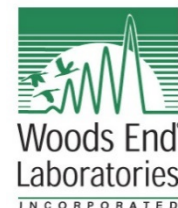


SOIL CARBON ANALYSIS

BUILDING CARBON FUTURES.



WOODS END OFFERING CARBON QUANTITATION

Soil carbon content is of growing significance as it relates to soil quality and potential atmospheric CO₂ storage. Woods End now offers a new set of tests designed to better quantify this feature. Carbon is very dynamic in agriculture, forming the backbone of soil humus as “organic matter” but also constituting about 50% of all living dry matter and plant litter. In soil, carbon may also be present as limestone (CaCO₃). The Woods End test distinguishes the organic from inorganic forms by a unique, dual-oven process designed especially for soil testing. Woods End’s carbon report combined with information about soil biological CO₂ provides a meaningful and comprehensive evaluation of soil composition and quality.



FIGURE 1 Porcelain “soil boats” ready for insertion into dual combustion ovens

Traditionally, carbon in soil has been only estimated by imprecise methods including wet chemistry and ashing. The most common test is soil combustion, often called “LOI”. The result is most generally reported as “organic matter”. It is not accurate for it relies on the very small weight differences before and after burning soil at varying temperature. An increasing number of studies show that the variability and inter-lab variance can be high at 30 – 70%. This means that tracking soil quality over time by OM tests is of limited usefulness. To improve on this situation Woods End Labs has installed more specialized, modern equipment designed specifically for quantitative soil carbon monitoring. To tackle the accuracy and precision issue,

we use larger soil samples in “oven boats” and attain a potential level of precision of ± 0.001 %TC. This makes carbon future tracking doable and much more interesting.

There is no fixed relationship of total soil carbon to important biologically active CO₂ so carbon testing does not end here. The amount of carbon in organic matter correlates with microbial respiration, which governs soil crop response, especially in soils with recent organic additions. In the Woods End soil report (Table 1) carbon is related to other including active biological CO₂, amino-N and aggregates, all part of the biological score (Table 1).

[When requesting a soil test, you still have a choice of the new carbon assay (“TC”) or the traditional OM test, or both. Just indicate this in the test form when the soil is sent to the lab.]

TABLE 1 Total Organic Carbon integrated into report with biological and physical quality factors

Solvita® Soil Health Factors		RANKING:
CO ₂ Respiration, C mg/liter	43.9	Med-Low
Solvita Fertility Color (0 - 5)	3.51	Medium
SLAN - Labile amino-N mg/l	100	Medium
VAST Stable Aggregates Vol %	1	Low
Soil Dry Bulk Density g/cc	0.97	Optimal
Total Carbon	1.85	Medium

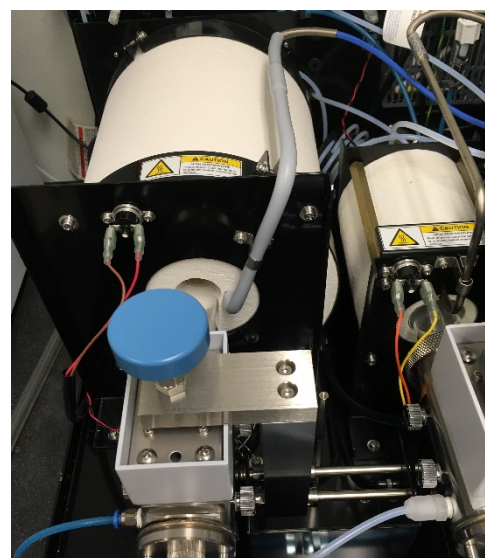


FIGURE 2 Dual Ovens give Total Carbon (TC – left at 900 °C) and Inorganic C (right at 200 °C in H₃PO₄).