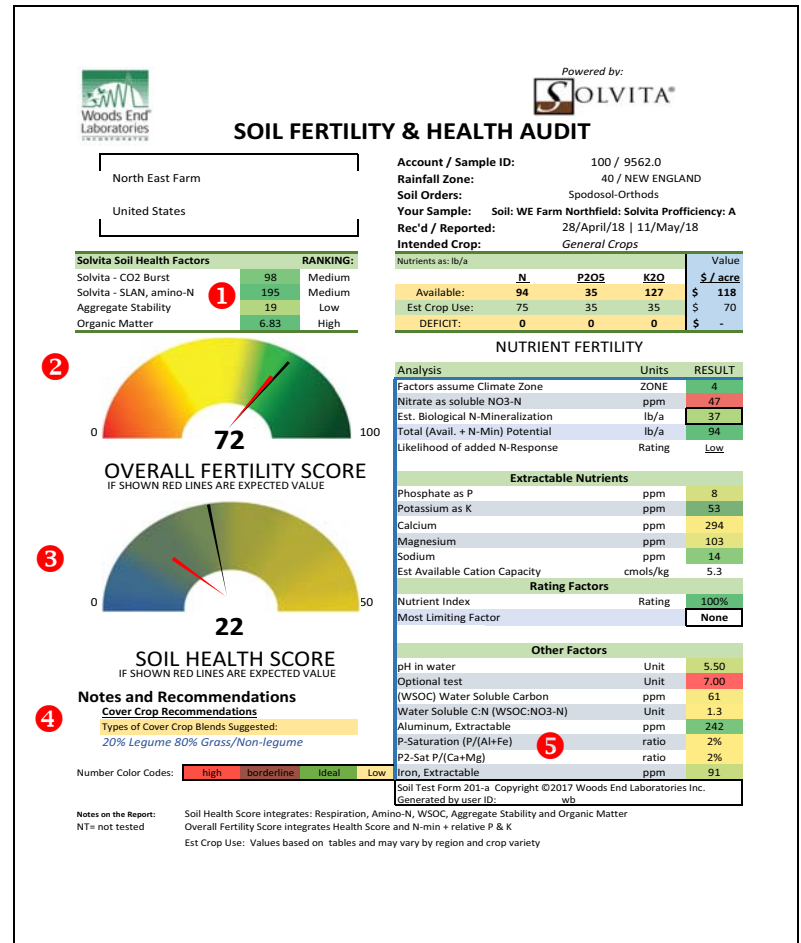


1 Soil Health Factors are the sum of microbial, organic and physical traits related to soil biological functioning shown numerically and with their categorical rating compared to all past samples tested. Climate Zone, Rainfall Zone and Soil Orders-Suborders are used to adjust the interpretation of these levels since there is no single national standard.

2 Overall Fertility Score integrates nutrient sufficiency with the biological health score. High soil quality is indicated by a score close to 100, which is rare. Values above 60 are very good.

3 Soil Health Score integrates only key biological and physical traits; a perfect score is 50 and 25 is good (see below *How is the health score calculated*).

4 Cover Crop Recommendations provide a general guide based on level of soil health with the lower health scores getting the highest legume ranking. The choice should also be based on season and total available-N.

