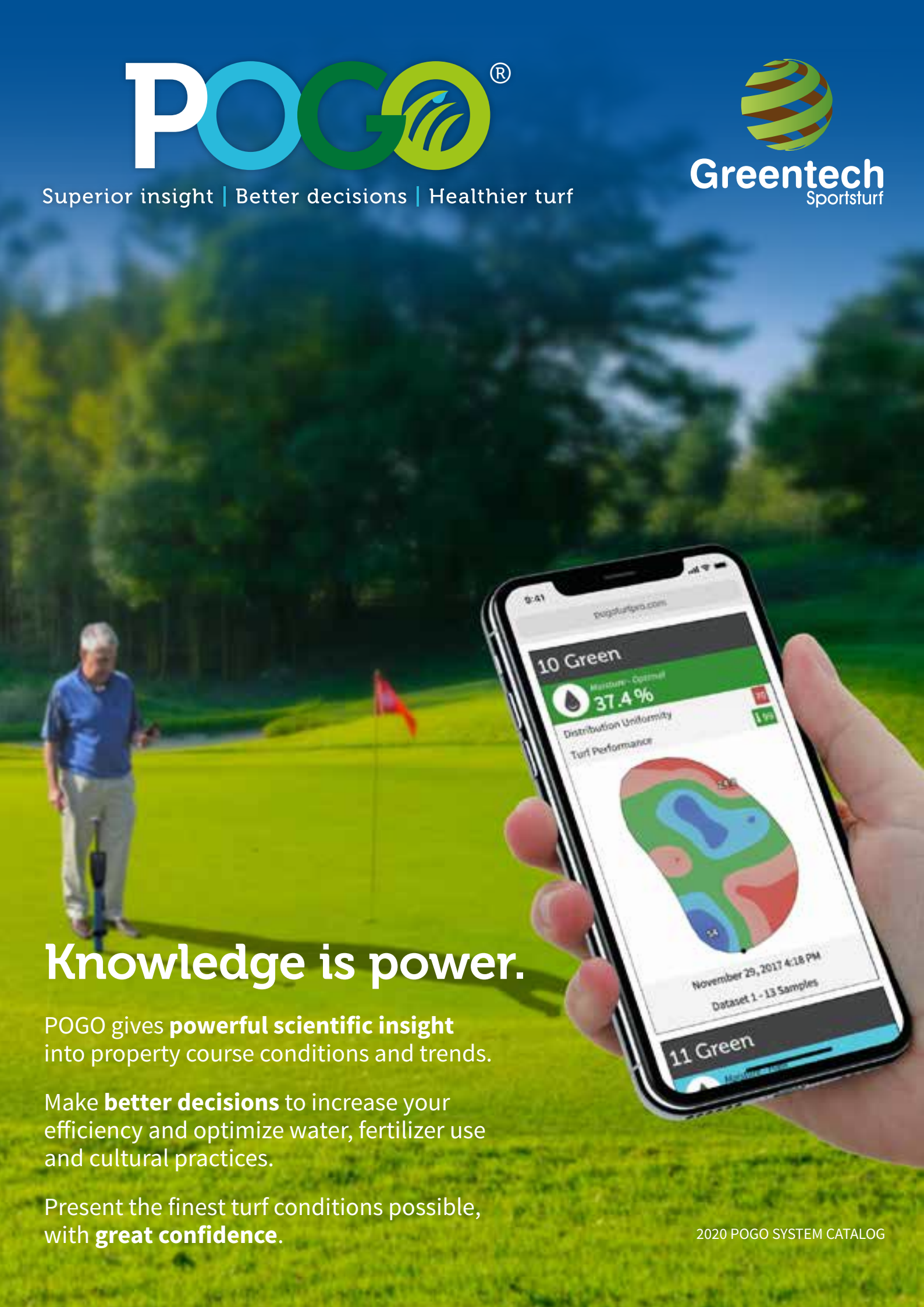
POGO®

Superior insight | Better decisions | Healthier turf

Greentech Sportsturf



Knowledge is power.

