

SOIL HEALTH & NUTRIENT TEST QUICK GUIDE*



CLIMATE ZONES, RAINFALL ZONES and SOIL ORDERS-SUBORDERS

1 Soil Health Factors: Traits associated with ecological functioning are shown numerically along with ranking based on historical values. Soil quality factors do not necessarily relate directly to crop production.

Climate Zone, Rainfall Zone and Soil Orders-Suborders are used to adjust interpretation.

2 Overall Fertility Score integrates soil health factors with mineral nutrients, so it produces an overall score that should compare favorably with crop production and soil quality. High soil quality is indicated by a score close to 100, which is rare. Values above 60 are optimal. The Potential Score is seen as a red line on chart which is what is expected for the region and soil type.

3 Soil Health Score is compounded from the key soil health factors which include physical, biological and nutrients; an excellent score for a Prairie Soil could be 50 but the optimal score is seen as the red line which is based on the local soil conditions (see below *How is the health score calculated*).

4 Cover Crop Recommendations
Generally high NO₃ soils get grass recommendation and low SLAN soils get legume. The choice should also be based on season and total available-N.

How is the soil health score calculated?

Six independent factors (from **1** and **5**) are used to calculate a health score with the matrix shown below.

Factor Measured	Example	Highest Expected	Max Score	Result
Solvita CO ₂ Burst mg/l	19	300	50	3.2
Solvita Fertility Color (units)	2.55	5.5	50	23.2
SLAN - Labile amino-N mg/l	45	400	50	5.6
VAST Stable Aggregates Vol%	39	80	50	24.4
Water Soluble Carbon mg/l	239	400	50	29.9
Organic Matter g/100g	5.35	7.0	50	38.2
Total Soil Health Score - averaged for 6 factors:				20

* A full interpretation guide comes with every soil test

Powered by:
SOLVITA

SOIL FERTILITY & HEALTH AUDIT

SAMPLE REPORT

Location: CA

1 Solvita® Soil Health Factors

		RANKING:
CO ₂ Respiration, C mg/liter	19	Low
Solvita Fertility Color (0 - 5)	2.55	Low
SLAN - Labile amino-N mg/l	45	Low
VAST Stable Aggregates Vol %	39	Medium
Soil Dry Bulk Density g/cc	1.10	Optimal
Organic Matter	5.35	Med-High

Account / Sample ID: 2345/ 10000.0
Rainfall Zone: 5 / MOJAVE DESERT
Soil Orders: Aridsol-Argids / Entisol-Orthents
Your Sample: Soil: Garden 1
Rec'd / Reported: 01/Apr/19 | 04/Apr/19
Intended Crop: General Crops

Available, Biological and Storage Nutrients				Est. Value
	N	P2O5	K2O	\$/ acre
Est. Available:	61	293	2594	\$ 1,162
Est. Crop Use:	75	35	35	
DEFICIT:	14	0	0	

2 **67**
OVERALL FERTILITY SCORE
RED LINE IS REGION-EXPECTED VALUE

3 **20**
SOIL HEALTH SCORE
RED LINE IS REGION-EXPECTED VALUE

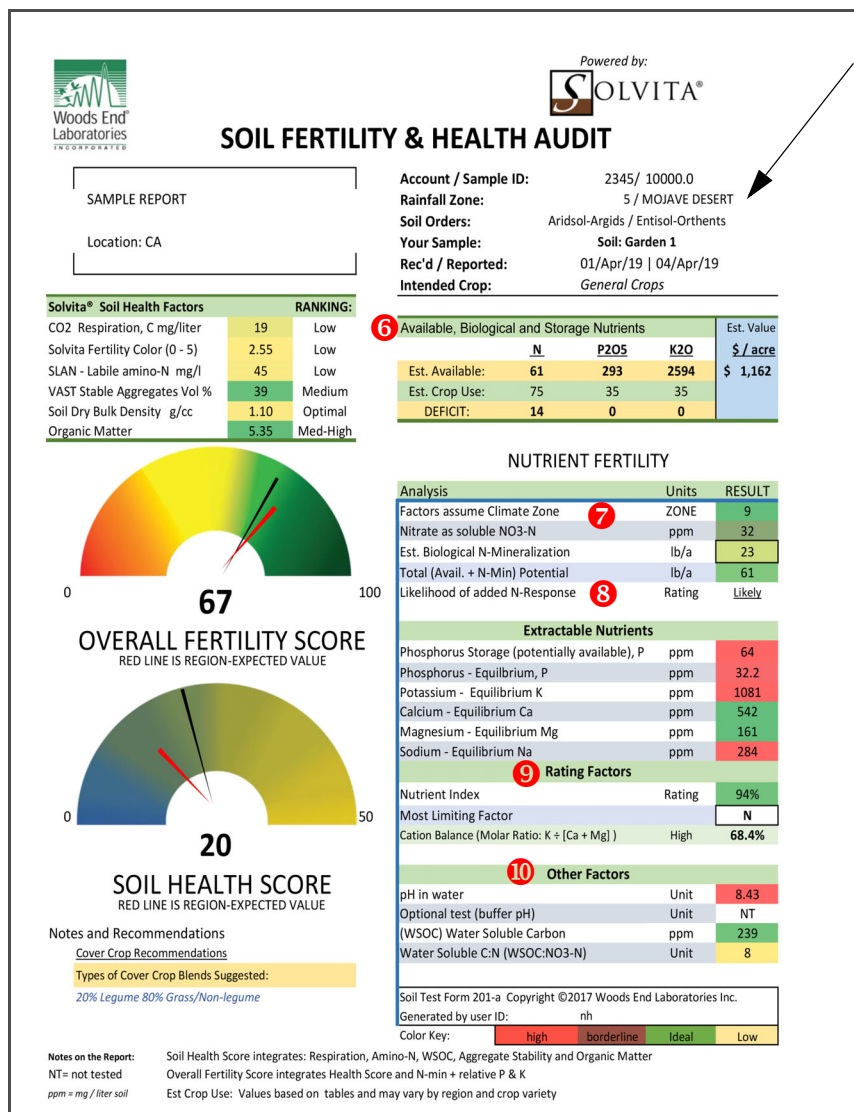
4 Notes and Recommendations
Cover Crop Recommendations
Types of Cover Crop Blends Suggested:
20% Legume 80% Grass/Non-legume

