

THE BARWON HEADS GOLF CLUB

Irrigation & Fertiliser Application Practices

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Club	The Barwon Heads Golf Club
Classification	Australia's Premier Links Golf Course
Subject	Irrigation and Fertiliser Application Methods
Prepared for	City Greater Geelong Council and DECCA - RFI

1. Overview — Links Course Philosophy

The Barwon Heads Golf Club is widely regarded as Australia's finest representation of a true links golf course. This classification is not merely aesthetic; it fundamentally defines the agronomic approach taken to managing the playing surfaces. In keeping with authentic links course philosophy, the club applies minimal water and nutritional inputs to its turf. This approach produces firm, fast, natural playing conditions that reflect the best traditions of links golf, while actively minimising environmental impact.

2. Fertiliser Program

2.1 Soil Testing & Needs-Based Application

Fertiliser programs at The Barwon Heads Golf Club are developed exclusively from detailed soil testing data. Soil tests are conducted twice per year and provide a comprehensive analysis of:

- Macro and micro nutrient levels
- Soil pH
- Salinity

Fertiliser applications are only made when soil testing confirms a deficiency in one or more elements required for turfgrass health. This needs-based approach ensures that no unnecessary product is applied to the course, reducing both input costs and the risk of nutrient leaching into the surrounding environment.

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2.2 Application Technology — GPS Sprayer

All fertiliser applications are made using a GPS sprayer. Every playing surface at The Barwon Heads Golf Club has been GPS mapped to a positional accuracy of 25mm. This precision mapping capability delivers several key benefits:

- Applications are confined precisely to the intended treatment area
- Product wastage is eliminated through exact boundary control
- Variable rate application can be deployed to target specific deficiency zones identified through soil testing
- Detailed digital records are automatically generated for every application, supporting auditability and compliance

2.3 Environmental Monitoring — Groundwater Testing

To verify that fertiliser applications are not resulting in nutrient leaching beyond the root zone, groundwater testing is conducted annually. This testing confirms that the club's conservative, needs-based fertiliser approach is protecting the local groundwater environment consistent with its responsibilities as a coastal land manager.

3. Irrigation Program

3.1 Scheduling Methodology

Irrigation scheduling at The Barwon Heads Golf Club is managed through two complementary methods, ensuring that water is applied only when genuinely required by the turf:

3.2 Daily TDR Soil Moisture Monitoring — FieldScout Probe

Soil moisture readings are taken daily across the course using a TDR (Time Domain Reflectometry) FieldScout probe. This hand-held instrument provides accurate, real-time volumetric soil moisture data directly from the root zone. Daily readings are taken at consistent locations across all playing surfaces to build a comprehensive picture of moisture conditions across the course.

All TDR readings are mapped and displayed, allowing the grounds team to visualise soil moisture distribution across the entire course at a glance. This mapping capability enables informed, location-specific irrigation decisions — identifying areas that are dry and require water, while avoiding unnecessary irrigation of areas that retain adequate moisture. The mapped data also provides a valuable historical record of soil moisture trends over time, supporting ongoing refinement of the irrigation program.

3.3 Evaporation-Based Scheduling

Evaporation data is used as a primary indicator of atmospheric water demand. By monitoring evaporation rates, the grounds team can calculate the likely moisture deficit within the turfgrass system and respond proactively. This method is well-established in turf and agricultural management and provides a reliable, low-cost baseline for scheduling decisions.

3.4 TurfRad Soil Moisture Mapping Technology

The Barwon Heads Golf Club supplements evaporation-based scheduling with TurfRad, an advanced sub-surface soil moisture mapping system. TurfRad is purpose-built for golf courses, sports grounds, and race tracks seeking to optimise playing conditions while conserving natural resources.

TurfRad operates using patented L-band microwave sensing technology, which enables the system to:

- Rapidly collect thousands of high-resolution, root-zone soil moisture measurements across the course
- Map soil moisture variability at a precision and scale not achievable through traditional spot-probe methods
- Identify dry areas and wet areas across fairways, greens, and other playing surfaces
- Provide data-driven evidence to support targeted, precise irrigation decisions

By combining evaporation monitoring with TurfRad soil moisture mapping, the grounds team can confirm actual sub-surface moisture conditions before committing to irrigation. This dual-input approach prevents both under-watering (which can compromise playing surfaces) and over-watering (which wastes water and can negatively affect turf health and firmer playing conditions).

4. Summary

The Barwon Heads Golf Club's approach to irrigation and fertiliser management reflects its commitment to sustainable, evidence-based turf management in keeping with the traditions and requirements of a genuine links golf course. Key principles include:

- Fertiliser is applied only when soil testing confirms a genuine nutritional deficiency — never as a routine or preventative treatment
- GPS sprayer technology mapped to 25mm accuracy ensures that all fertiliser applications are precise, targeted, and fully auditable
- Annual groundwater testing independently verifies that nutrient leaching is not occurring
- Irrigation scheduling is driven by daily TDR FieldScout soil moisture readings (mapped across all playing surfaces), evaporation data, and TurfRad sub-surface soil moisture mapping — ensuring water is applied only when and where it is genuinely needed
- The overall philosophy of minimal inputs produces authentic links playing conditions while protecting the surrounding coastal environment

— End of Brief —