POGO gives **powerful scientific insight** into property course conditions and trends.

Make **better decisions** to increase your efficiency and optimize water, fertilizer use and cultural practices.

Present the finest turf conditions possible, with **great confidence**.

No other system gives you this level of analysis and insight

(without even leaving the turf)

POGO Pro+

PROPER DECISIONS

POGO TurfPRO Mobile

POGO TurfPRO Cloud

POGO Pro+

Only the POGO Pro simultaneously measures all of the most influential factors that govern turf performance with a patented sensor and science-based analysis. Because it has its own pro-quality GPS, measurements are recorded at the sub-meter level so the areas of stress are pinpointed precisely on your green. *Page 4.*

POGO TurfPRO mobile

This free iOS or Android app turns your smartphone (or tablet) into a data acquisition and logging system that collects, displays and instantly analyzes data measured by the wirelessly-connected POGO, utilizing the powerful TurfPro Cloud in sync. *Page 6.*

POGO TurfPRO Cloud

POGO TurfPRO analyzes data captured by the app, then presents the results of multiple analyses of your data instantly, automatically and visually. Illustrated information visualizes trends and allows you to see problems forming before symptoms appear—so you can react before it becomes costly. *Page 8.*

POGO is a professional, all-in-one system obtaining superior insight into course conditions, allowing better decisions to be made efficiently and cost effectively for presenting the finest conditions possible.

The POGO system takes a holistic approach to measuring the most influential factors that ultimately determine course quality and turf performance. Its patented technology is unparalleled in precision and accuracy while allowing for customization to suit your specific needs.

POGO Weather

POGO Weather is a complete weather system capturing the most pertinent variables associated with ambient conditions. Lightning detection, growing degree days, stress analysis and more provide full insight into how the weather is affecting your turf and property. *Page 14.*

POGO Lab Analytics

Get insight to chemical and physical qualities of your turf/soil systems, water sources and plant tissue content with POGO lab analysis sampling by our independent lab. Know what salts are driving EC, what's optimal moisture/EC conditions for your particular zone(s), nutritional make up of your turf system and more. *Page 15.*

POGO Support

24/7 online helpdesk support to all users around the globe

TurfPRO Boost

New for 2020, offers added benefits such as:

- One free NON-warranty repair or sensor replacement per year
- Discounts on any additional non-warranty repairs
- Significant discounts on future accessories and hardware purchases
- Expedited shipping and loaner service if your hardware needs to be returned to the factory for repair
- Added peace of mind knowing you are never without your POGO system to help you in your daily operations

Unmatched precision. Better decisions.

Only POGO simultaneously measures all of the most influential factors that govern turf performance with a patented sensor that needs NO CALIBRATION, ever. Each is packaged in a durable housing with a multi-day battery pack, professional-grade GPS receiver and Bluetooth for easy communication with your smartphone.

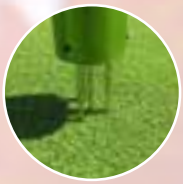
Reliable, durable and built to meet the demands of the Superintendent, POGO experiences low total cost of ownership, no downtime and consistent accuracy constantly.

POGO hardware is part of a complete system that captures, analyzes and provides instant feedback about the holistic condition of your turf, so you can dial in perfection!

Proven reliability and research-grade accuracy you can trust

POGO's patented sensor is depended on for scientific-grade precision by the USDA, NOAA, leading irrigation companies, and many universities for over 25 years and counting.

POGO Pro+



Turf remains virtually undisturbed

4 small-diameter, strong, marine-grade stainless steel probes (3.1 mm / ⅛ in.) diameter.

Industry-leading warranty

Under its 2 year warranty, the entire system, even the wearing of the sensor tines (with POGO Boost option) is covered.*

* Max. replacement is once per year under POGO Boost. Significantly discounted repairs for all others. Standard 2-year warranty without an active TurfPro Cloud account.

