WALLACE LABORATORIES, LLC
365 Coral Circle
El Segundo, CA 90245
phone (310) 615-0116 fax (310) 640-6863

December 22, 2020

Conor Davis, conor@CaliforniaSoils.com
California Soils, Inc.
PO Box 345
Westley, CA 95387

RE: Topsoil Blend, Our ID No. 20-356-13
Received Dec. 18, 2020

Dear Conor,

The pH is fairly high at 7.810 Salinity is high at 5.33 millimho/cm. Chloride is high at 1,262 parts per million in the saturation extract. Boron is 0.48 part per million in the saturation extract.

Mineral nitrogen is modest. Phosphorus, potassium, iron, manganese, zinc, copper, and magnesium are high. Soluble calcium is moderate. Sodium is moderate. SAR (sodium adsorption ratio) is 6.9. The concentrations of common non-essential heavy metals are low. Aluminum is moderate.

Aluminum restricts growth by interfering with the metabolism of phosphorus and calcium. It causes stunting and discoloration. Foliage may turn a dull gray green. Aluminum is high in poorly aerated soil and in overly acidic soils. Soluble calcium helps to reduce the toxicity of aluminum.

The organic matter content based on organic carbon is 9.43% on a dry weight basis. The carbon:nitrogen ratio is 18.8.

mesh	millimeter	percent passing	percent retained
2	12.5	100.0%	0.0%
4	4.75	100.0%	0.0%
10	2.00	91.9%	8.1%
14	1.41	89.6%	2.3%
16	1.19	88.4%	1.2%
20	0.84	85.9%	2.5%
28	0.59	81.6%	4.3%
32	0.50	77.5%	4.1%
40	0.42	73.3%	4.3%
48	0.30	54.6%	18.7%
Pan		0.0%	54.6%

The as-received bulk density is 58.9 pounds per cubic foot. Saturated bulk density is 77.8 pounds per cubic foot.

The rate of water percolation is 15.7 inches per hour.

The cation exchange capacity is 18.3 milliequivalents per 100 grams. Exchangeable potassium is high. Exchangeable magnesium is modestly high. Exchangeable calcium is moderately low. Exchangeable sodium is moderate. Exchangeable hydrogen is low.

Recommendations

Irrigate deeply. Reduce chloride to less than 150 parts per million in the saturation extract for salt-sensitive plants. Lower the SAR.

Increase nitrogen after lowering the salinity. Ammonium sulfate (21-0-0) can be used. It is a soil acidifier.

Monitor the plantings with periodic testing of the media and tissue analyses of the plants. Periodically apply nitrogen as needed.

Sincerely,

Garn A. Wallace, Ph. D.
GAW:n

WALLACE LABS	MEDIA REPORT	Print Date	Dec. 21, 2020	Receive Date	12/18/20
365 Coral Circle	Location	California Soils, Inc.			
El Segundo, CA 90245	Requester	Conor Davis			
(310) 615-0116	graphic interpretation: * very low, ** low, *** moderate				
	* * * * high, * * * * * very high				

ammonium bicarbonate/DTPA

extractable - mg/kg soil

Interpretation of data

low medium high

Sample ID Number		20-356-13	
Sample Description		Topsoil Blend	
	elements		graphic
0 - 12 16 - 28 32 - 44	phosphorus	173.40	*****
0-240 240-500 500-700	potassium	2,039.28	*****
0- 12 12- 20 over 20	iron	60.11	*****
0 - 2 3 - 4 over 5	manganese	27.54	****
0 - 4 4 - 6 over 6	zinc	27.35	****
0- 0.5 0.6 - 1 over 1	copper	7.54	*****
0 - 1 1 - 2 over 2	boron	1.77	***
	calcium	1,005.80	***
	magnesium	574.42	****
	sodium	585.13	***
	sulfur	177.04	**
	molybdenum	0.07	**
	nickel	0.94	*
The following trace	aluminum	2.72	***
elements may be toxic	arsenic	0.27	*
The degree of toxicity	barium	1.12	*
depends upon the pH of	cadmium	0.18	*
the soil, soil texture,	chromium	0.05	*
organic matter, and the	cobalt	0.23	*
concentrations of the	lead	2.40	*
individual elements as well	lithium	0.06	*
as to their interactions.	mercury	n d	*
	selenium	n d	*
The pH optimum depends	silver	n d	*
upon soil organic	strontium	4.89	*
matter and soil content-	tin	0.09	*
	vanadium	0.70	*
under 5 may be too acidic			
6 to 7 may be good	Saturation Extract		
over 8.0 is too alkaline	pH value	7.81	****
The ECe is a measure of	ECe (milli-mho/cm)	5.33	*****
the media salinity:			millieq/l
good at 200 ppm	calcium	157.5	7.9
good at 25 ppm	magnesium	81.0	6.7
	sodium	426.6	18.5
good at 25 ppm	ammonium as N	0.7	0.1
good at 150 ppm	potassium	947.9	24.2
	cation sum		57.4
problems over 150 ppm	chloride	1,262	35.5
good at 100 ppm	nitrate as N	14.5	1.0
good at 40 ppm	phosphorus as P	3.3	0.1
toxic over 800	sulfate as S	204.5	12.8
	anion sum		49.5
toxic over 1 for many plants	boron as B	0.48	***
increasing problems start at 3	SAR	6.9	****
est. gypsum requirement-lbs./cubic yard		10	
	infiltration rate inches/hour	15.65	
	Total Nitrogen, dry weight basis	0.25%	
	Total Carbon, dry weight basis	4.71%	
	Carbon:Nitrogen Ratio	18.8	
	lime (calcium carbonate)	no	
	organic matter, dry weight basis	9.43%	
	as received bulk density (lbs/ft3)	58.9	
	saturated bulk density (lbs/ft3)	77.8	
	moisture content of media	19.8%	
	half saturation percentage	42.9%	

ideal percentages of cations				% saturation
abt 5 %	potassium	millieq K	2.68	15%
< 3%	sodium	millieq Na	0.54	3%
abt 70%	calcium	millieq Ca	9.50	52%
10 - 15%	magnesium	millieq Mg	5.52	30%
5-10%	hydrogen	millieq H	0.04	0%
	total millieq/100 grams		18.29	

mesh	millimeter	percent passing	percent retained
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Elements are expressed as mg/kg dry soil or mg/l for saturation extract.

pH and ECe are measured in a saturation paste extract. nd means not detected.