



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 are used to adjust interpretation.

2 Overall Fertility Score integrates soil health factors with mineral nutrients, producing a score that should compare favorably with crop productivity. High quality is indicated by a score close to 100, which is rare. Values above 60 are optimal. The Potential Best 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 based on the key soil health factors including respiration, amino-N, aggregates, bulk density and OM and does not directly correlate to crop productivity. The maximum attainable score is seen as the Red Pointer and the lowest expected score is the Blue Pointer. All are based on local soil and climate factors (see below “How is the health score calculated”).

4 Cover Crop Recommendations

Generally high nitrate soils get a grass recommendation and low SLAN soils get a legume choice. This is only a suggestion and should be based on the season and current crops.

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	74	300	50	12.3
Solvita Fertility Color (units)	4.1	5.5	50	37.3
SLAN - Labile amino-N mg/l	75	400	50	9.4
VAST Stable Aggregates Vol%	11	80	50	6.9
Water Soluble Carbon mg/l	83	400	50	10.4
Organic Matter g/100g	3.15	7.0	50	22.5
Total Soil Health Score - averaged for 6 factors:				16

* A full interpretation guide comes with every soil test

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FERTILITY & LOCAL SOIL HEALTH AUDIT

SAMPLE REPORT

Location PA

Account / Sample ID: 2222 / 11111.0
Rainfall Zone: 40 / PIEDMONT
Soil Orders: Alfisol-Udalfs / Ultisol-Udults / *
Your Sample: Soil: PA Farm
Rec'd / Reported: 14/Oct/19 | 24/Oct/19
Intended Crop: Corn-120

Nutrients as: lb/a				Est. Value
	N	P2O5	K2O	\$ / acre
Supply:	93	58	65	\$ 99
Crop Use:	120	60	90	
Needed:	27	2	25	

1 Solvita® Soil Health Factors RANKING:

CO ₂ Respiration, C mg/liter	74.0	Optimal
Solvita Fertility Color (0 - 5)	4.10	Medium
SLAN - Labile amino-N mg/l	75	Medium
VAST Stable Aggregates Vol %	11	Low
Soil Dry Bulk Density g/cc	1.02	Optimal
Organic Matter	3.15	Medium

2

57

OVERALL FERTILITY SCORE
RED LINE IS REGION-EXPECTED VALUE

3

16

SOIL HEALTH SCORE
BLUE & RED INDICATE REGION-EXPECTED RANGE

4

Notes and Recommendations
Cover Crop Recommendations
Types of Cover Crop Blends Suggested:
40% Legume 60% Grass/Non-Legume

5

NUTRIENT FERTILITY

Analysis	Units	RESULT
Factors assume Climate Zone	ZONE	6
Nitrate as soluble NO ₃ -N	ppm	2
Est. Biological N-Mineralization	lb/a	91
Total (Avail. + N-Min) Potential	lb/a	93
Likelihood of added N-Response	Rating	Likely

