



Good Earth By Martin Král

So you just finished your second fertilizing of the dahlia plot - as recommended by dahlia gurus - and you are now getting ready to enjoy the floriferous bounty that beckons until well into fall. There would be no further need for feeding dahlias because those same experts warned that the tubers plumping underground needed to be hardened for storage. That extra dose of fertilizer just promised more soft tissue, encouraging rot and disease in dahlia tubers during winter's slumber. At most, an application of zero-nitrogen nutrients is recommended to benefit blooming and improve soil health.

Then you hear that all that may be unnecessary and a waste of time and money. A habit of fertilizing at planting or regular intervals, the concerns over bulking tubers, the attention to favorite or secret supplements for growth, bloom, and plant health — is it all just savvy marketing bluster?

As flower lovers we have foremost an appreciation for the plant. What we cannot overlook, though, is the essential importance of the soil that provides the necessary micro-nutrients and moisture for a plant to thrive. Fertilizer feeds the soil, not the plant it supports. A couple of years ago, I invited Prof. David Montgomery, the eminent geomorphologist at the University of Washington, to speak at our dahlia club meeting. He brought along his wife, Anne Biklé (a writer and biologist) to present topics on the interaction between plant life and the subterranean universe of microbes that break down macronutrients into components that plants can use.

Their book, *The Hidden Half of Nature: The Microbial Roots of Life and Health*, was a revelation for us gardeners. Prof. Montgomery - noted for his geological research and authorship of scholarly works like *Dirt: The Erosion of Civilizations* - alerted the world to the fragile existence of top soil on this Earth. He remarked that it takes 800 years to create one inch of usable top soil, the very medium necessary for life on the planet. Remember that whenever a developer's shovel scrapes that thin layer away to build! Anne Biklé focused on the world beneath our feet and its incredibly large population of fungi, bacteria, protists, (and yes, viruses) that inhabit the microbe world beneath. She estimated that there are maybe a

nonillion (a 1 followed by 30 zeroes) of them in the thin crust that sustains life. But who's counting?

Nutrient Element		Normal ppm
Nitrogen	N	20
Phosphorus	P	20-50
Potassium	K	160-200
Magnesium	Mg	50-200



Soil Sample Information Sheet

LAB USE ONLY

LANDOWNER CONTACT INFORMATION

Name

Home Address

Site Address Where Sampled (if different than above)

City

State **WA**

Zip

Phone

E-mail Address

Please print clearly and complete entire form! Results will be e-mailed in about 1 week. ☐ Please check this box if you do not want to be added to KCD's e-mail list.

KCD USE ONLY Submitted to A&L on ____/____/____
King Conservation District
800 SW 39th St, Suite 150
Renton WA 98057
425-282-1900 soiltests@kingcd.org
Office Hours: Monday-Friday 8:30am to 5:00pm
Each resident in the King Conservation District service area is eligible for up to five free soil tests. Additional tests are \$20 each.
Deliver or mail soil samples to our office (address above).
Please see our website or contact our office to determine your eligibility. www.kingcd.org

Please label each sample with your last name and up to five characters. Each sample must be 2 CUPS. More than 3 cups may cause problems with handling, less than 2 cups may cause problems getting an accurate analysis.

☒ Graphics Report ☒ Email Report soiltests@kingcd.org ☐ ☐

SAMPLE ID (up to 5 characters)	TEST PACKAGE (office use only)	Vegetable, perennial, pasture, raised bed, etc.	DETAILED DESCRIPTION (more detailed information about what you are growing)	Please check one		Sample Depth
				Established	New Plant	
-----				☐	☐	0-6"
-----				☐	☐	0-6"
-----				☐	☐	0-6"
-----				☐	☐	0-6"
-----				☐	☐	0-6"

Please let us know how you found out about KCD's Soil Testing Program: _____

Soil Test Form and Results

A & L WESTERN AGRICULTURAL LABORATORIES

10220 S.W. NIMBUS AVE | BUILDING K-9 | PORTLAND, OREGON 97223 | (503) 968-9225 | FAX (503) 596-7702



REPORT NUMBER: 21-137-016

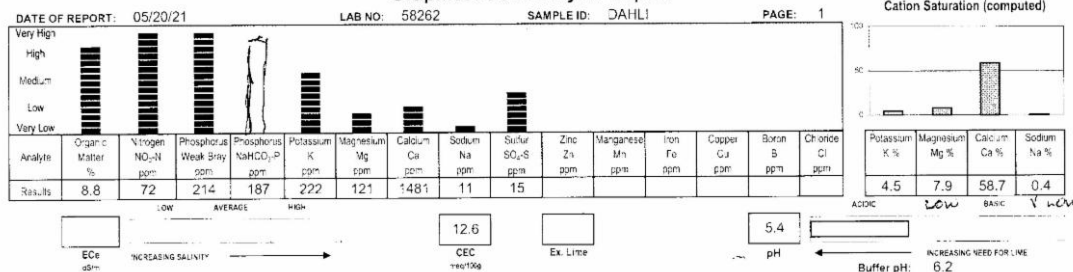
CLIENT NO: 4793

SEND TO: KING CONSERVATION DISTRICT
800 SW 39TH STREET, STE 150
RENTON, WA 98057

GROWER: MARTIN KRAL

SUBMITTED BY:

