



Harnessing the Power of Data with Soil Scout

Helsinki, Finland: Golf courses are more than just expensive green spaces; they are meticulously curated eco-systems that demand precise care and management.

For turf professionals, maintaining these landscapes isn't just about aesthetics: it's about ensuring playability, sustainability, and longevity in the face of increasing environmental, financial, and legislative challenges.

And while turf managers are well-versed in the art and science of their work, in an industry where every decision can impact playability – and the bottom line – access to a full spectrum of critical data points is now more critical than ever.

There's no question the vast majority of what data-driven turf professionals do is already spot on. They know their courses and the unique challenges of their environments better than anyone.

However, this is only part of the equation. To truly justify the actions they need to take to keep golf courses open, healthy, and playable to management teams, members, and regulatory bodies, they need to gather data points that demonstrate the impact of their work.

Soil moisture has long been a critical go-to metric, but there's more of the story to tell:

- **Moisture Retention:** Too much or too little water can be detrimental, but the key is understanding how much moisture your soils can hold before they become waterlogged, as this will guide your hand when it comes to aeration practices, drainage, and root health management. This data point needs to be interpreted in context with other metrics and actions.
- **Nitrogen Levels:** Vital for turf growth, but its application must be carefully managed. Turf managers that develop an understanding of how nitrogen interacts with other factors like soil moisture and temperature will be able to optimise its use for plant health.
- **Soil Temperature:** High temperatures can stress plants and increase water loss, while low temperatures can slow growth and increase susceptibility to disease. Monitoring temperature in conjunction with other data points helps turf managers make informed decisions about irrigation, aeration, and chemical applications.
- **Salinity:** Soil salinity affects how plants can uptake water and nutrients, and a gradually rising salinity trend is a strong incentive to re-evaluate current irrigation strategies. High salinity can lead to poor water



Picture by Soil Scout.

uptake, even if moisture levels are adequate, which stresses the turf and affects root development. High salinity areas such as links courses and arid regions place salinity management as a higher priority compared to other regions.

Soil oxygen levels have rarely been measured to date, yet they are vital to plant root health. Soil oxygen enables root respiration, a process absolutely crucial to all vital functions. Inadequate oxygen levels through waterlogging, compaction, or inadequate pore spacing can lead to root suffocation, reduced growth, and increased vulnerability to disease.

As turf professionals face growing pressure to reduce chemical inputs and return to traditional agronomy practices like optimising irrigation, cleanliness of cut, and aeration, understanding soil oxygen levels is becoming increasingly important.

Graphing root zone oxygen concentration can potentially demonstrate the need for (and effectiveness of) actions like aeration and irrigation to stakeholders who may not fully understand the complexities of turf management.

The future of golf course management lies in the hands of those who can harness the power of data to inform their decisions. In today's rapidly changing environment, turf professionals must go beyond the basics and integrate decision-making based on advanced metrics like soil oxygen levels into their management practices.

By doing so, they will not only improve the health and playability of their courses, but also secure the trust and support of the institutions, management teams, and members who rely on their expertise.

Collecting the right data isn't just about keeping courses green; it's about ensuring that they remain a vital part of our communities for generations to come.



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