Rechargeable battery

Provides 3-5 days of intense use between charges. Standard USB-C charging port. Charger included.

Precisely measures the right depth

The predominant moisture and salinity exchange within the rootzone of all types of turf systems occurs in the top 2.4"* (6cm). Measuring only this depth maximizes precision.

** Results of independent study available upon request.*

Depth-adjustable soil temperature probe

Easily adjustable from 0 to 6" (15cm).

Modular sensor connector

Provides extensibility for future sensor accessories.

MOISTURE

SALINITY (EC)

CANOPY TEMPERATURE

SOIL TEMPERATURE

POGO'S UNIQUE SALINITY INDEX

+

PRO-GRADE GPS

POGO's patented sensor measures moisture, EC and salinity index, while two additional sensors measure temperature on the surface and below the surface of the soil. Together, POGO measures the most influential variables governing turf performance. It's the interaction of these 4 parameters which gives the accuracy of POGO's prescriptions. For instance, low moisture content doesn't necessarily mean water should be applied.

The exact location (within 1 meter) of each sample is recorded with the integrated, professional-grade GPS receiver. It's this location data that allows POGO to show an analysis of the data visually on a map, so you know exactly where you need to focus your efforts and why. Decision-making to apply water, nutrients and cultural practices has never been more precise!

Infrared turf canopy temperature sensor

Instantly captures temperature with extreme precision.

No need for calibration, ever

Patented sensing technology results in consistent accuracy and precision in all turf and soil types with no maintenance.

Ergonomic handle

Detachable and height adjustable for exceptional comfort.

Integrated wireless

The best user interface for POGO is the one already in your pocket. POGO connects easily via Bluetooth to any Apple or Android device—no cables.

Integrated, professional-grade GPS receiver

Adds an extra dimension—precise location—to all measurements for geospatial condition analysis, cup placements, sprinkler positions and patterns, area measurements, custom mapping and more.

Optimal turfgrass performance requires optimal, timely decisions.

The free POGO TurfPRO Mobile app turns your smartphone or tablet into a data acquisition and logging system that collects, displays and logs turf conditions measured by the wirelessly-connected POGO.

The app displays real-time analytics and assessments of turf/soil moisture, salinity and temperature. This allows for timely reaction to conditions that could lead to costly problems.

Critical alerts advise you of conditions measured that require immediate attention, while you are on the course.

Easily synchronize collected data with POGO TurfPRO Cloud to unleash unprecedented insight and analysis and make it all available to the rest of your team.

Mobile Reports Delivered in Seconds

Reports containing powerful analysis are created automatically as new data captured with the app are synchronized with POGO TurfPRO Cloud. These reports are available to all users on your team in both the app and POGO TurfPRO Cloud.

Reports like zone trends, visual insight, critical alerts and turf performance reports give you insight otherwise only possible using consultants, reports and research.

Analyze your course's conditions while you are on the course, so you can make the very best decisions fast...and decisively.

To use POGO, simply insert the bottom of the POGO Pro+ into the soil then tap the “Sample” button in the app on your smartphone. With each measurement, POGO records the precise location, accurate to within one meter. This permits areas of stress to be pinpointed precisely when the data is analyzed.

Each new moisture, salinity (EC), temperature and salinity index measurement is color-coded to clearly display where your conditions are in relation to your customized target range.

Once enough measurements for a zone have been recorded, anyone on your team can view the analysis, and make the right decision about what to apply and where. An average size green gets in-depth analysis with only 10 samples randomly logged in less than 2 minutes.

See your current position and measurements that have been captured in real-time on a satellite map.

Tap to instantly capture a new measurement.

Add a photo or memo to any measurement.

Data and configurations are shared with all other users, allowing a property to be split between multiple people, yet ensuring standardized measurement.

The View of Your Course is Better From the Cloud

Plot all data captured with a POGO spatially on a real satellite map of your course. Colors are assigned to different ranges, and data is interpreted between samples. See turf conditions for the entire green (or fairway or other zone) from just a small number of samples.

