

GOOD MORNING - PLEASE TAKE A SEAT

FRONT OF ROOM

South

Portugal – Spain – Italy –
Bulgaria – Croatia – Slovenia –
Greece – Cyprus – US

MIDDLE OF ROOM

Central

Netherlands – France –
Belgium – Switzerland –
Germany – Austria – Poland

BACK OF ROOM

North

Sweden – Iceland – Norway –
Finland – Denmark – Estonia –
Ireland – UK – Canada

Industry partners

Mix throughout the room

Helping advance
sustainability in golf
in Europe

EGA

FEGGA
European Greenkeepers
Conference



If you want to go fast, go alone.
If you want to go far, go together.

--African Proverb



1. Update on EGA activities

2. Key Projects

- **Communications**
- **Data**
- **Technical**

3. Water Stewardship Workshop

EGA

Sustainability Plan 2025 to 2028

LEADERSHIP IN SPORT, SUSTAINABILITY
AND CLIMATE ACTION



Objectives

- **Improve understanding and collaborative action by national Federations and allied associations**
- **Gather evidence to strengthen proactive representation in the European Union**
- **Help further align commitments, activities and outcomes across European Golf**

Lead	Support		Represent
	Coordinate	Develop	
Adopt strengthened procurement policies and operational practices to reduce direct and indirect environmental impacts	Bring members and other stakeholders together to share, problem solve, align actions and efforts to help achieve the best collective impact	Facilitate the further development and promotion of sectoral knowledge, best practices, programs and tools	Compile and help promote information on golf's social, economic and environmental value and progress
Introduce policies and action plans for staging of championships with lower resource consumption and emissions, and with greater promotion of nature and communities	<p>Convene working groups</p> <p>Stakeholder meetings, consultations and annual Forum</p> <p>Support sharing of knowledge and case studies</p>	<p>Build collective policy and position statements and roadmaps</p> <p>Help members develop national strategies</p> <p>Contribute to ongoing development of sectoral standards, data, certification and tools</p>	<p>Represent golf's value and interests in Brussels</p> <p>Monitor and evaluate EU regulatory changes</p> <p>Helping promote the sport's activities, value and needs</p>

Strategy and resources

Non-profit offering externally accredited standards, programs, tools, certification, and data stewardship for sustainable golf.



Public affairs

Specialist consulting and counselling in strategic government and public relations.

Burson

EGA Executive Committee

Oversight and leadership; strategic decision approvals

Strategic Working Group

Guidance on direction, priorities and strategic approvals

Monitoring Working Group

Technical Working Group

Communication Working Group

EGA Sustainable Golf Forum

National Golf Federations

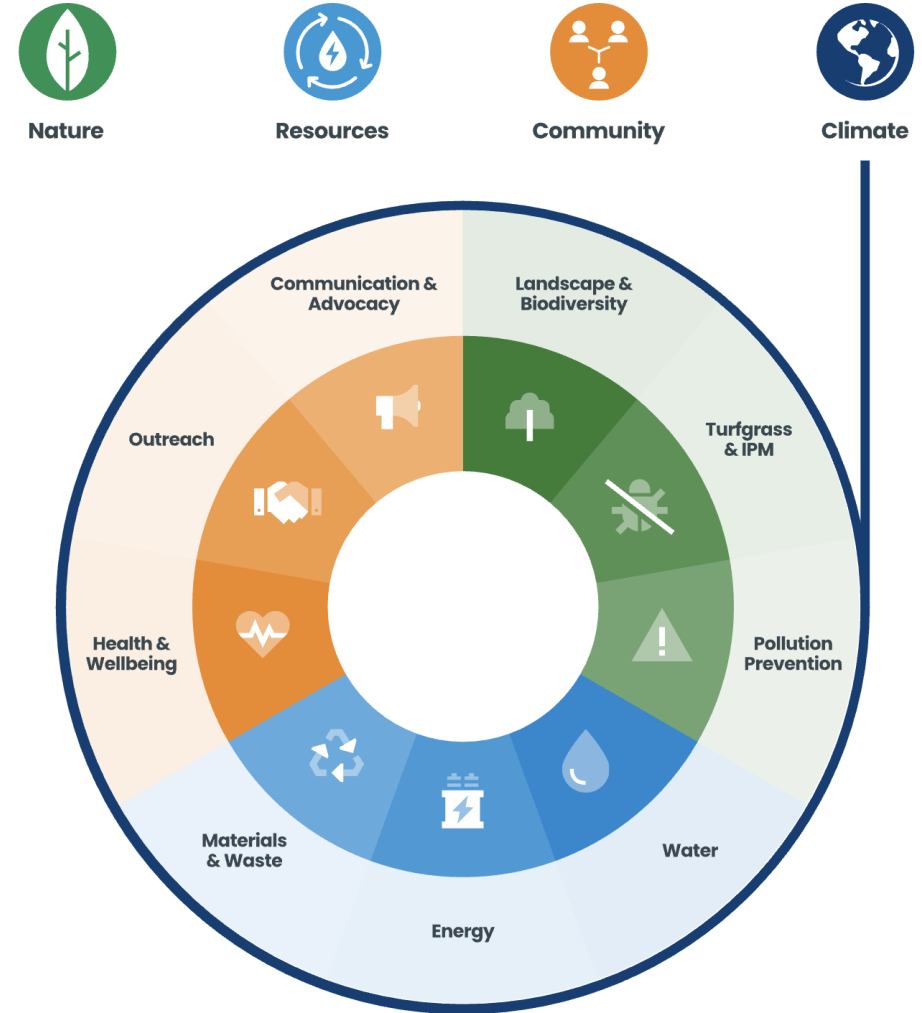
Knowledge development

Ongoing research on key topics to inform best practices, programs and educational content.



Industry collaboration

Coordination of wider sector inputs and alignment on key aspects of EU regulatory priorities and representation, including R&A; European Tour group; Ladies European Tour; Greenkeeper, Owners, Architect, and Club Manager Associations.



EGA

Communications



EU advocacy actions to date

Awareness raising

- High-level meeting with Commission DG SANTE
- Dissemination plan for EGA Turfgrass Roadmap and on disease pain points
- NGO access to documents between EGA/Commission
- Green Sport Manifesto signed



The EGA is a recognized stakeholder

EU policy monitoring

- Briefings on key policy topics (e.g. PPPs, fertilizers, nature, water)
- Timely policy updates provided in EGA's WGs.



The EGA is on top of the policy agenda

EU expectations of EGA

- Setting targets and direction of travel
- Data generation
- Sharing knowledge and best practices
- Continued dialogue at the EU, national and local levels

The EU sustainability agenda

Climate targets – 55% by 2030 and proposed 90% by 2040

Pesticide use

- 1. SUD implementation**
 - Ongoing audits at national level
 - Upcoming stakeholder dialogue (TBC)
- 2. EU continued restriction of active substances.**
- 3. Fast-tracking authorization for biologicals.**
4. Digital recording of pesticides use as of 1 January 2027.

Fertilizers

By October 2028, all products falling under the definition of **fertilizing products must be biodegradable** in soil and aquatic environments.

