SOIL HEALTH

LINDEE LOVE

GROW WEST PCA/CCA

OVERVIEW OF PRESENTATION

What Is Soil Health?

Understanding Your Soil – Soil Analysis

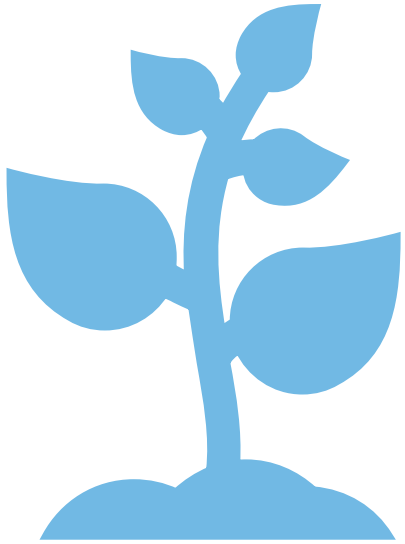
Common Soil Amendments

Amendment Timing, Form, Crop Removal Rate, Budgeting

WHAT IS SOIL HEALTH?

Soil health, also referred to as soil quality, is defined as the continued capacity of soil to function as a vital living ecosystem that sustains plants, animals, and humans.

-NRCS



UNDERSTANDING YOUR SOIL

Tools:

- Laboratories – Soil/Tissue analysis
- PCA/CCA
- Soil Survey – NRCS
- Books – Western Fertilizer Handbook, Hands on Agronomy, etc.

- Prioritize Importance of Deficiencies Needing Correction
  - Have a budget in mind to make decisions.

STEPS TO CONSIDER

1

Determine the deficiencies within the soil – prioritize.

2

Determine budget - what can or can't you do. Make a plan – treat over several years to reach desired goal? Pre-Plant? In-season?

3

Decide when or how to apply it…drip, broadcast, foliar.

- Remember goals need to align with expectations. Ex – Want results this season vs long term.
- Also need to think of crop removal rate:

  N: 2.9 lb/ton

  P: 0.5-1 lb/ton

  K: 7.5-8.3 lbs/ton

Kinsey Agricultural Services, Inc.

315 State Highway 77 - Charleston, MO 63834
Phone 573-683-3880 Fax 573-683-6227 e-mail office@kinseyag.com

Client: GROW WEST / LINDEE JONES City : UKIAH, CA Date : 26-May-21

			Previous Analyses & Applications		
Location	[redacted]				
Crop	WINE GRAPES /				
Field / Sample	NORTH / D[redacted]				
Lab No.	B0192		3/20/2020	4/24/2015	
Total Exchange Capacity (M.E.)	30.14		32.93	32.44	
Desired Ca : Mg, Percent	69 : 11				
pH of Soil Sample	7.7		7.3	7.1	
Humus Content, Percent	4.0		3.3	4.1	
		Before K-Disp. Test: TEC = 38.05; Ca = 50.21; Mg = 41.34; K = 4.13; Na = 0.56	Original Lbs/acre Value Found: Ca = 7642; Mg = 3775*; K = 1225; Na = 98		
BASE SATURATION PERCENT			% K-D	% K-D	%
Calcium (60 to 70%) } 80%	63.39		67.17	63.72	
Magnesium (10 to 20%)	26.96		23.86	24.34	
Potassium (2 to 5%)	5.21		4.64	7.09	
Sodium (.5 to 3%)	0.71		0.22	0.54	
Other Bases (Variable)	3.73		4.11	4.31	
EXCHANGEABLE HYDROGEN (10 to 15%)	0.00				

				RECOMMENDATIONS							
				Amendment	Lbs/Acre						
ANIONS	NITROGEN Lbs/Acre	ENR Value	90	APPLY NITROGEN AS NEEDED							
	SULFATE - S p.p.m.	Value Found	77			Val Found	43	Val Found	30		
	PHOSPHATES as (P2O5) Lbs/Acre	Desired Value Olsen Value Value Found Deficit/Surplus	750 359 1931 +1181	NONE		Val Found	1871	Val Found	1734		
						Amend	added	Amend	added	Amend	added
	CALCIUM Lbs/Acre	Desired Value Value Found Deficit/Surplus	8198 7642 -556	GYPSUM (a)	2000						

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	SULFATE - S p.p.m.	Value Found	77		
	PHOSPHATES as (P2O5) Lbs/Acre	Desired Value Olsen Value Value Found Deficit/Surplus	750 359 1931 +1181	NONE	
CATIONS	CALCIUM Lbs/Acre	Desired Value Value Found Deficit/Surplus	8198 7642 -556	GYPSUM (a)	2000
	MAGNESIUM Lbs/Acre	Desired Value Value Found Deficit/Surplus	868 1950 +1082	NONE	
	POTASSIUM Lbs/Acre	Desired Value Value Found Deficit/Surplus	1763 1225 -538	POTASSIUM SULFATE (b) (c) (d)	250
	SODIUM Lbs/Acre	Desired Value Value Found Deficit/Surplus	139 98 -41		
TRACES	Boron Iron Manganese Copper Zinc	p.p.m. p.p.m. p.p.m. p.p.m. p.p.m.	2.57 97.70 101.35 1.99 19.49	NONE FE SULFATE 21% (e) (f) (g) NONE CU SULFATE 23% (h)	400 10
	Molybdenum	p.p.m.	0.76	SODIUM MOLYBDATE (i)	7.5 oz