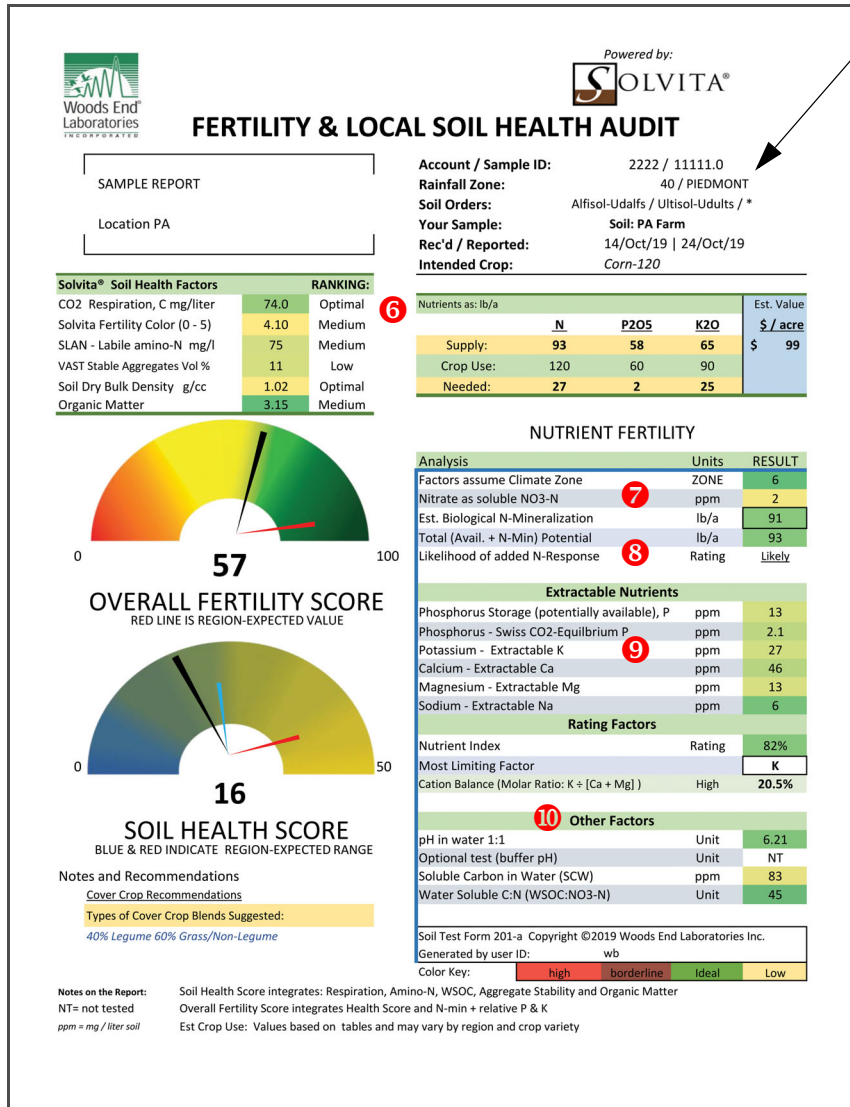
Extractable Nutrients		
Phosphorus Storage (potentially available), P	ppm	13
Phosphorus - Swiss CO ₂ -Equilibrium P	ppm	2.1
Potassium - Extractable K	ppm	27
Calcium - Extractable Ca	ppm	46
Magnesium - Extractable Mg	ppm	13
Sodium - Extractable Na	ppm	6

Rating Factors		
Nutrient Index	Rating	82%
Most Limiting Factor		K
Cation Balance (Molar Ratio: K + [Ca + Mg])	High	20.5%

Other Factors		
pH in water 1:1	Unit	6.21
Optional test (buffer pH)	Unit	NT
Soluble Carbon in Water (SCW)	ppm	83
Water Soluble C:N (WSOC:NO ₃ -N)	Unit	45

Soil Test Form 201-a Copyright ©2019 Woods End Laboratories Inc.
Generated by user ID: wb
Color Key: high borderline Ideal Low

Notes on the Report: Soil 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 and Soil Suborders: Soil orders pulled from SSURGO maps. Climate zone + rainfall based on national spatial charts and are used to adjust the N-min results. Soil Orders set the baseline and target soil scores. The **intended crop** is based on client information and is used as a guide for Crop Use.

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 (adjust per user needs). **DEFICIT:** What you may need to provide in addition to what is already present.

7 Nitrogen Factors: Nitrate-N is reported along with Biologically available N calculated from microbial rate and climate zone. The Total combines 60% of the available pool and all the estimated biological pool.

8 Likelihood of N-response is based on the quantity of organic amino-N (SLAN) that is present and the probability that your soil and crops would respond to additional nitrogen.

9 MINERALS/ RATING FACTORS:

Phosphorus (storage) vs Equilibrium-P total storage may include fixed forms of P; equi-P is what is immediately available in the water pool caturated with CO2. **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 (not including biological N). This either indicates potential immobilization and C-sequestration (if C:N is high or >20) or excessive soluble nitrogen and/or net loss of carbon if C:N is very low (<10). C:N interpretation should be adjusted by season.

NOTES: Soil extraction uses two methods, one to obtain storage + available (Mehlich-1) and equilibrium P based on the Swiss saturated CO2 method.

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