Includes Controlled Release Fertilizers

Objective: reduce microplastic pollution and promote sustainable practices.

Water

EU Water Resilience Strategy non-binding target:

- Improve water use efficiency by at least 10% by 2030.

Firstly, Member States are encouraged to set national efficiency goals based on their national specificities.

Nature

The EU's **Nature Restoration Law** aims to restore at least 20% of the EU's land and sea by 2030. Specific targets concern

- habitats (30% by 2030, 60% by 2040 and 90% by 2050)
- Urban areas (no net loss of urban green space by 2030)

EGA advocacy actions 2026

Deepen dialogue with DG SANTE on Sustainable Turfgrass Management, IPM recording and reporting, and pesticide use

Meet new DG SANTE team responsible for SUD

Initiate “intro” meetings with DG ENV water and biodiversity units

Engage with DG Education and Culture:

- Green Sport Manifesto follow-up
- European Week of Sport participation (23-30 September)

Engage at political level:

- EU political event “celebrating nature” at Solheim Cup Week

EU Green Sports Manifesto



1. Put in place a sustainability governance structure
2. Produce a sustainability strategy covering EU Green Deal topics
3. Measure and report progress yearly, across operations/events
4. Support green sport cooperation and knowledge sharing
5. Develop, use and share tools

EGA is the first European sports organisation to sign.

Solheim Cup 2026

EGA Sustainable Golf Forum

Day One

Internal session amongst Federation sustainability leads

Day Two

Open conference with wider golf sector stakeholders, EU and national level political engagement



EGA

Data



Data Working Group

Valentine Godin (AFGOLF)

Marc Biber (DGV)

Maximilien Lambert (ffgolf)

Carole Kerrey (GEO)

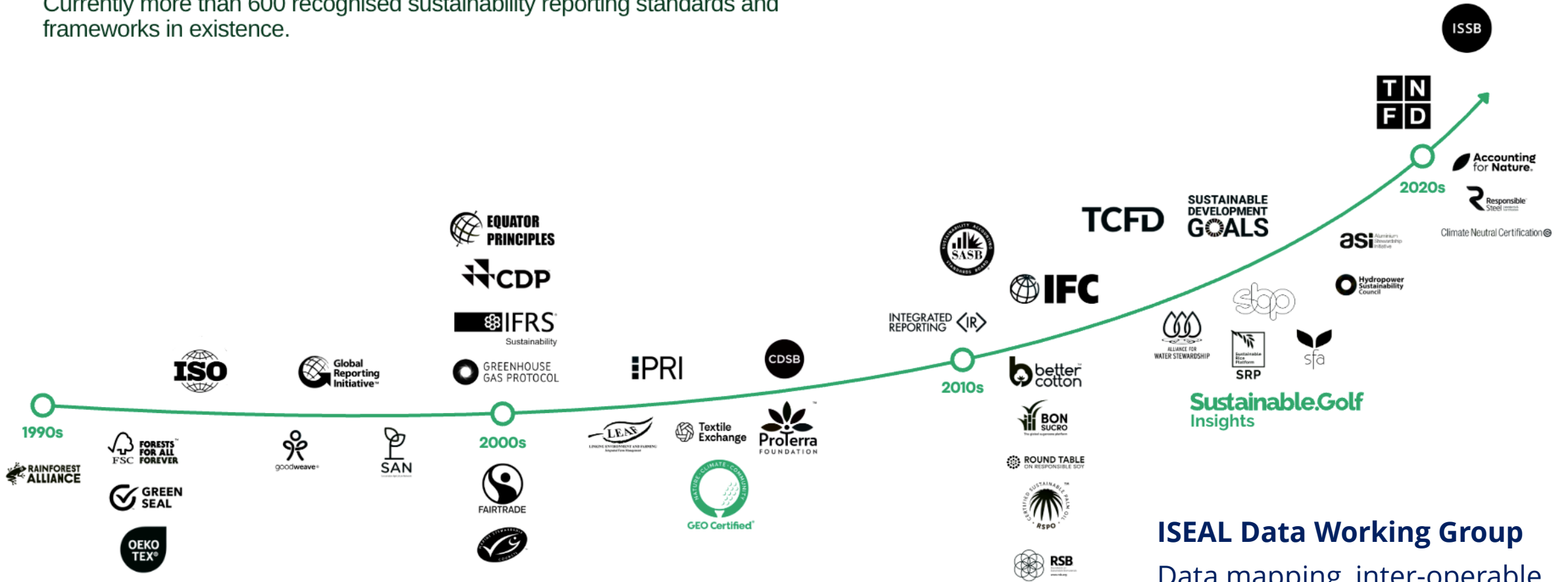
Clara Pacitti (Burson)

Torben Kastrup Petersen (DGU)

Rony Epelbaum, EGA Sustainability Co-ordinator

STRENGTHENING MOVEMENT IN SUSTAINABILITY REPORTING

Numerous other sectors establishing new reporting frameworks and systems. Currently more than 600 recognised sustainability reporting standards and frameworks in existence.



ISEAL Data Working Group
Data mapping, inter-operable systems, claims, government recognition

NATURE

Turfgrass & IPM

Fertilisers (kg per maintained ha)
Pesticides (weight of AI)
Growth regulators (volume)
Topdressing (kg by source)

Landscape & Biodiversity

Facility characteristics (list)
Proportion of land by type (%)
Notable species (number, type)
Turfspecies (list)

Pollution Prevention

Buffer zones around water (m)
Organic fertilisers (% or kg per ha)
Change in active ingredient and topdressing use over time (%)

RESOURCES

Water

Consumption by area and by source (m³ and m³ per ha)
Irrigated turf (ha)
Irrigation upgrades (frequency)

Energy

Electricity by source (kWh)
Renewables by source (kWh)
Fuels by source (kg, kWh, m³)
Equipment by fuel use (number, type)

Materials & Waste

Waste by type and disposal (kg)
Landfill avoidance (kg)
Proportion recycled (%)
Local suppliers (number)

CLIMATE

Greenhouse Gas Emissions

Carbon emissions (tCO₂e)
Emissions breakdown (tCO₂e)
Primary emissions sources (tCO₂e)
Proportion by source (%)
Change over time (% or tCO₂e)
Country-specific emissions factors (kgCO₂e/kWh)

Sequestration

Sequestration by area of playing surface (kgCO₂e/year)
Sequestration rate by age of turfgrass (kgCO₂e/year)
Sequestration by habitat type (tCO₂e)

COMMUNITY

Health & Wellbeing

Proportion rounds walked (%)
Calories burned annually (calories)
Proportion junior golfers (%)
Proportion female golfers (%)

Outreach

Volunteering (hours)
Community engagement events (number)
Money raised for charity (£, €)

Communication & Advocacy

Annual highlights (stories)
Time spent in nature (hours/year)
Governance participation (number, type)
Jobs provided (number, type)