Use POGO's pro-quality GPS to map just about anything on your property. Create your own irrigation as-built images, log IPM problem areas, map individual irrigation and drainage components. Record the exact position of objects including drainage lines, sprinklers, valves, catch basins, irrigation controllers, and many more.

Get a course-wide audit every day in minutes per zone without needing to do a traditional time-consuming distribution uniformity (DU) analysis. DU of moisture and EC for each zone is calculated instantly—a true representation of turf conditions (what's actually penetrating the turf, not just what lands on the surface). Analyze the irrigation system, uniformity of nutrient applications and other variances that would otherwise only be determined with a lot of work during time you don't have, or consultation expense you don't need.

Record pin positions daily and use this information to correlate with the turf conditions measured with POGO to help explain the patterns you're seeing, and plan where future pin positions should go. Set these future positions with the Pin Planner tool, so your selected positions will be shown on the automatically generated pin sheets. They can be printed or are accessible in real time by the pro shop, members, and staff using a public URL.

Visual Insight

Every measurement captured with POGO contains moisture, EC, salinity concentration and temperature **PLUS** the precise location from the integrated pro-quality GPS. This allows POGO TurfPRO Cloud to plot the data spatially on a real satellite map of your course.

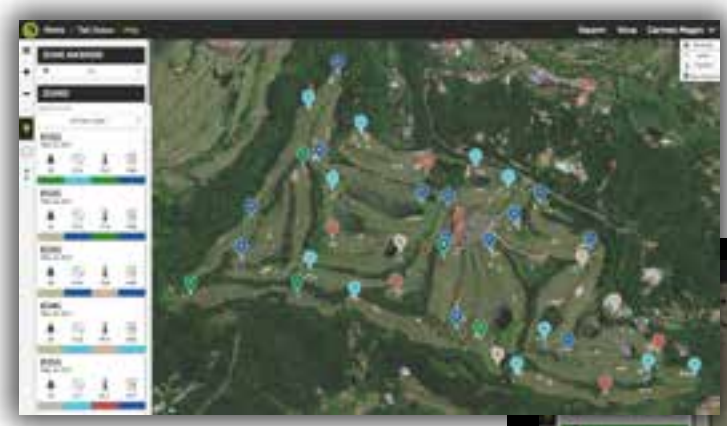
Colors are assigned to different ranges (which you can define). Data is automatically interpreted between locations where measurements were taken, so you'll see turf conditions for the entire green, from just a small number of quick samples.

You'll make better decisions when you can see WHAT your turf sees, and WHERE.

The POGO system doesn't just record and present the raw data for you to interpret. Because your time is limited, you really want an analysis—What does the data mean? What should you do?

You'll get an enormous amount of insight at a glance, from just minutes a day during your morning rounds.

- Hot spot identification for site-specific hand watering
- Nutritional stress identification
- Traffic influences on the turf conditions
- Changing rootzone conditions
- Positive and negative trends are easily identified before stress symptoms show up
- Before/after analysis of product performance (ex. surfactants)
- And more



Visual Insight sees problems like black layer forming before you do.

Trends are visualized, allowing you to see problems forming before symptoms appear so you can react before it becomes costly.

This is just one practical application of many.

Rather than just presenting raw data for you to interpret, POGO TurfPRO Cloud analyzes your data and presents it **visually**. See variations of moisture, salinity, temperature, ball speed, firmness and more across every zone of your course(s), and understand the effects of their interaction. This makes it quick and easy for you, and everyone else on staff to perform Best Management Practices (BMP's) by applying precisely **what**, **when and where** they're needed.

Reports

It takes only minutes a day to gather data from your entire course, and each measurement you take includes all of the most influential factors that govern turf performance, plus precise location. This rich set of data can then be put to work to provide further insight into every factor that contributes to turf performance.

