

Soil Gone Bad

At our home we have three small beds for mostly daylilies and some vegetables. The vegetables in the middle bed look stunted and diseased, an embarrassment for someone who's supposed to be a good gardener. I know the soil was almost totally replaced about 3-4 years ago, but I also know the soil I was given wasn't completely composted. Soil that's composting with your plants in it steals nitrogen from them so the first year I wasn't surprised at the poor results. After the second year I was willing to admit there was a problem – I just didn't have the energy to deal with it. But this year my tomatoes in the bed are once again stunted, the lettuce never grew in the spring, and the beet seedlings completely disappeared. The daylilies in the other beds were given horse alfalfa pellets and a few other nutrients each year, but aren't growing as well as ones in another bed. So what to do?

To confirm my guess that we have some really bad soil my first step was to do a soil test. We used a home kit for the soil test so only N (nitrogen), P (phosphorus), K (potassium) and the pH (acidity/alkalinity measure) were included. The levels of nitrogen and phosphorus didn't even register and the potassium level registered as "very low". This was worse than I suspected. The pH was in the 8 range or alkaline range – as expected. Tom's first question was "what do we need to add?" and that brought to mind the topic for this article. Besides compost, what can you add to your soil and what will it do? Note, if you're growing plants like vegetables or daylilies that need more organic matter to grow well, amending is appropriate. Also, these plants prefer a more acidic soil. For plants that grow natively in our existing soil or even Mediterranean plants like lavender and rosemary, using amendments is not necessary or desirable and our alkaline soil is preferred by them.

Choosing soil amendments is like shopping backwards. We know we need to add the macronutrients nitrogen and phosphorus and maybe some potassium, but which products do we buy to add these nutrients? Plus I'd also like to add iron and zinc because Albuquerque soils are typically short these micronutrients.

I chose organic products because they release nutrients slowly and do not burn the plant leaves or roots. They also do not kill the soil microorganisms which are critical to soil health. Here are the products I selected and why. I will use them in the amounts specified on the label for the size beds I have. Most of the products below are made by Soil Mender which is located in Tulia, Texas and are available at the Garden Shop at the Albuquerque Garden Center* on Lomas or other local nurseries – not the big box stores. Soil Mender products are recommended by Howard Garrett, the Dirt Doctor, who's on the radio around Fort Worth.

Yun Yum mix – was formulated locally for clay soil, but contains good sources of nitrogen like alfalfa meal and kelp/seaweed. I consider it a good general purpose soil conditioner. It improves soil tilth (a combination of the soil properties particle size, moisture content, degree of aeration, and rate of water infiltration), plant vigor, and stress resistance.

Cottonseed Meal – acidifies the soil, adds nitrogen and some phosphorus.

Super Phosphate – a rock phosphate that adds phosphorus. I could also have chosen Texas greensand. Triple Phosphate which contains triple the phosphate ties up some micronutrients with the extra phosphate. More of a good thing is not necessarily better for the plants.

Dry Molasses – good for building soil microorganisms.

Planters II – a good source of trace elements aka micronutrients.

Sequestrene – a source of FeEDDHA iron (check the label for this specific type of iron) that works in our alkaline soil.

Humate – a source of aged humus (think millennia) which adds organic matter and trace elements to the soil.

Epsom Salt aka Magnesium Sulfate – will help the plants uptake the other nutrients. I use this in very small amounts because it is a salt and salts are not good for plants. Sometimes I just add a tablespoon to my 2 gallon watering can and water with it.

If I use liquid Fish Emulsion (extracted through cold processing not steam) and liquid kelp/seaweed to fertilize my plants, they should be in good shape. Visit our open garden next year on the 4th of July and we can talk about how this worked.

* I manage this non-profit shop so I know we carry all but one of the amendments mentioned.