Priority regulatory metrics

Voluntary value metrics



Priority Turfgrass Metrics

<p>Land</p>	<ul style="list-style-type: none"> • Total land area (including buildings and infrastructure) - (ha) • Total playing surface area (green, tee, fairway, semi-rough, maintained rough) - (ha) • Number of rated golf holes (championship/course rating) - (number)
<p>Water</p>	<ul style="list-style-type: none"> • Total annual consumption for irrigation, broken down by source - (m³) <ul style="list-style-type: none"> ○ potable/main supply ○ borehole ○ surface water (e.g. river, lake, stream) ○ harvested (building, car parks etc) ○ recycled (industry, waste water, treated effluents) ○ desalinated ○ other • Total irrigated turf area - (ha)
<p>Turf Inputs</p>	<ul style="list-style-type: none"> • Total annual consumption of plant protection product active ingredient - (table format) <ul style="list-style-type: none"> ○ product name (from predefined list from EU+ Database) ○ weight/volume of product applied - (kg/l per ha) ○ total treated turf area per product - (ha) ○ type of playing surface (green, tee, fairway, semi-rough, maintained rough) • Biological products used (e.g. bio-stimulants, microbial products) : total application - (kg/l per ha)

**EU Regulation
Digital Pesticide Recording**

**Legal requirement across all
Member States by January 1 2027**



Sustainability Data and Reporting

Interim Briefing Paper
EU Regulation on Digital Pesticide Recording

February 2026

|
Prepared and distributed by the European Golf Association with support from EGA Data Working Group, GEO Sustainable Golf Foundation and Burson

EU Digital Pesticide Recording Regulation

- **Article 1** - Professional users shall provide records of their use of plant protection products.
- **Article 2** - Professional users of plant protection products shall keep the records electronically using a machine-readable format.
- **Article 3** - The professional user shall record each use of a plant protection product without undue delay.
- **Article 4** - When requested by the competent authority to provide information contained in the records, the professional user shall provide the information without undue delay.
- **Article 5** - This Regulation shall apply from 1 January 2027. [Amended from original published date of 1 January 2026.]

EU Regulation Requirement

Type of use	Plant protection product used	Time of use	Dose of application ⁽¹⁾	Location or identification of treated area or unit ⁽²⁾	Size or amount of treated area or unit ⁽³⁾	Crop or situation/land use
Treatment of surface areas (such as agricultural fields, amenity areas, railway tracks, non-crop areas or greenhouses other than those referred to in the next row)	Product name and authorisation number	Date and where relevant ⁽⁴⁾ start time (hour)	Amount in kilograms/litres of plant protection product applied per hectare	Where available, the unit of land within the scope of the geo-spatial aid application of the integrated administration and control system as referred in Article 8(3), point (b), of Implementing Regulation (EU) 2022/1173. Where the area cannot be identified within the scope of the geo-spatial aid application as referred above, identification method referred to in Article 1(2).	Number of hectares treated	Crop names, situations/land uses in line with the EPPO codes ⁽⁵⁾ , where applicable and growth stage in line with BBCH monograph ⁽⁶⁾ , where relevant ⁽⁷⁾

Data Connectivity Mapping

- Mapping of:
 - Systems and tools
 - Data types
 - Levels of existing data
- Explore how to:
 - Harmonise metrics
 - Connect data sources
 - Process and analyse data for useful outputs for different audiences



EGA Data Survey

- Sources of data
- Types of data
- Volumes of data
- Current uses of data
- Future needs of data
- Urgency, barriers and opportunities

EGA

Technical





Maria Strandberg,
STERF, Sweden
Chair



Dr Robbie Fitzpatrick
GEO, Scotland



Amandine Lucchin
France



Alexander De Fries
Netherlands



Janne Lehto
Finland



Alexandra Almeida
Portugal



Alessandro da Luca
Italy



Jonathan Smith
GEO, Advisory Support

Rony Epelbaum, EGA Sustainability Co-ordinator

European Golf

SUSTAINABLE TURFGRASS MANAGEMENT ROADMAP 2025 - 2030

Safe, responsible and sustainable management of turfgrass

Responsible and Sustainable Turfgrass Management

10-point plan of
priority
voluntary and
co-regulatory
activities

1	Human safety and environmental protection precautions
2	Integrated Pest and Turfgrass Management
3	Monitoring, reporting and target setting
4	Consumer education (golfers)
5	Practitioner education
6	Targeting pesticide use on specific playing surfaces
7	Applied research
8	Technology – equipment
9	Technology – plant protection products
10	Partnerships and collaboration

European Golf - Turfgrass Management

Overview of most significant
weed, pest and disease challenges

EGA



European Golf Turfgrass Management

Most significant pain points

	Cause of problem	Where on the golf course	Where in Europe	Type of plant PPP*	Degree of impact on playability
1	Dollarspot (Turfgrass disease)	Primarily greens, but also on tees and fairways	Across Europe	Fungicide	+++
2	Microdochium patch (Turfgrass disease)	Primarily greens	Northern, Central and Atlantic regions	Fungicide	+++
3	Goosegrass & Crabgrass (Summerweeds)	Primarily fairways and tees, but also on greens	Southern	Herbicide	++
4	Broadleaf weeds (eg. dandelion, daisies, clover, plantain)	Primarily fairways, semirough and mown rough	Across Europe	Herbicide	++
5	White grubs/chafer grubs (Pest)	Can be prevalent across course	Across Europe	Insecticide	+++
6	Leatherjackets (Pest)	Primarily on greens and tees	Across Europe	Insecticide	+++
7	Spring dead spot (Turfgrass disease)	Can be prevalent across course – bermudagrass only	Southern	Fungicide	+++
8	Pythium (Turfgrass disease)	Can be prevalent across course	Southern, Central and Atlantic regions	Fungicide	+++
9	Excessive growth due to nutrient-rich recycled irrigation water	Can be prevalent across course	Southern	Plant-growth regulator	+
10	Insects in trees (Pest)	Ornamental trees on the course	Southern	Insecticide	-

INNOVATION

Knowledge and Innovation Centre

Learn more about the science of sustainable golf, and access guidance, case studies, innovative examples and perspectives.

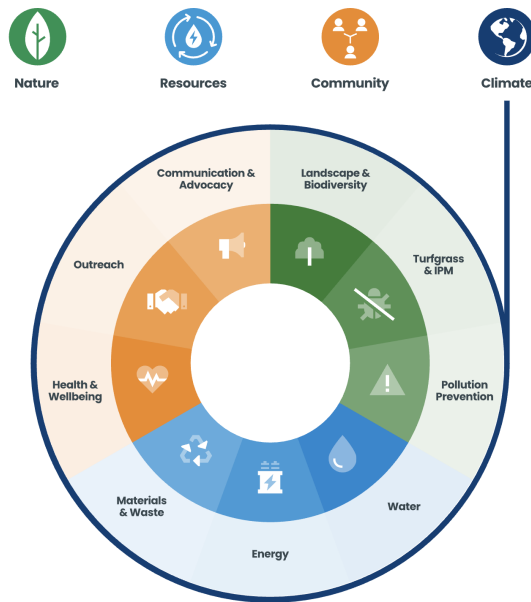


Current Collaborators



Purpose

- Building a shared resource as a central point of reliable information on key aspects of golf and sustainability
- Amplifying research and guidance through considerable signposting to original sources
- Non-commercial, developed and presented in partnership with leading golf and scientific bodies
- Pioneered in Europe, with regional steering and review of research and guidance by EGA TWG
- Collation of content also helping spotlight gaps in knowledge, including priorities for research and guidance