Sample Reports (all accessible seconds after sampling):

Trend reports

Plot data for any combination of zones, turf parameters and date range to help identify trends and know how and when to adjust your irrigation, fertilization and cultural practice applications. Even trend ball speed, firmness and other spec conditions using POGO's spec features.

Pin planning

Record pin positions daily and use this information to correlate with turf conditions measured with POGO to help explain the stress patterns you're seeing, and plan where future pin positions should go. Set these future positions with the Pin Planner tool, so your selected positions will be shown on the automatically generated pin sheets. They can be printed or are accessible in real time by the Pro shop, members, and staff using a public URL.

Distribution uniformity

Get a course-wide audit every day in minutes per zone without needing to do a traditional, time-consuming DU analysis. Distribution uniformity (DU) of moisture and EC for each zone is calculated instantly—a true representation of turf conditions (what's actually penetrating the turf, not just what lands on the surface).

Turf performance indicator (TPI) report

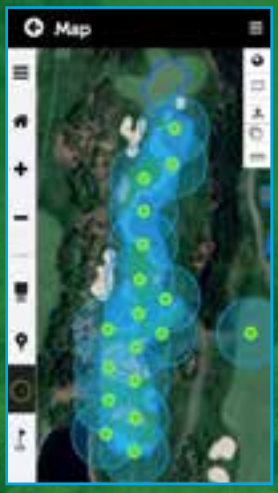
Insight into multiple conditions on the same scale, giving you a unique turf performance score for your conditions. In addition, it identifies what may be causing the score and even provides suggestions to fix it.

Mapping

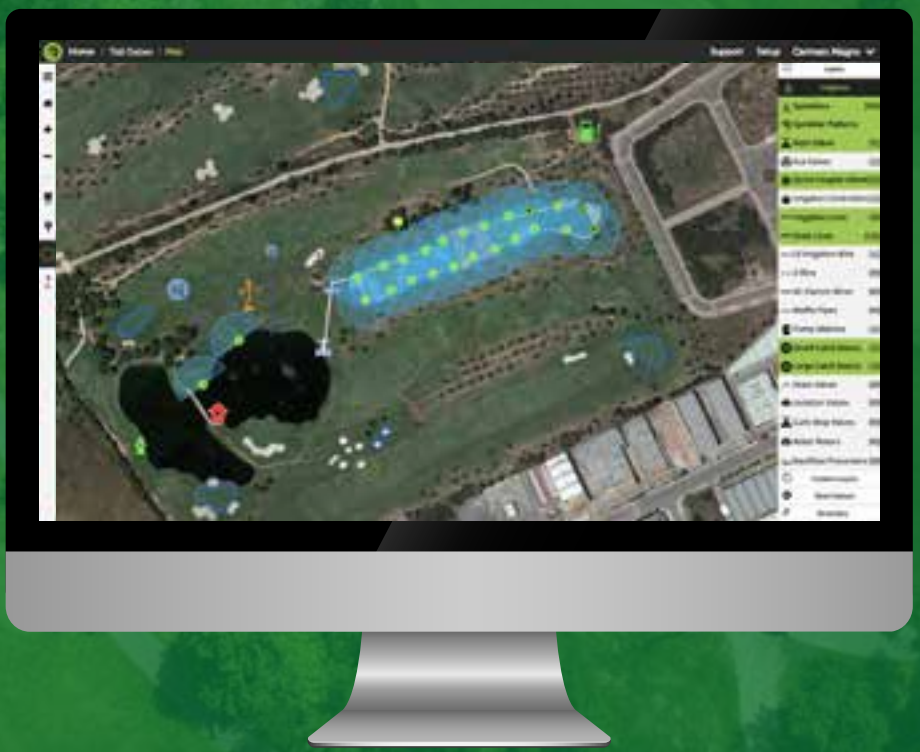
Use POGO's precise integrated GPS to map just about anything on your property. Create your own irrigation as-built images, log IPM problem areas, map individual irrigation and drainage components.

