



knowledge to grow

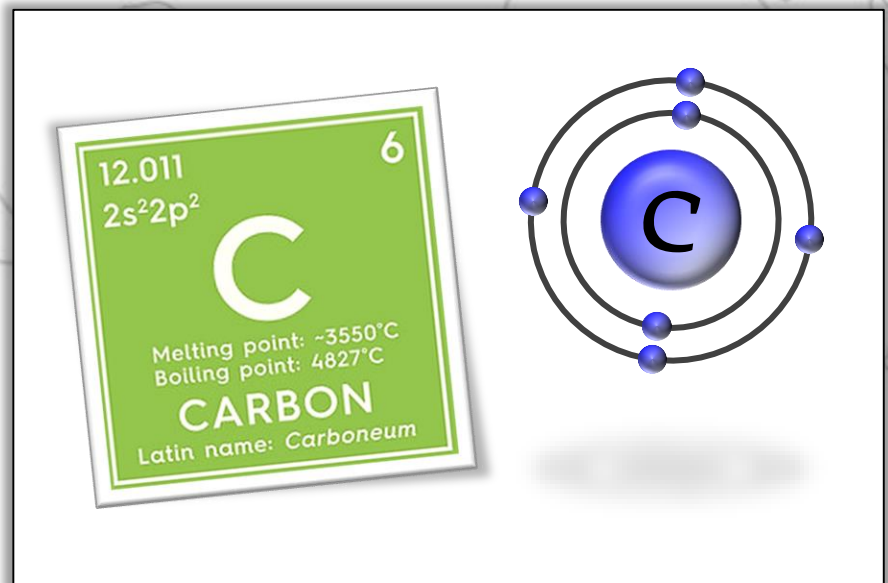


What is Water-Extractable Organic Carbon (WEOC)?

Water-extractable organic carbon (WEOC) is a measure of the amount of organic carbon that can be extracted from soil using a water-based solution (Haney et al., 2008). WEOC investigates the easily available forms of organic matter in the soil, which can be taken up by plants and used for growth.

WEOC is a reliable indicator of soil health because it provides information on the quality and availability of soil organic matter. Soil organic matter is a critical component of healthy soils, as it helps improve soil structure, water-holding capacity, and nutrient cycling. Soil organic matter is essential for maintaining healthy soils, as it provides a source of energy for soil microorganisms, which play a key role in nutrient cycling and soil fertility (Haney et al., 2008; Munroe et al., 2018). Additionally, organic matter helps to improve soil structure and water-holding capacity, which can help mitigate the impacts of drought and improve plant growth (Haney et al., 2012).

By measuring the amount of WEOC in soil, scientists and farmers can gain insight into the quality and availability of soil organic matter that is readily available for plant uptake and soil microorganisms, which can help inform management decisions and improve soil health (Haney et al., 2012). WEOC measurements alone do not provide a complete picture of soil health, as soil health is a complex and multi-faceted concept that encompasses many physical, chemical, and biological properties. Other factors such as soil structure, microbial activity, and nutrient balance need to be considered when evaluating soil health.





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A study by Six et al. (2002) found that increasing soil carbon can improve plant growth and productivity. The organic matter in soil carbon provides a source of nutrients, such as nitrogen and phosphorus, that are essential for plant growth. Additionally, the carbon in soil helps to retain water in the soil, making it available for plant roots to absorb. This can be especially important in drought-prone regions.

Soil carbon also contributes to soil health by increasing soil stability and reducing erosion. According to a study by Fang et al. (2015), soils with high levels of organic matter have a higher capacity to resist erosion, which can prevent the loss of valuable topsoil. The improved structure of soil with high carbon levels also enhances its ability to retain water and nutrients, making it more fertile and able to support plant growth.

References:

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