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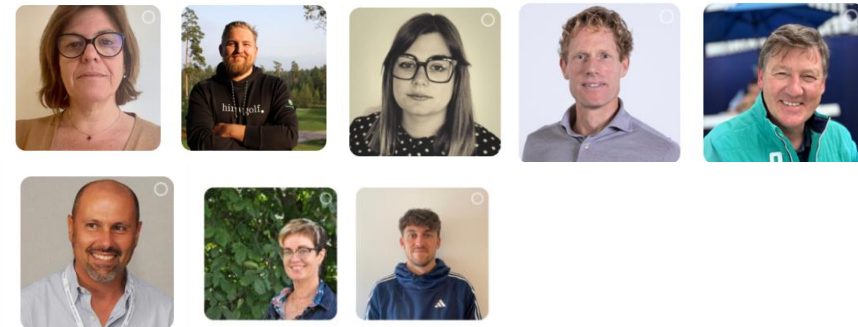
Contributors and Curators

Regional Steering Groups

To keep the Innovation Centre globally informed and locally grounded, we work with regional steering groups. These groups connect the latest research and innovations with practical insights from their part of the world, helping to ensure guidance is both scientifically robust and regionally relevant.

Europe

The European Golf Association's Technical Working Group serves as the regional steering group for Europe. Comprising leading experts on sustainable golf from across the continent, the group provides technical input, shares best practice, and helps guide the development of tailored resources for European facilities and stakeholders. Here you will find headshots and biographies of each member of the group, highlighting their expertise and contributions to sustainable golf.



Three Key Hubs

Science and Research →



Guidance and Toolkits →



Highlights and Case Studies →



Knowledge
& Information



Support
& Action



Results
& Inspiration

Science & Research

- Peer reviewed and applied research materials from universities, institutes, federations and other industry bodies
- Summary of key learnings, with reference and link to host website or journal
- Filter by location or topic; sort by date of publication; toggle for peer review
- Future addition of free search function

The screenshot displays a web interface for a research database. At the top, there are navigation elements: 'Location' and 'Topic' dropdown menus, a refresh icon, and a green 'Search' button. Below this is a filter section with four columns: 'NATURE', 'RESOURCES', 'COMMUNITY', and 'CLIMATE'. Each column contains radio buttons for various sub-topics. The main content area is a grid of 12 research article cards. Each card features a representative image, a title, a brief description, the author/institution, and a publication year. The cards cover topics such as sustainable turfgrass management, surface runoff risks, integrated IPM-GOLF projects, risk assessments of dollar spots, water efficiency analysis, irrigation characterization, preliminary IPM-GOLF results, and maternal inheritance of disease resistance.

Location Topic

NATURE

- Habitats & Biodiversity
- Pollution Prevention
- Turfgrass

RESOURCES

- Energy
- Materials
- Water

COMMUNITY

- Communications
- Golfers & Employees
- Outreach

CLIMATE

- Carbon Mitigation
- Carbon Storage
- Emissions Reduction

Article 1: **Priorities for sustainable turfgrass management: A research and industry perspective**
Acta Agriculturae Scandinavica Section B: Soil and Plant Science | 2012

Article 2: **Risks for Surface Runoff and Leaching of Fungicides from Golf Greens Varying in Rootzone Composition and Amount of Thatch**
NIBIO Turfgrass Research Group and more | 2019

Article 3: **Integrated Management of Important Turfgrass Diseases and Insect Pests on European Golf Courses: The IPM-GOLF Project 2020–23**
NIBIO Turfgrass Research Group and more | 2020

Article 4: **Risk assessment, management and control of dollar spot caused by *Clarireedia* species on Scandinavian golf courses (2017–2020)**
Scandinavian Turfgrass and Environment Research Foundation (STERF) and more | 2020

Article 5: **Analysis of Water Efficiency on Golf Courses in Portugal**
Turismo de Portugal | 2021

Article 6: **Characterization and Evolution of Irrigation on Golf Courses in the Algarve (2016–2021)**
Associação Portuguesa de Greenkeepers and more | 2022

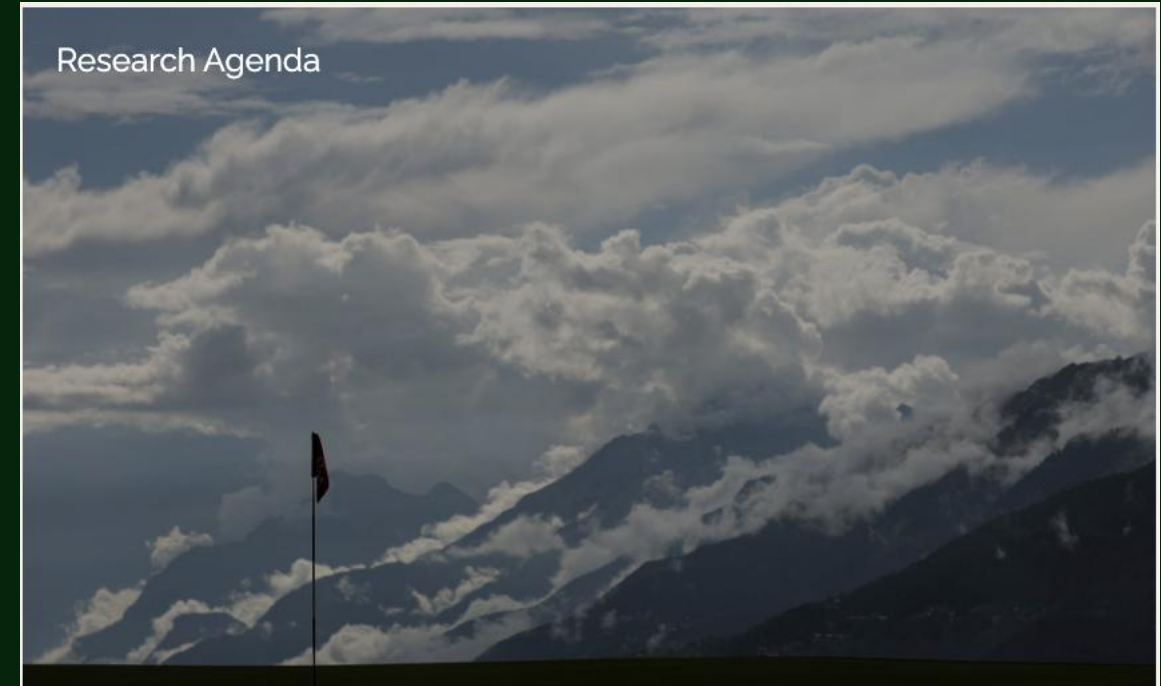
Article 7: **IPM-GOLF 2020–23: Preliminary Results from 2020 and Spring 2021**
NIBIO Turfgrass Research Group and more | 2022

Article 8: ***Epichloë festucae* endophyte mediated maternal inheritance of dollar spot disease resistance in hard fescue**
Crop Science | 2023

Article 9: **Integrated Management of Turfgrass Diseases and Pests: Study on European Golf Courses**
The R&A and more | 2024