Layer any feature or mapped condition or object that you wish.

POGO Turf Pro Mobile makes it easy to record the location and other characteristics of sprinklers, catchbasins, hydrants, drain lines, paths, etc. Simply hold the POGO Pro+ or POGO Pro over the object (or walk along the route).



Layer sprinkler patterns over Visual Insight to correlate how sprinkler patterns and traffic flow are contributing to the conditions you measure and see.



SAMPLE, LOG, ANALYZE & MAP.

In minutes a day, view the life pulse of your entire property.

POGO's unique all-in-one design replaces multiple pieces of equipment and software, analysis tools and manual reports. It provides massive efficiency gains and requires minimal training. POGO is the most cost-effective way of gaining this level of course insight.

SAMPLE.

- Easy: insert POGO into the turf and tap "Sample" on your smartphone/tablet, then move to the next location.
- **Captures moisture, salinity (EC), canopy temp, soil temp and salinity index with its integrated sensor precisely positioned in the most influential component of the turf system.**

LOG.

- Captured data is stored in the app.
- Using integrated GPS, log: sprinkler locations, cup placement, ball speed, boundary (and more) of any zone (greens, fairways, bunkers, ponds, sports fields, etc.)
- Record notes and capture photos. Eliminate paper records and share easily. Retrieve at any time.
- **The simple-to-use, all-in-one system replaces multiple pieces of equipment and manual processes, providing unparalleled efficiency.**

ANALYZE.

- Instant analysis is performed while taking samples, providing the power of decision making in the palm of your hand. More thorough analysis is automatically performed on all data once synced with TurfPRO Cloud.
- Real-time, clear and accurate irrigation, nutritional and uniformity assessments provide complete understanding of turf and soil conditions, water and fertilizer management optimization and causes of stress.
- **Actionable conclusions to maximize turfgrass health using scientific insight, with minimal effort.**

MAP.

- Our unique Visual Insight provides detailed analysis of the data you capture automatically, so you never need to wade through numbers or charts.
- Map sprinkler patterns and uniformity assessments.
- Assess area measurements precisely.
- Map features unique to your property...easily.
- Practice more efficient water, nutrient, turf enhancement, and IPM applications by knowing impacts on turfgrass performance at all times. Eliminate guessing and make decisions based on precise conditions.
- **Predict and avoid future problems.**

Maximize turf performance, minimize water and nutrient requirements, utilize product applications most efficiently.

OPTIMAL TURF PERFORMANCE

For minimal effort

- **OPTIMIZE** turf health and conditioning, root growth and soil conditions, irrigation distribution and overall turf performance
- **MINIMIZE** water and fertilizer consumption
- **KNOW** the effects of your nutritional and chemical applications. Adjust their timing more effectively
- **IMPROVE** playing conditions and stress tolerance
- **INCREASE** effectiveness of maintenance practices:
  - Validate aerification practices (air/water improvements)
  - Build degree days and POGO performance indicators accurately and specific to your property
  - Optimize nutritional and salinity management practices

SCIENTIFIC ANALYSIS

Done for you

- **UNDERSTAND** reasons for turf decline: Moisture, nutrients, stress, or the combined impact of moisture, salinity and temperature. Know if a 'dry' spot is hydrophobic or if the discolored condition is the result of elevated salinity or other measured condition
- **MAXIMIZE** nutrient release longevity
- **PREDICT** future stress: Analyze trends to identify negative conditions before symptoms develop
- **MEASURE** the most influential factors for turf performance, above and below ground to make the very best decisions in turfgrass management

MAXIMIZE EFFICIENCY

Do more in less time

- **AUTOMATE** paperwork and manual notes:
  - Log timestamp and GPS location with every turf sample taken automatically
  - Capture sprinkler and cup positions
  - Record notes and attach photos to each sample and share with users, who are all synced through the cloud
  - Correlate POGO lab analysis reports (turf/soil, water, tissue)
- **ELIMINATE** spreadsheets and manual analysis: let the POGO system do the number crunching with advanced algorithms—just use the map-based Visual Insight to understand, predict and optimize your turfgrass. Make your best decisions with CONFIDENCE

POGO Weather

Wireless, autonomous, set-it-and-forget-it insight into the impact of environmental influences on your turf.

