



SOLID POOP ABOUT FERTILIZING

By Martin Král



It is said that experience is the best teacher. Attributed to Julius Caesar, this ancient maxim finds its proof in my tuber harvest last November. The puny tuber clumps, the diminished size of roots, and the shrunken plant growth in part of my dahlia row made me suspect that something other than invasive roots or poor water supply was responsible for the scanty yield.

A soil test a few weeks later provided the proof: nitrogen levels were abysmal enough, but what really showed up was a pH level that had decreased to 5.3, right in the acidic range. Great for potatoes, not so for dahlia tubers. How did that soil become so inhospitable? Blame copious Northwest rains, blame over-abundant organic matter, heck, blame my fertilizing habits — all those contributed to this deplorable result.

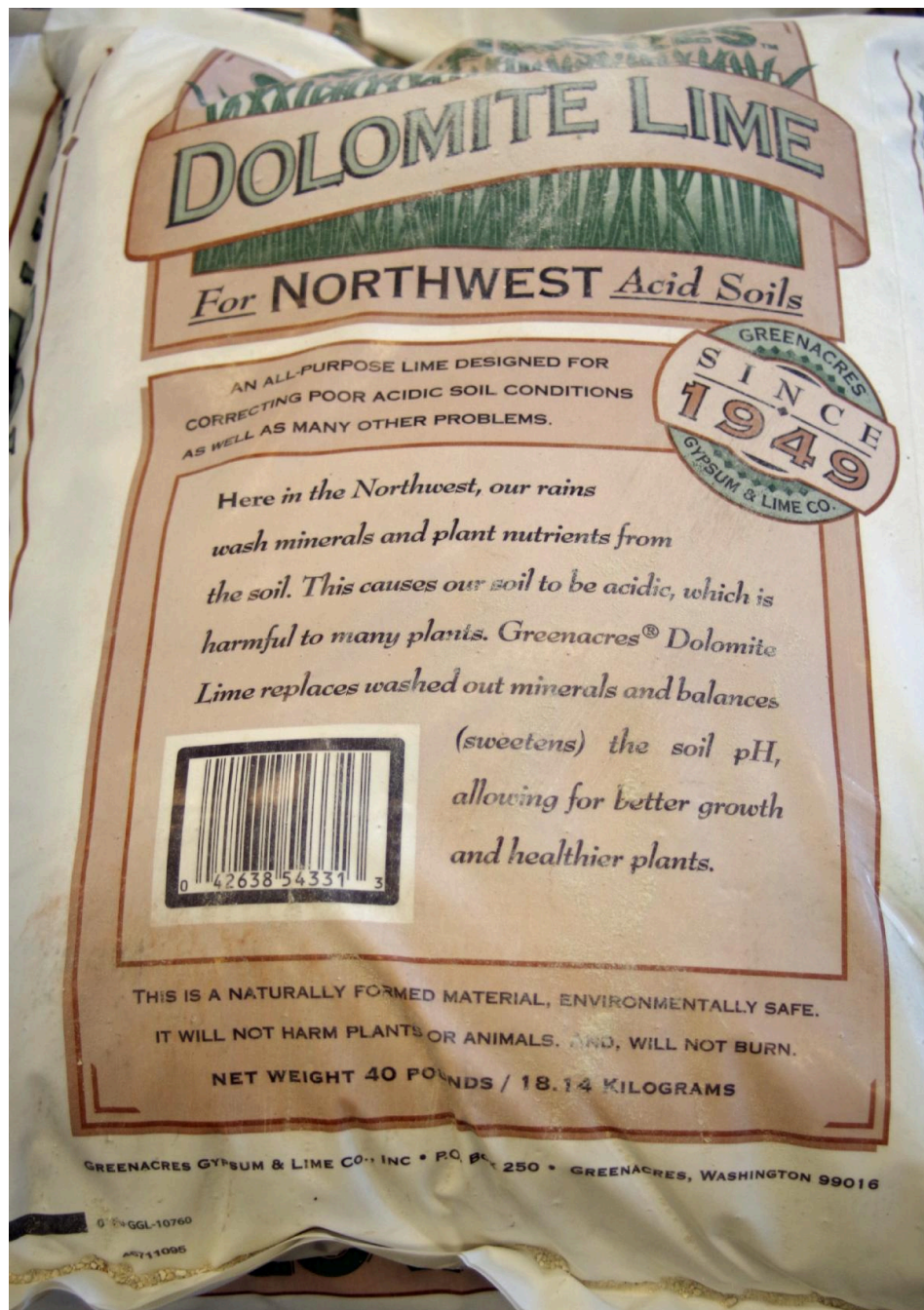
SOIL ANALYSIS - Dahlia Plot					
Year	Feb-18	May-21	Dec-25		Recommended
Nitrogen ppm	5	72	11		100
Phosphorus ppm	236	214	461		
Potassium ppm	312	222	202		
Magnesium ppm	143	121	180		
Calcium ppm	1360	1481	1620		
Sodium ppm	15	11	13		
Soil pH	5.9	5.4	5.3		