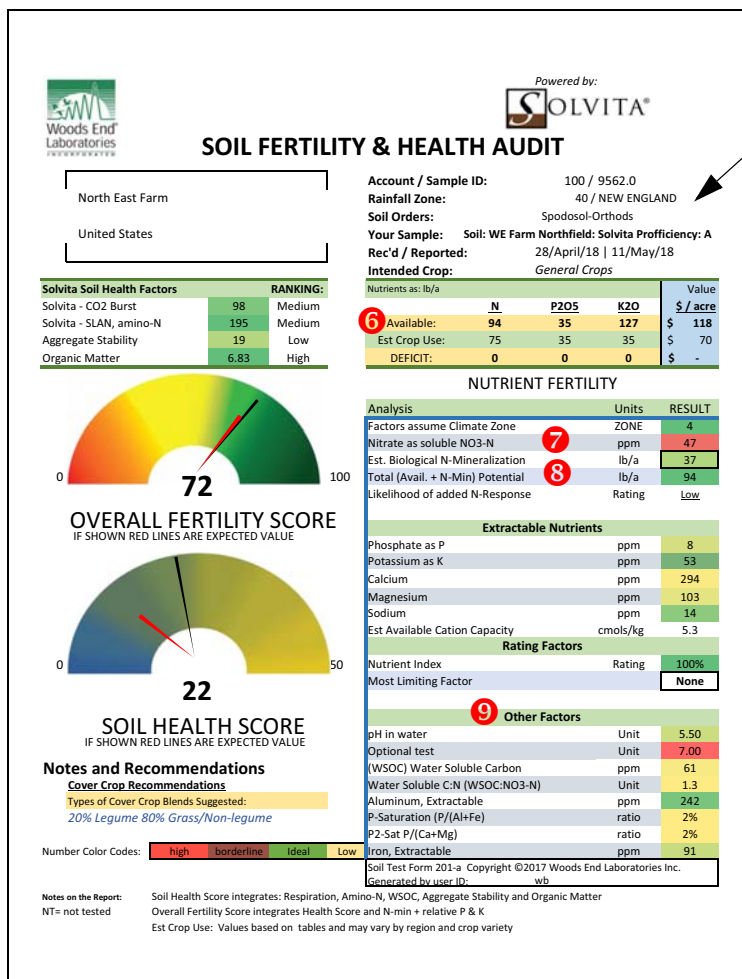


How is the soil health score calculated?

Five independent factors (see 1 + 5) are used to calculate a health score with the matrix shown below.

Factor Measured	Example	Highest Expected	Score if at Highest Value	Result
Solvita CO2 Burst (Respiration)	98	300ppm	50	16.4
Solvita SLAN (Amino-N)	195	400ppm	50	24.4
Aggregate Stability	19	80%	50	11.9
Organic Matter	6.8	7.0%	50	48.8
WSOC (see other factors)	61	400ppm	50	7.6
Total Soil Health Score - averaged for 5 factors:				21.8

* a full interpretation guide comes with every soil test



NEW: Climate Zones, Rainfall Zones and American Soil Order-Suborders are noted. Climate zone is used to adjust the N-min results and interpretations. The **intended crop** is used for estimating nutrient requirements, which should be adjusted to local conditions.

6 AVAILABLE, Crop Use and Deficit: very readily available + potential biologically susceptible 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.

7 Nitrogen Factors: Nitrate-N and Biologically available N (calculated from microbial rate and climate zone) are shown.

8 Likelihood of N-response is based on the quantity of organic amino-N (SLAN) which is strongly correlated with the natural N-supplying ability of soils not accounted for by available-N or soil respiration.

Phosphate is indicated by traits including free aluminum and iron (Al+Fe) and bases (Ca+Mg) all of which temporarily bind phosphate. If P is sufficient and the P-saturation ratios are normal (>5) it is *unlikely* more P is required.

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.

9 OTHER FACTORS:

1) **pH and buffer-pH** are common tests (1:2 water extract and Woodruff buffer) and are used to estimate the overall soil reaction and the need, if any, for limestone supplementation. Buffer-pH and lime estimates will be made optional as of 2018.

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 very positive. **Water Soluble C:N** is the ratio of this soluble-C to the total available N. This either indicates potential immobilization potential (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).

3) **P-Saturation** is a means to estimate the likelihood of phosphorus being partly tied up by Al+Fe at low pH and P2-saturation indicates if Ca+Mg may temporarily tie up phosphorus at higher pHs. The saturation ratios are used to modify the estimation of a need for more phosphate.

NOTES: CEC and Cations: The weak soil extraction method shows *potentially very active* nutrients (K, P, Ca, Mg, Na). This extraction only removes pool of cations believed to be very readily available and not the total amount commonly used for CEC and base saturation calculations. The *available CEC* is calculated from this weak cation 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.