5

Analysis	Units	RESULT
Factors assume Climate Zone	ZONE	9
Nitrate as soluble NO ₃ -N	ppm	32
Est. Biological N-Mineralization	lb/a	23
Total (Avail. + N-Min) Potential	lb/a	61
Likelihood of added N-Response	Rating	Likely
Extractable Nutrients		
Phosphorus Storage (potentially available), P	ppm	64
Phosphorus - Equilibrium, P	ppm	32.2
Potassium - Equilibrium K	ppm	1081
Calcium - Equilibrium Ca	ppm	542
Magnesium - Equilibrium Mg	ppm	161
Sodium - Equilibrium Na	ppm	284
Rating Factors		
Nutrient Index	Rating	94%
Most Limiting Factor	N	
Cation Balance (Molar Ratio: K + [Ca + Mg])	High	68.4%
Other Factors		
pH in water	Unit	8.43
Optional test (buffer pH)	Unit	NT
(WSOC) Water Soluble Carbon	ppm	239
Water Soluble C:N (WSOC:NO ₃ -N)	Unit	8

Soil Test Form 201-a Copyright ©2017 Woods End Laboratories Inc.
Generated by user ID: nh
Color Key: High borderline Ideal Low

Notes on the Report: Solvita Health Score integrates: Respiration, Amino-N, WSOC, Aggregate Stability and Organic Matter
NT= not tested Overall Fertility Score integrates Health Score and N-min + relative P & K
ppm = mg / liter soil Est Crop Use: Values based on tables and may vary by region and crop variety



Climate Zones, Rainfall Zones, Soil Order-Suborders: All values are noted. Climate zone + rainfall is used to adjust the N-min results. Soil Orders adjust the expected soil health score. The **intended crop** is used for estimating nutrient requirements.

6 AVAILABLE, Crop Use and Deficit: Shows the available and potential biological nutrients your crops may have access to. **CROP USE:** the nutrients your crop is expected to use based on yield factors and ordinary USDA uptake tables. **DEFICIT:** What you may need to provide in addition.

7 Nitrogen Factors: Nitrate-N is reported along with Biologically available N calculated from microbial rate and climate zone.

8 Likelihood of N-response is based on the quantity of organic amino-N (SLAN) which is closely related to the natural N-supplying ability of soils not accounted for by available-N and indirectly related to soil respiration.

9 RATING FACTORS: Nutrient Index (0 - 100) approaches 100 if all major nutrients appear close to optimum. **Most Limiting Factor** will be either N, P or K or none if all are present in sufficient mass.

10 OTHER FACTORS:
1) **pH** is measured in 1:2 water extract. Optional is pH buffer used to estimate the need, if any, for limestone supplementation.

2) **Water Soluble Carbon** indicates amount of *free or soluble carbon* believed to originate from biological factors such as plant root exudates and solutes from decaying organic matter and manure additions. This fraction is considered desirable. **Water Soluble C:N** is the ratio of this soluble-C to the total available N. This either indicates potential immobilization (if C:N is high or >20) and C-sequestration or excessive soluble nitrogen and/or net loss of carbon if C:N is very low (<10). C:N should be adjusted by season with higher C:N in fall over winter.

NOTES: Soil extraction uses two methods, one to obtain total availability and similar to Bray P2 or Mehlich-1, and equilibrium nutrients based on the Swiss saturated CO2 method, shows *very active* nutrients (K, P, Na) that have been already released into the water-soluble pool.

Value of N-P-K: The economic value used in the nutrient tables (6) are based on USDA estimated costs of pure N-P-K and are intended purely to appreciate the potential value of nutrients already present in soil in contrast to any additional amounts which may be required. The actual cost of nutrients depends on their form and obviously manures and organic nutrients carry different pricing mechanisms.

* a full interpretation guide comes with every soil test