Research Agenda

- Inventory of ongoing and planned research projects around the world
- Place to share ground-sourced ideas for new research priorities



Guidance & Toolkits

- Practical guidance on best practices and projects, including non-golf and golf-specific action and activity kits
- Summary of key learnings, with reference and link to host website or journal
- Filter by location or topic; sort by date of publication; toggle for peer review
- Future addition of free search function

Transitioning Turfgrass: Innovative Practices for Sustainable Golf Course Management

Multiple contributors including Marco Volterrani, Alessandro De Luca, Giuseppe Bucelli, Simone Magni, and collaborators from the Italian Golf Federation and academic institutions (2019)

Federazione Italiana Golf (FIG)



This handbook presents a comprehensive overview of ecological turfgrass transitions in Italy, highlighting practical, research-backed strategies to reduce chemical use, water consumption, and maintenance inputs on golf courses. It draws on the BioGolf programme and trials at Golf della Montecchia, where traditional high-input grasses were replaced by warm-season species such as bermudagrass (*Cynodon dactylon* × *transvaalensis*) and zoysiagrass.

The document details agronomic challenges during conversion, including weed suppression, disease control (notably spring dead spot), and optimal timing for replanting. Results showed significant reductions in water, nitrogen, and pesticide inputs without compromising playability. Additional chapters cover innovative irrigation practices (e.g. deficit strategies, TDR sensors), mechanical maintenance tools (e.g. grooming, brushing, verticutting), and low-impact weed control.

Environmental benefits extended to biodiversity restoration, including habitat integration and waterway protection. The handbook provides case studies, species selection guides, and transition timelines, promoting turfgrass conversion as a viable response to EU environmental legislation and changing climate conditions. It supports golf clubs aiming to meet stricter sustainability expectations through adaptive turf management.

[View full research](#)



Highlights & Case Studies

- Library of over 3,000 Highlights showing real examples from golf facilities, new developments and tournaments
- Addition of longer form case studies, also to include international and national golf associations

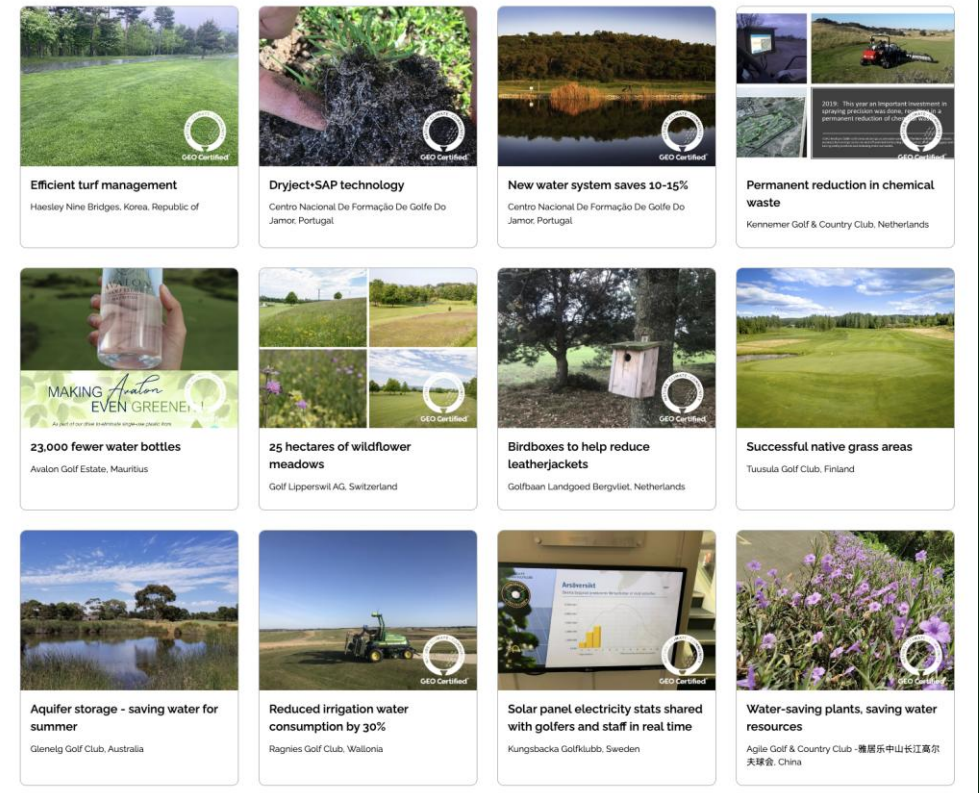
This is sustainable golf in action.













Learn from others.

Inspire others.

BETA This Free search is in beta. The search bar is optimised for sustainable golf topics. To search by country, use the dropdown below, or the leaderboard for specific golf courses.

Search 



 <p>Efficient turf management Haesley Nine Bridges, Korea, Republic of</p>	 <p>Dryject+SAP technology Centro Nacional De Formação De Golfe Do Jamor, Portugal</p>	 <p>New water system saves 10-15% Centro Nacional De Formação De Golfe Do Jamor, Portugal</p>	 <p>Permanent reduction in chemical waste Kennermer Golf & Country Club, Netherlands</p>
 <p>23,000 fewer water bottles Avalon Golf Estate, Mauritius</p>	 <p>25 hectares of wildflower meadows Golf Lipperswil AG, Switzerland</p>	 <p>Birdboxes to help reduce leatherjackets Golfbaan Landgoed Bergvliet, Netherlands</p>	 <p>Successful native grass areas Tuusula Golf Club, Finland</p>
 <p>Aquifer storage - saving water for summer Glenelg Golf Club, Australia</p>	 <p>Reduced irrigation water consumption by 30% Ragnies Golf Club, Wallonia</p>	 <p>Solar panel electricity stats shared with golfers and staff in real time Kungsbacka Golfklubb, Sweden</p>	 <p>Water-saving plants, saving water resources Aglie Golf & Country Club - 碧居乐中山长江高尔夫球会, China</p>