Graphical Soil Analysis Report



NaHCO₃-P unreliable at this soil pH

Soil Fertility Guidelines

CROP: FLOWERS

RATE: lb/1000 sq ft

NOTES:

Decomite (100 score)	Lime (100 score)	Gypsum	Elemental Sulfur	Nitrogen N	Phosphorus P ₂ O ₅	Potash K ₂ O	Magnesium Mg	Sulfur SO ₄ -S	Zinc Zn	Manganese Mn	Iron Fe	Copper Cu	Boron B
160								0.5					

- C** LIME REQUIREMENT: Liming may be necessary if buffer index is less than 6.9. Guidelines are based upon common agricultural lime (100-score) per six-inch depth to raise SOIL pH to about 6.5.
- O** common agricultural lime (100-score) per six-inch depth to raise SOIL pH to about 6.5.
- M** MAINTENANCE: Split the above amount over the year at a time according to local conditions and requirements. Choose a source that best fits this combination.
- E** SULFATE-SULFUR: Low soil levels may cause yellowing and lack of vigor. Maintain above 15 to 20 ppm to guard against deficiencies. Although, sulfates may have leached below sampling depth.
- T** IF growth is not satisfactory, consider other likely causes such as watering, light and temperature, herbicide residues, soil microorganisms, nematodes or other pests, diseases, & soluble salts.

This report and information are for the exclusive use of the client and may not be reproduced or used in any way without the express written permission of the laboratory. The results of any analysis are based on the samples as received and are not a guarantee of the results. The laboratory is not responsible for the results of any analysis. The laboratory is not responsible for the results of any analysis. The laboratory is not responsible for the results of any analysis.

Rogell Rogers, CCA, PCA
A & L WESTERN LABORATORIES, INC.

Soil Test Form and Results

Without knowing what is needed for good plant growth, we are largely tapping in the dark, following fertilizing schedules or others' timeworn advice. That makes it impossible to estimate whether the supply of nutrients through fertilizer application is beneficial, harmful, or just contributes to runoff pollution. Regular soil testing provides the necessary guidelines for effective crop management. As my example illustrates, while my dahlia plot had plenty of compost, it also had an excess of nitrogen, phosphorus, and potash, all with detrimental effects on dahlias and the environment. With a pH of 5.4 the soil was too acidic to good dahlia development. All those results most likely were due to my habit of tossing high-value granular fertilizer in the planting hole before putting in the tuber —year after year. It could use more magnesium, it notes.

Whether one applies 6-1-1 liquid fish emulsion or (as I did) 16-16-16 granular product, a plant will take up *only as much as it needs*. That low-nitrogen fish concoction preferred by dahlia growers translates into very expensive stimulant, as opposed to high-percentage formula, most of which is wasted that way. Soluble nitrogen, as in urea, gives an immediate boost, while insoluble granular products like my fertilizer take a long time to break down. In fact, well-composted manure provides most of the nutrients a dahlia requires.

Recommended Video. Excess nitrogen just encourages more top foliage and weaker tubers. It also hinders nitrogen-fixing bacteria from their task of breaking down that essential chemical. Fish does offer nitrogen, but it also contains macro-molecules of oils and protein (neither of which is usable to plants but may benefit microbes). Phosphorus already is present in good soil, so more just inhibits iron and zinc needed by plants. It also leaches into waterways to kindle eutrophication. When the substrate is not topsoil but a potting mix or inert media, plan on adding fertilizer, even when potting soil includes slow-release fertilizer.

Let the soil test guide you in application of any amendments or fertilizer. Your county extension service may offer soil testing year-round (and often at no cost). Here in my area the KCDS office provides up to five free tests for residents. There also are commercial labs that can provide comprehensive testing at some cost. And yes, there are any number of soil testing kits in the marketplace and at nurseries, but the self-use tester needs to understand that results from these are quite unreliable. The only proven home sampling kit is the Mysoil

kit (\$32 from mysoiltesting.com) that takes your soil sample to analyze it in the company's lab, then provides detailed results and suggestions.

No matter what soil you have for planting dahlias (friable loam, silty, sandy, or hardpan clay), the more you disturb the micro-organisms' habitat, the less they are effective in supplying the nutrients to the plant roots. Although humans have tilled, plowed, raked, and double-spaded their plots for eons, Anne Biklé explained that – other than making soil more porous and suitable for seeds and plants - there is little benefit in upsetting the well-interconnected organic community below hard at work.

The entire growing substrate could not succeed without adequate water supply. A copious rainy season will (for some time) fill the open crevices between the soil strata, but for growing crops successfully - while taking advantage of the micro-nutrients deployed by critters in the soil - regular moisture is the very essence of life. This applies in particular to heavy-feeders like dahlias.

We'll address this topic in another month.



Graphics by Vida Wu

[Registration is open!](#)

Plan to join us September 18 - 22, 2025!

Dahlia Talk Co-Authors
Martin Kral and Dianne Reitan
at the Rocky Reach Dam in Wenatchee, WA

