lastly, David notes that there is one last analogy at the family reunion: even at Crazy Buffet all goes wrong if Skippy sits by Buffy, who always fight and cry when they are near each other. However we can restore order if we have Aunt Helga sit between them. This is the next subject of David's second Saturday of the month talk in June - Companion Planting! OK I'm out of analogies, do we all agree composting is our future? So where do we go from here. We sort of fell down in our composting efforts. The reason, to quote Hans Jürgen Kutzner, who wrote a completely unreadable scientific article on composting (which is probably common bedtime reading for German children), "Composting has frequently been regarded as more an art than a science; this view, however, ignores the fact that its scientific base is well understood; of course, successful application of the principles requires experience as is more or less true for all applied sciences."