EGA

2026 Acton Plan Priorities



	Q4 25	Q1	Q2	Q3	Q4
Strategic	<ul style="list-style-type: none"> Establish maternity cover for Alicia SWG meeting at AGM, and approve 2026 Action Plan Host AGM work approval for 2026 EGA to sign EU Core Group Meeting implementation Explore R&A work (biodiversity) and involvement (TWG) 	<ul style="list-style-type: none"> Burson – detailed briefing on EU water policy and future 	<ul style="list-style-type: none"> SWG meeting including review technical, data and communications activities Deeper discussion about European data stewardship [roles, resource policies, protections] 	<ul style="list-style-type: none"> Burson – detailed briefing on EU nature policy now and future 	<ul style="list-style-type: none"> SWG meeting including review technical, data and communications activities and approved action 2027
Technical	<ul style="list-style-type: none"> Hold call Maria, Jonathan, Robbie to confirm Q4 and 2026 activities Provide group with Forum summary Profile Knowledge Hub and 2026 priorities to members at AGM Finalise V1 of Knowledge Hub Formalise structure for further inclusive development of research inventory 	<ul style="list-style-type: none"> TWG meeting Launch Water Roadmap Collate KH resources 	<ul style="list-style-type: none"> Collate KH resources Update KH content TWG track industry activities against Turfgrass Roadmap 	<ul style="list-style-type: none"> Update KH content TWG track industry activities against Turfgrass Roadmap 	<ul style="list-style-type: none"> Collate KH resources
Data	<ul style="list-style-type: none"> Hold call Val, Jonathan, Carole to confirm Q4 and 2026 activities Provide group with resume and briefing outline 	<ul style="list-style-type: none"> DWG meeting Draft Data Harmonisation Map Prepare scoping paper for initial European data collation ‘test project’ and seek funding 	<ul style="list-style-type: none"> Work on data test project Further refine Data Harmonisation Map Commence drafting of EGA Data 	<ul style="list-style-type: none"> DWG meeting Share Data Harmonisation Map Work on data test project 	<ul style="list-style-type: none"> Present data showcase Share data for NF’s
Comms	<ul style="list-style-type: none"> Share actions Newsletter article on Forum and AGM Put in place new central hub for all EGA core, strategic, technical, data working group communications and collaborative working, plus engagement and tracking member feedback and updates 	<ul style="list-style-type: none"> Develop communications plan Host online group meeting – all working groups Update EGA website and integrate links to Knowledge Hub 	<ul style="list-style-type: none"> Develop central hub for sharing of national strategies, including policies and targets 	<ul style="list-style-type: none"> Deliver Sustainable Golf Forum (possibly to coincide with Solheim Cup) Potential EU political reception / roundtable at Solheim Cup Potential attendance at European Week of Sport 	<ul style="list-style-type: none"> Deliver Sustainable Golf Forum at Solheim Cup
Ops and Champs		<ul style="list-style-type: none"> Create Pro Sta trav 	<ul style="list-style-type: none"> test EC at one e 		

Detailed briefing on EU water and nature policy

Guidance on using Turfgrass Roadmap

Share Water Roadmap

Launch Knowledge Hub

EU Regulatory Guidance

Build Data Connectivity Map

Data Guidance Document

Deliver Sustainable Golf Forum at Solheim Cup

EGA Members resources

Data and water survey

Release updated Sustainable Golf Framework Document

EGA

Any questions?





WATER STEWARDSHIP WORKSHOP

Workshop Structure

Introduction

Regional working groups

Coffee

Group Feedback and Discussion

Wrap-up and Next Steps

Water Challenges

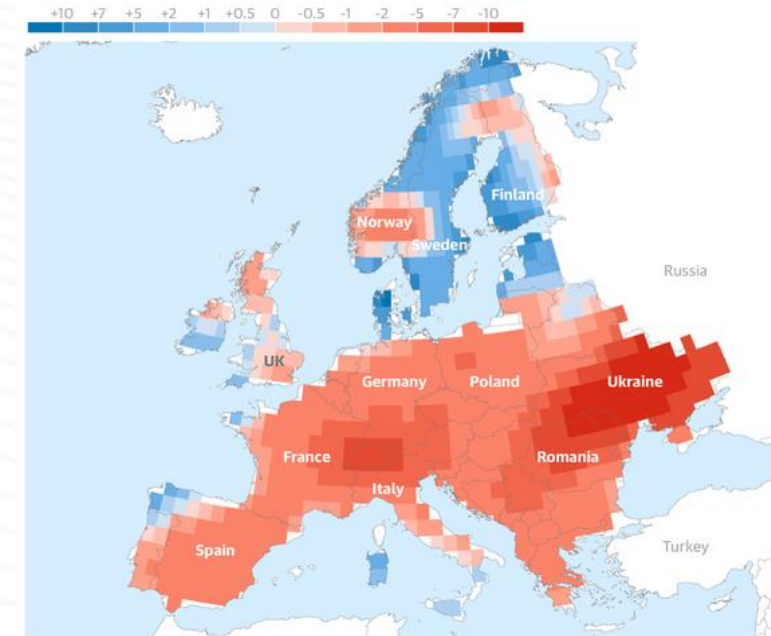
→ Water deficits and depleting aquifers

Revealed: Europe's water reserves drying up due to climate breakdown

Exclusive: UCL scientists find large swathes of southern Europe are drying up, with 'far-reaching' implications

Much of Europe has been getting drier

Change in groundwater storage from Apr 2002 to Dec 2024, mm a year



Guardian graphic. Source: derived from Grace data from the GFZ Helmholtz Centre for Geosciences, Nasa and the University of Texas at Austin

Water Challenges

- Water deficits and depleting aquifers
- Flooding risks and impacts



Water Challenges

- Water deficits and depleting aquifers
- Flooding risks and impacts
- Extremes of wet and dry

15% of cities examined are experiencing "climate whiplash" – an intensification in both extreme wet periods and extreme dry periods



Source: [WaterAid](#)

Trends in wetting and drying in 112 cities between 1982 and 2023.

The more intense the colour, the stronger the trend in wetting (blue) or drying (orange).



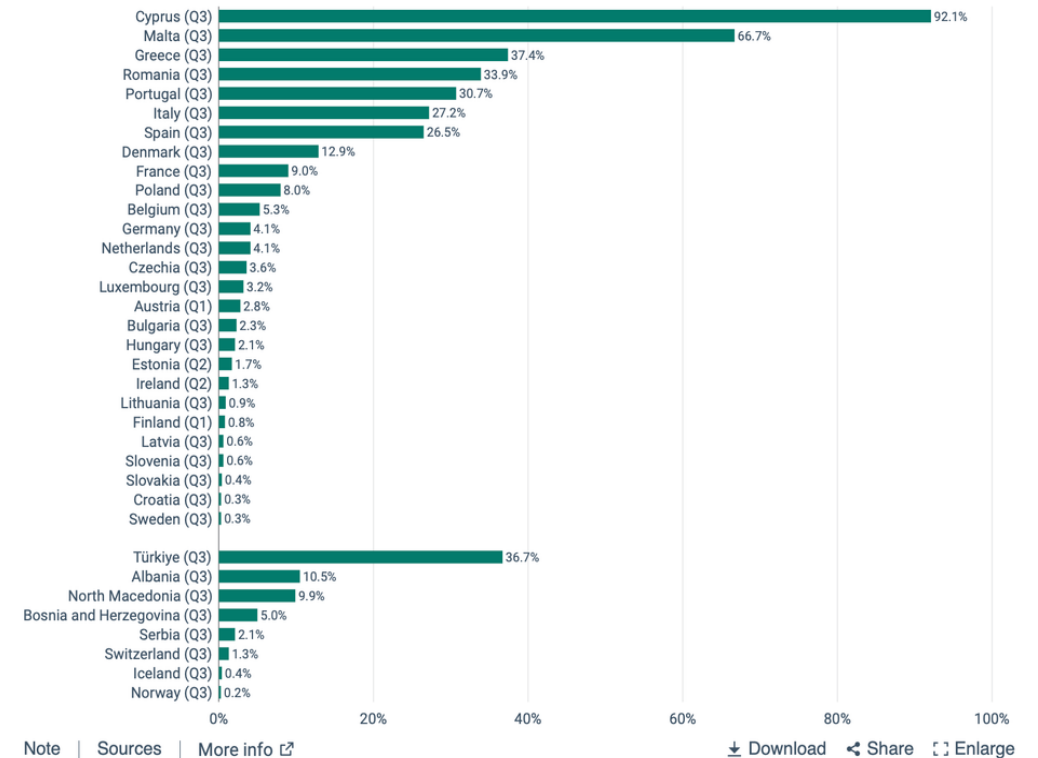
Water Challenges

- Water deficits and depleting aquifers
- Flooding risks and impacts
- Extremes of dry and wet
- Increasing demand

