



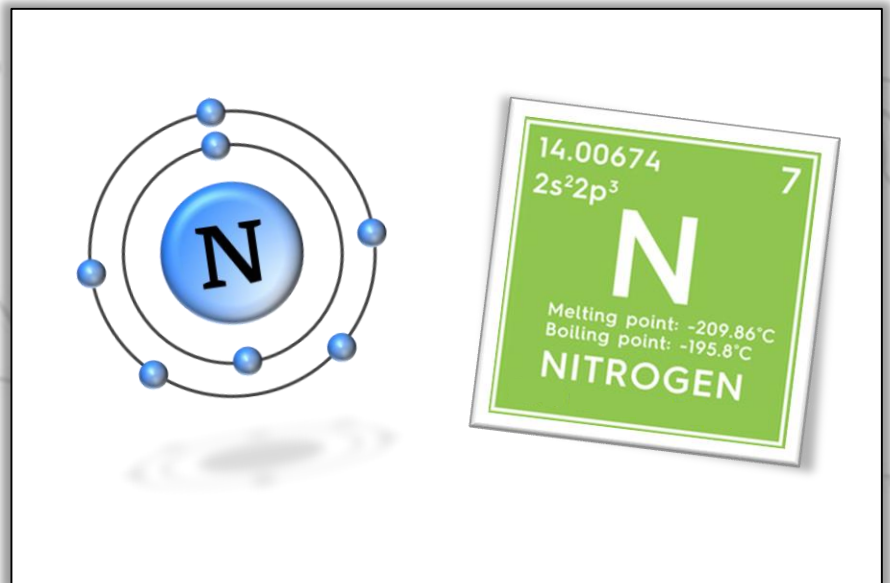
knowledge to grow



Water Extractable Organic Nitrogen

Water-extractable organic nitrogen (WEON) is the amount of organic nitrogen that can be extracted from soil using a water-based solution.¹ Organic Nitrogen (N) is found in soil organic matter and is the largest pool of N in soil. Except this form of N is not readily available to plants as it needs to be mineralized into forms that can easily be taken up by plants. Mineralization is influenced by soil temperature, pH, and the presence of microorganisms.^{1,4} The testing and extraction procedure for WEON is described in the Haney et al., 2008 and 2012 papers.^{2,3} It is quite useful because the WEON being measured reflects the easily available forms of organic matter in the soil, that contains soil nitrogen, and which can be taken up by plants and used for growth.³

WEON can be an indicator of soil health because it provides insight into the quality and availability of soil organic matter, which is a critical component of healthy soils as it helps improve soil structure, water-holding capacity, and nutrient cycling.³ However, WEON 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 should also be considered when evaluating soil health.³ WEON testing is typically paired with measurements of water-extractable organic carbon (WEOC) to provide a more holistic view of the soil health.³



We've explored the topic of soil nitrogen more deeply in a separate posting in this Factsheet Series.



Did You Know?

We use a wide assortment of chemicals that are needed to test soil. When some of these chemicals are exposed to oxygen in the air for a long duration, they begin to undergo changes that make them inactive or react violently.

Since nitrogen gas (N₂) is odourless, tasteless, colourless, and most importantly it is an inert gas, we use N₂ to safely store sensitive chemicals in completely oxygen-free containers.

Now you know...despite being named N₂, it is our N.1 choice for helping to preserve the chemicals we need to test soil.

References:

1. Don, A., Barber, D.A., Beare, M.H. 2002. Soil nitrogen mineralization and nitrification. *Advances in Agronomy*, 77, 1-102.
2. Haney, R. L., et al. (2008). "Soil Health: An Integrated Concept." *Advances in Agronomy*, vol. 97, pp. 1-54.
3. Haney, R. L., et al. (2012). "The Soil Health Assessment and Management Toolbox." *Advances in Agronomy*, vol. 116, pp. 183-219.
4. Paul, E.A., Clark, F.E. 1996. *Soil Microbiology and Biochemistry*. Academic Press, San Diego, CA.