When one looks at fertilizers, the familiar NPK formula is one that consumers are focused on. My intention was to provide an initial dose of granular fertilizer at planting time, with liquid applications of 5-1-1 fish fertilizer later in the season. My intention was to boost plants by offering 10-10-10 or even 16-16-16 fertilizers every season. It seemed to work for years, until I learned that balanced NPK fertilizer was not necessary (or even desirable), and that its placement *below* tubers did not provide nutrition to root hairs developing above. Moreover, the soil tests proved that excessive phosphorus and potassium levels could contribute to locking up beneficial sources of other minerals.

A bit of scientific reading and watching pertinent videos would explain what happened. What plants need is not just fertilizer, whether from organic or synthetic sources, but minerals must be made available to them as water-soluble ions. So first a mineral must be converted to that state: phosphorus (P) must degrade to phosphate, potassium or potash (K) needs to become

exchangeable. Actually, very little of that nutrient requires renewal; it is abundant in most soil. So do other trace metals and minerals, despite their trumpeted presence in some fertilizers. As for nitrogen (N), this essential gas gets converted to life-giving nitrates, is regularly depleted in quick order, and so it must be replenished by the gardener. Understandably, sandy soils leach all these nutrients quickly and need texture amendments.

It is a human desire to develop perfect solutions for any problem. That may explain the plethora of fertilizers and addenda in our markets, most of which promise relief from deficiencies in growth or blooming and fruiting. Well, the honest answer to most of these remedies is this: you feed the soil, not the plant. And those plants will take only what they need. The rest of the chemical soup (and it does not matter if sourced from organic or petroleum-based ingredients) is excessive and unnecessary. It may contribute to chemical imbalances in the garden, hasten eutrophication in waterways, and are a waste of money. Our current fertilizer prices are rising due to supply shortage, higher production costs, and the political instability in oil-producing countries and continued warfare. Surging natural gas prices have also led to more costly nitrogen fertilizer pricing, since natural gas is required to produce that. Reportedly, one third of the world's fertilizer supply passes through the Strait of Hormuz, so you need to consider this when eyeing that fertilizer sack.



Robert Pavlis, the author of *Soil Science for Gardeners* (sub-titled “Working with Nature to Build Soil Health”), offers a series of Youtube videos on the subject that are highly recommended. He evaluates common myths about fertilizing, deftly side-steps the organic/synthetic controversy, and aims to save you some money. One notable assessment he provides is to de-mystify NPK ratios.

Turns out that it's not a percentage of those listed components by weight in the bag, a belief that most manufacturers and many authorities contend, but here [Pavlis explains](#):

View also this video on [fertilizer myths](#) and [Clarifying NPK formulas](#),

As for my quick solution, an application of fast-acting dolomite in the recommended amounts will be in order, with regular supply of more calcium in future seasons. Then I'll pay attention to urea nitrogen during the dahlia's growing season. I am still entitled to one more free soil test, I was told.



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