Water scarcity conditions in Europe

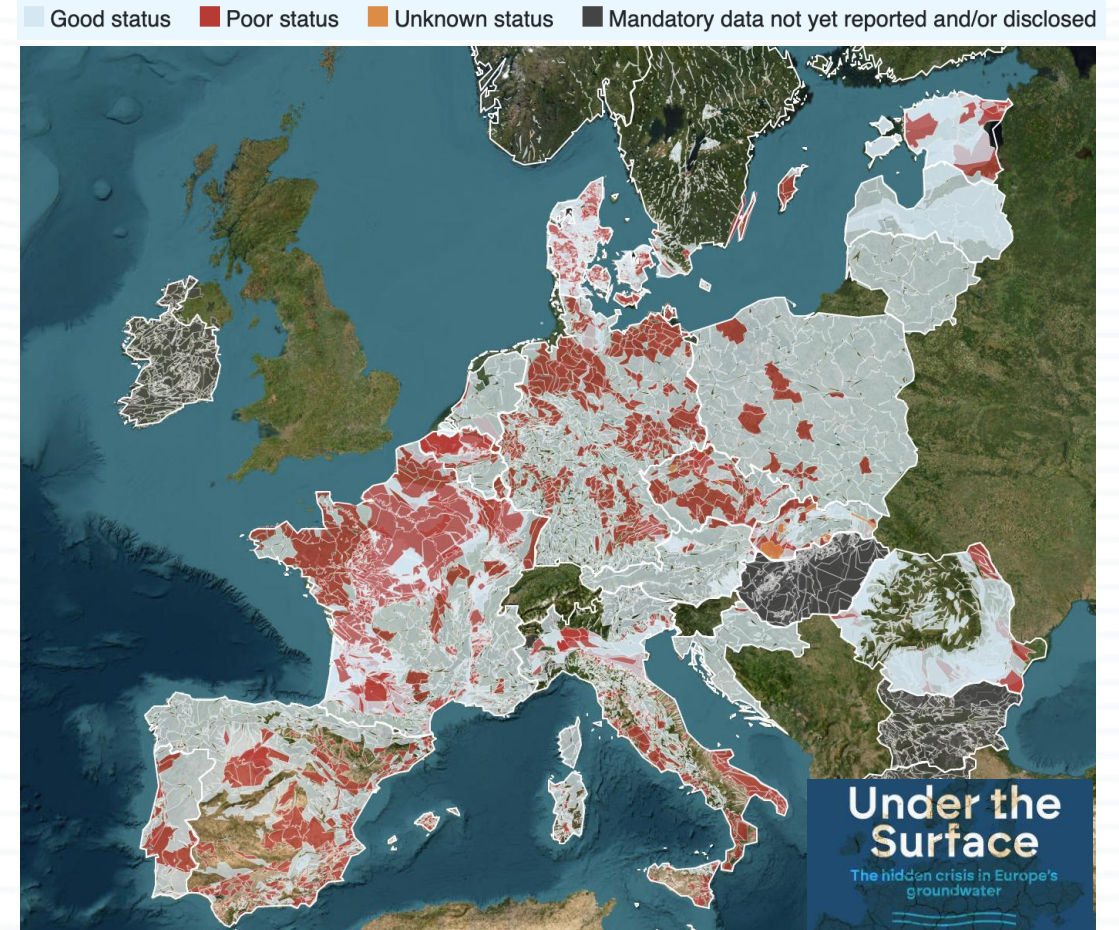
Published 28 Nov 2025

Figure 2. Worst seasonal water scarcity conditions for European countries in 2023, measured by the water exploitation index plus (WEI+)



Water Challenges

- Water deficits and depleting aquifers
- Flooding risks and impacts
- Extremes of dry and wet
- Increasing demand
- Water quality



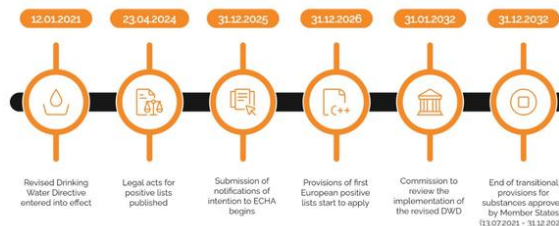
EU Directives, Regulations and Relevant Initiatives

Living Rivers Europe

The EU Water Framework Directive:
A modern and powerful tool to provide clean, healthy, flowing waters.



EU DRINKING WATER DIRECTIVE (DWD) – TIMELINE



SECTORAL OPPORTUNITIES TO ACHIEVE A WATER-SMART SOCIETY IN EUROPE

Image and reputation

Licensing and permitting

Catchment demand management

Metering and pricing

Extinction Rebellion plugs holes on 10 Spanish golf courses in water protest

Activists denounce heavy use of water for 'elitist leisure pursuit' as drought continues in Spain



📷 Vegetables planted under cover of darkness on a golf course in Gorraiz, near Pamplona. Photograph: Extinction Rebellion/AFP/Getty Images

Climate activists in **Spain** have filled in holes on 10 golf courses to draw attention to the huge amounts of water the “elitist leisure pursuit” uses as a nationwide drought continues in the first heatwave of the year.



