To Amend or Not to Amend – That is the Question

This question came up recently and I thought it was a good one. Our soil is very low in organic matter so to grow healthier looking plants do we need to add soil amendments/organic matter? And if we do, what's the best amendment to use? You may not have thought about it, but plants get their nutrients from the soil and because they can't move from where we plant them it takes water to make the nutrients in the soil available to their roots.

To decide if we need to add organic matter we have to know something about the plants we want to grow - like where they come from originally and what conditions they like. So if we want to grow vegetables, which need high levels of organic matter, we'll have to either add organic matter to the soil or create raised beds and fill them with soil that's high in organic matter.

But what if we want to grow chamisa, apache plume, or other plants native to the foothills – do we need to add organic matter to the soil? The answer is "no" because these plants have adapted to the soils we have and adding organic matter will only make them grow bigger, leggy, and floppy or may even kill them because organic matter increases the water holding capacity of the soil. Many Mediterranean plants such as lavender, rosemary, germander, and santolina are also adapted to leaner (less organic matter) soils so no amendment is needed. Soil amendment is needed when we want to grow plants that require more nutrients or accessible nutrients than our soil has.

How do you know what to amend the soil with? Ideally you'd do a soil test to see what's missing and add that ingredient. If you don't do a soil test (the NMSU soil lab is essentially closed now), you can play the odds. Because of the lack of rain in our climate our soils don't contain a lot of rotting, decaying matter, known as organic matter. So our soils are typically very low in nitrogen, have low levels of phosphorus and high levels of potassium. They may also be short of micronutrients like iron or zinc or because of the alkalinity of our soil these nutrients may be in the soil but not be available for plants to use. That's because these nutrients are chemically bound to soil particles. Plants that love acid soil, like blueberries or azaleas can't get enough of the iron so they get chlorosis, a yellowing of the leaf between dark green veins. The solution isn't just adding chelated iron; it's adding the right kind of iron for alkaline soils which is FeEDDHA. Check the label to be sure you're not just wasting money on an iron product that won't work.

Without a soil test you might also have salty soils and not know it. The symptom of salty soil is dry burned leaf edges, the same symptom underwatering creates. Salty soils come from either natural salts in the soil or the overuse of manures – all of which contain salts. To remove salts you have to leach the salts below the plant root level with water, lots of water.

But back to our question of what's the best amendment to add? The answer is compost. You can make your own or buy packaged compost – either works, but if you make your own you know what went into it (e.g. no pesticides or herbicides or no diseased material). It has the ingredients that plants need and when mixed with soil they're in a form that the plant can use. Organic matter fills some of the pore spaces in sandy/rocky soils and opens up pore spaces in clay soils and increases the water holding

capacity. So mix some compost into the soil for plants that need it and do nothing to change the soil for plants that don't. Find more information about soils, soil amendments, fertilizers, and mulch in *Down to Earth – A Gardener's Guide to the Albuquerque Area*, the book about gardening in Albuquerque by the local Master Gardeners.