

Submitted for **Soil Health Add Test**

## SOIL HEALTH ASSESSMENT

SAMPLE ID: FWY2				
Soil Health Score	35.6	0 - 9	10 - 29	30 - 50
Solvita CO2 Respiration ppm	123.8	0 - 60	61 - 150	151 - 300
C:N Ratio	4	0 - 7	8 - 19	20 - 30
Total Carbon ppm	205.5	0 - 149	150 - 300	301 - 400
Total Nitrogen ppm	47.8	0 - 24	25 - 60	61 - 100
Mineralizable N ppm	99.0	0 - 4	5 - 100	101 - 150
Mineralizable P ppm	48.5	0 - 2	3 - 35	36 - 60

### Soil Health Score

Calculated by combining five measurements of the soil, including microbial respiration and the availability of carbon and nitrogen, into a simple number that ranges from a low of 0 up to 50. Increasing this score indicates an improvement in Soil Health. Scores above 20 are considered very good. Higher respiration rates or lower C:N ratios increase the score.

### Solvita CO2

Measures the respiration rate of the soil micro-organisms. A dry sample is allowed to absorb water and is kept in a sealed chamber for 24 hours. This one-day Solvita CO2 measurement predicts the average respiration rate in the soil under normal conditions. Increasing respiration values are a sign of vigorous microbial growth. Respiration could be improved by stimulating microbes with the addition of organic matter, readily available nutrients, or biological products.

### C:N Ratio

Measures the availability of the two most important nutrients for micro-organisms in the soil. Carbon is used as an energy source and nitrogen is a requirement for building proteins and enzymes. A desired C:N ratio for a productive soil with 3 to 5 % organic matter would be around 10 or 12. The right balance of carbon and nitrogen is important. A high number is not better in this case! Low ratios can be improved with the addition of decomposable carbon. High ratios can be improved with the addition of Nitrogen.

### Total Carbon

Used in determining the C:N ratio, soluble carbon is the energy source that stimulates biological activity in the soil. These sugars and carbohydrates that are secreted from plant roots are readily used by micro-organisms for growth when these populations die, the larger carbon compounds remain as part of the organic matter.

### Total Nitrogen

Used in determining the C:N ratio, this water extraction includes organic forms of nitrogen such as, soluble organic matter, proteins and other byproducts of decomposition, as well as inorganic nitrate and ammonium nitrogen. This soluble nitrogen is easily leached from the soil with water movement or can be converted to gas if the soil is saturated with water. Organic forms of nitrogen are converted to inorganic forms as byproducts of the biologic processes naturally occurring in the soils.

### Mineralizable Nitrogen and Phosphorus

Estimates the potential release from organic sources of these elements. Mineralizable N comes from the easily decomposable organic material in the soil such as the microbial biomass or manure and plant residues. If the Solvita value rises above 50 and the C:N ratio is in the range of 8:1 to 15:1 this organic matter will release increasing amounts of N for plant uptake. Mineralizable P increases in the same way as the Mineralizable N because the source of this available P is the same easily decomposed organic matter in the soil. Fertilizer recommendations can be adjusted to account for this release by subtracting from the amounts indicated in the fertilizer guidelines (for mineralizable P multiply by 2.3 to convert to P2O5).

### Graph Legend

	optimal
	outside of optimal range

SAMPLE ID: FWY8				
Soil Health Score	36.5	0 - 9	10 - 29	30 - 50
Solvita CO2 Respiration ppm	123.8	0 - 60	61 - 150	151 - 300
C:N Ratio	4	0 - 7	8 - 19	20 - 30
Total Carbon ppm	233.4	0 - 149	150 - 300	301 - 400
Total Nitrogen ppm	54.0	0 - 24	25 - 60	61 - 100
Mineralizable N ppm	100.2	0 - 4	5 - 100	101 - 150
Mineralizable P ppm	35.1	0 - 2	3 - 35	36 - 60

SAMPLE ID: FWY12				
Soil Health Score	35.9	0 - 9	10 - 29	30 - 50
Solvita CO2 Respiration ppm	105.9	0 - 60	61 - 150	151 - 300
C:N Ratio	4	0 - 7	8 - 19	20 - 30
Total Carbon ppm	197.6	0 - 149	150 - 300	301 - 400
Total Nitrogen ppm	52.8	0 - 24	25 - 60	61 - 100
Mineralizable N ppm	78.5	0 - 4	5 - 100	101 - 150
Mineralizable P ppm	3.0	0 - 2	3 - 35	36 - 60