Multiparameter Sensor:
Wind speed
Wind direction
Temperature
Humidity
Barometric pressure
Accumulated precipitation

Pyranometer (solar radiation) measures the full spectrum of sunlight and also separates PAR (Photosynthetically Active Radiation) light for additional insight

Solar Panel

Weatherproof Enclosure
Cellular modem
Power manager
12V Battery

Sturdy Aluminum Tripod

Adding the POGO Weather station strengthens POGO's *Turf Performance Indicator* score for your property, giving you even greater insight into your overall turf conditions. Using analysis of logged weather conditions, and improving your ability to predict future turf conditions.

Compact, affordable and NOAA-certified.

- Measure from anywhere on the property
- Single or multiple station setups
- Maintenance-free, no moving parts
- Customized degree days
- Smartphone accessible
- POGO degree days (in-zone POGO measurements + ambient conditions)
- Ambient Stress Index for easy gauge of overall stress
- Stress indicators
- In combination with turf measurements, POGO weather elevates the POGO system as the only total insight system available giving this level of information

Lightning detection up to 10km away

Legacy Hardware

POGO Pro

POGO Pro is the original POGO. It's identical to the POGO Pro+ except for the following:

- Instead of an infrared canopy temperature sensor, measurements are made via conduction through the bottom of the unit
- There is no soil temperature sensor
- Additional sensor accessories cannot be added
- Charging is through a proprietary port (must use POGO Pro charger).
- An ergonomic handle can be added but is not included.
- Wi-Fi communication,. Existing users of POGO Pros can convert to Bluetooth to utilize the current TurfPRO Mobile app.

POGO mini

POGO mini is ideal for courses that already harness the power of cloud-based mapping of course conditions with the POGO Pro+ or POGO Pro, but require additional sensors for spot measurements for other staff.

For less than the cost of a more fragile sensor that measures moisture only, the POGO mini can give you 3 parameters (moisture, EC, canopy temperature) critical to managing turf health while using less water and fertilizers.

It has the same patented sensor as the POGO Pro+ and POGO Pro and a 2-year limited warranty.

It works with the same TurfPRO Mobile app but has no analytics or mapping capabilities.

POGO Lab Analytics

Independent, USDA-certified soil, water, tissue and microbiological analysis pinpoints the physical and chemical variables in your turf system, helping you understand their influences on conditions measured by POGO. This helps you pinpoint the warnings and optimal ranges you set, so you are always measuring against "optimal".

What our customers are saying:

"Pogo becomes a lot more than just a soil moisture meter when used to its full potential. It allows you to pick up on live changes therefore giving you the ability to make better decisions for your course on the spot."

Craig Haldane, Golf Courses Manager
Gleneagles Hotel and Golf Courses.

"The POGO has been a great multi use tool for us. Not only being a moisture meter, the GPS capabilities and the Cloud System have great advantages to mapping out course drainage, Irrigation systems etc. And gives you accurate live data at the touch of a button with the app."

Scott Davidson, Course Manager
Cathcart Castle Golf Club.

"The POGO allows us to closely monitor moisture levels within the pitch and make more informed decisions on water inputs at critical times of the year, taking any guess work out the equation."

David Nicholson, Grounds Team Leader
Aberdeen Football Club

Block 5, Unit 1
Bandeath Industrial Estate
Throsk, Stirling FK7 7NP

Tel: 01786 480020

info@greentechsportsturf.co.uk

www.greentechsportsturf.co.uk

Greentech Sportsturf

Greenhills
Drogheda
Co. Louth, Ireland

Tel: 0800 800 038

info@greentechsportsturf.ie

www.greentechsportsturf.ie