Field / Sample	NORTH / DC
Lab No.	B0192
Total Exchange Capacity (M.E.)	30.14
Desired Ca : Mg, Percent	69 : 11
pH of Soil Sample	7.7
Humus Content, Percent	4.0
BASE SATURATION PERCENT	
Calcium (60 to 70%)	63.39
Magnesium (10 to 20%) } 80%	26.96
Potassium (2 to 5%)	5.21
Sodium (.5 to 3%)	0.71
Other Bases (Variable)	3.73
EXCHANGEABLE HYDROGEN (10 to 15%)	0.00

What to think about…

- pH heading towards alkaline levels
- Base saturation shows adequate K% - in season apply crop removal rate.
- P levels on the high side
- Want the base saturation % 69:11, to bring Ca up – add gypsum.
- Fe – in season drip & foliar fertilizer.
- Mo foliar fertilizer – Pre-bloom
- Copper Pre-bloom & if red varietal veraison for color dev.

EXAMPLE:

Potassium Deficiency Options:

-Drip In season: Organic/Conventional – SOP

Conventional – KTS/SOP

-Compost in the fall - Organic/Conventional if K & P levels are deficient.

PERSPECTIVE

6 Ton/Acre Crop:

- N: 17 lbs N/acre
- P: 6 lbs P/acre
- K: 48 lbs K/acre

8 Ton/Acre Crop:

- N: 23 lbs N/acre
- P: 8 lbs P/acre
- K: 64 lbs K/acre

10 Ton/Acre Crop:

- N: 29 lbs N/acre
- P: 10 lbs P/acre
- K: 80 lbs K/acre

Things to consider:
-This does NOT include what the vines need for winter storability, vine development/vine structure – leaves, wood, roots. Only crop removal rate is listed above.

GENERAL SOIL AMENDMENT OPTIONS FOR ORGANIC & CONVENTIONAL GROWERS

Gypsum	• Tends to lower pH, typically 440 lbs Ca/ton
Lime	• Raises pH, typically 640 lbs Ca/ton, 20 lbs Mg/ton
Dolomite	• Raises pH typically, 440 lbs Ca/ton, 240 lbs Mg/ton
Compost	• Know sources, nutrient analysis, quality, note moisture content.

A & L WESTERN AGRICULTURAL LABORATORIES

1311 WOODLAND AVE #1 • MODESTO, CALIFORNIA 95351 • (209) 529-4080 • FAX (209) 529-4736

REPORT NUMBER: 21-228-189 CLIENT NO: 3546-D

SEND TO: COLD CREEK COMPOST, INC.
6000 POTTER VALLEY
UKIAH, CA 95482-

SUBMITTED BY: MARTIN

CUSTOMER: AB

LAB NO: 22525 DATE: 08/23/2021

ORGANIC FERTILIZER REPORT

SAMPLE ID	REPORT OF ANALYSIS IN PERCENT									REPORT OF ANALYSIS IN PARTS PER MILLION						
	Nitrogen N	Phosphorus P	Phosphate P_2O_5	Potassium K	Potash K_2O	Sulfur S	Magnesium Mg	Calcium Ca	Sodium Na	Iron Fe	Aluminum Al	Manganese Mn	Copper Cu	Zinc Zn	B	
AB	2.09	0.35	0.80	0.810	0.976	0.720	0.540	3.290	0.120	10100	3308	476	93	195	34.0	

SAMPLE ID	POUNDS OF NUTRIENTS / TON															
	Nitrogen N	Phosphorus P	Phosphate P_2O_5	Potassium K	Potash K_2O	Sulfur S	Magnesium Mg	Calcium Ca	Sodium Na	Iron Fe	Aluminum Al	Manganese Mn	Copper Cu	Zinc Zn	B	
AB	41.8	7.0	16.0	16.2	19.5	14.4	10.8	65.8	2.4	20.2	6.6	1.0	0.2	0.4	<0.1	

☐ **Reported on an as-received basis** **Moisture =**

☒ **Reported on a dry basis** **Moisture =** 35.23%

pH = 8.1
C:N Ratio = 16:1
Soluble Salts = 6.0 dS/m
Organic Matter = 56.72 %
Chloride = 0.26 %

Remarks: To convert to pounds of nutrients/ton as received, multiply pounds of nutrients/ton as reported by (100 - moisture %)/100.

(100-35.23)/100=.6477
N=41.8 lbs N/ton*.6477 = 27 lbs N
P=16 lbs P/ton*.6477 = 10.3 lb P
K=19.5 lb K/ton*.6477 = 12.6 lb K

This report applies only to the sample(s) tested. Samples are retained a maximum of thirty days after testing.

Robert Butterfield
A & L WESTERN LABORATORIES, INC.

THINGS TO CONSIDER…

- Dry, Liquid, & Foliar Fertilizers – timing for each is dependent upon goal.
- Cover Crop – Fall, just prior or after harvest.
  - Soil Builder, Max–N, Nematode, or Erosion Mix. Should align with goals or pertain to your ranch.
- Reduced Tillage – reducing passes in a field via grazing.
- Soil Conditioners
  - N-Texx, Vermi-Extract, etc. added to the program to inoculate microorganisms in the ecosystem.

WHAT TO EXPECT…

Amending the soil is an investment for the future…

It takes a lot to change the top 6” of soil.

You must be patient; these things take time…

Thank you!

Lindee Love

Grow West PCA/CCA

Feel Free to contact me at:

llove@growwest.com

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