EGA

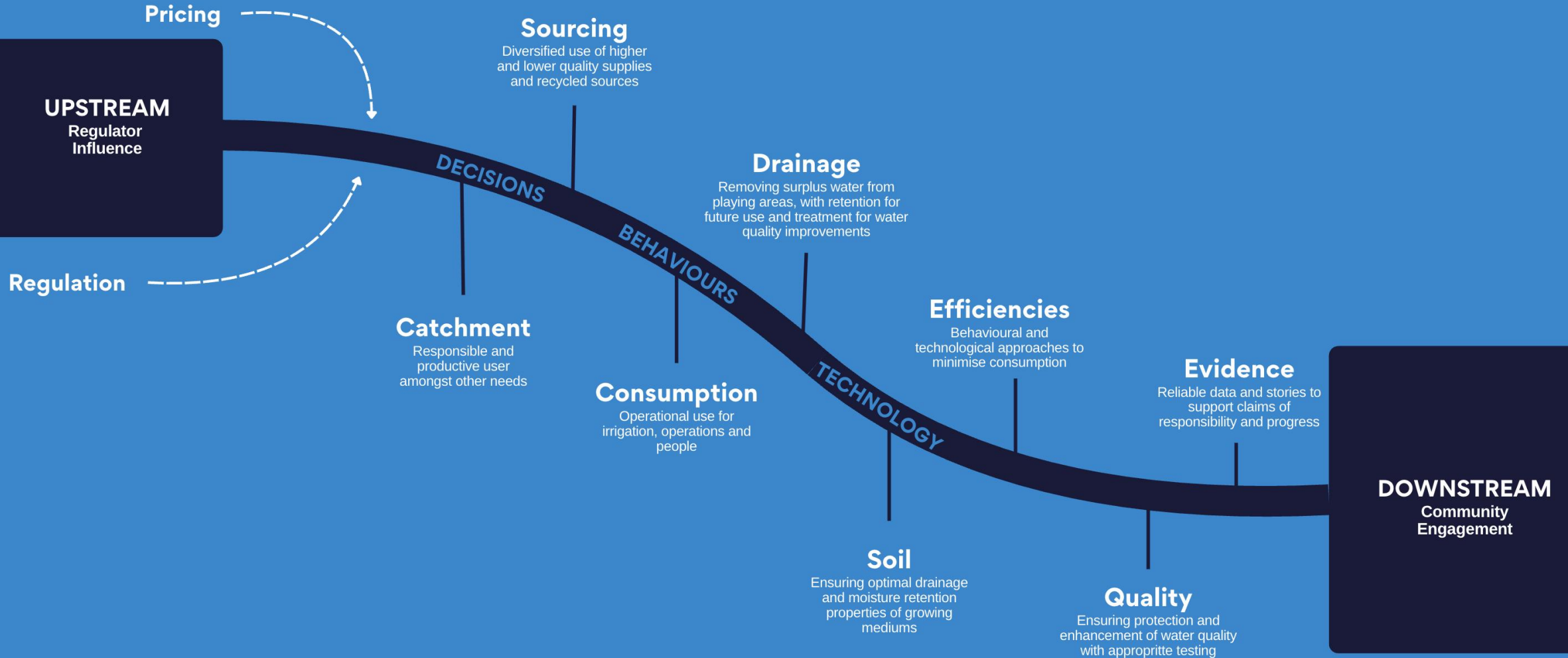
European Golf

**WATER STEWARDSHIP AND RESILIENCE ROADMAP
2026 - 2035**

Action plan for responsible and efficient management of water resources



Golf's Stewardship of Water



Solutions



Introduction and Executive Summary

Water, like many other natural resources, is variable in its supply. Over the last 40-50 years, golf courses have become increasingly reliant on artificial irrigation to maintain and improve turfgrass quality. All golf courses have a duty to themselves, and to the wider environment, to ensure that their water sourcing strategies are sustainable and secure for long term use.

[View](#)



Site Water Action and Management Plans

The initial step in any irrigation changes. Golf clubs should have a continually updated site water action and management plan for the whole golf course.

[View](#)



Water use monitoring

Modern irrigation systems will keep detailed records of water use at different times and for different areas. However, main water inlets or storage systems should also be accurately monitored to ensure water losses are not occurring.

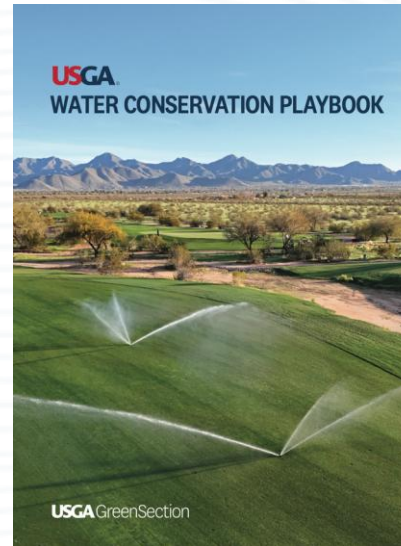
[View](#)



Soil moisture sensors and moisture monitoring

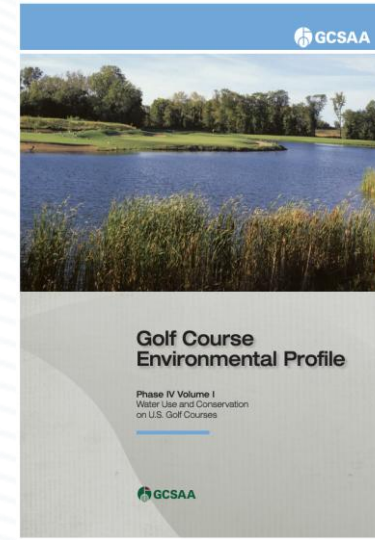
Technology is increasingly being used by greenkeepers to inform irrigation decisions.

[View](#)



USGA WATER CONSERVATION PLAYBOOK

USGA GreenSection



GCSAA

Golf Course Environmental Profile

Phase IV Volume I
Water Use and Conservation
on U.S. Golf Courses

GCSAA

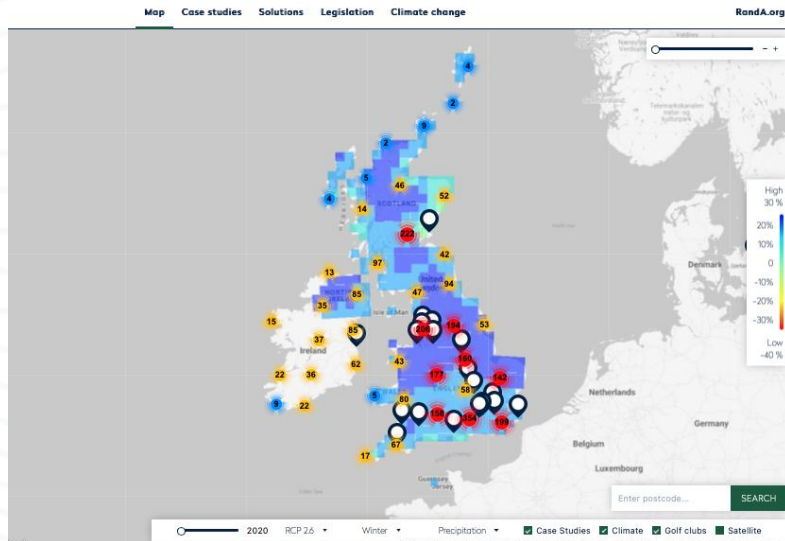


FAIR-WATER

Towards better drought resistance and reduced water consumption on golf course fairways

By Trygve S. Aasmund, Anne E. Borchert and Karla J. Hessemer, NIBIO Turfgrass Research Group, Peter Edman, Swedish Golf Federation, Wolfgang Pflüger, Osnabrück University of Applied Sciences, Thomas Fischer, German Grasskeeper Association, Bernd Edzinger, New Mexico State University.

Popular Scientific Articles - STERF, November 2023



SustainableGolf

This is sustainable golf in action. Learn from others. Inspire others.

Search for: water efficiency

Search results for: 'water efficiency'

- Optimizing efficiency through water management audit
- Enhancing Water Efficiency with New Quick Couplers
- Responsible water usage avoids waste and lowers costs
- Minimising resource use through irrigation upgrades

Circular water management for sustainable irrigation

Golf Club Les Bois, Switzerland

2025

Our golf course is fully self-sufficient in irrigation water. Since 2019, our main pond has been supplied with treated water from the Les Bois village wastewater treatment plant.

Approximately 80 m³ of water is collected daily from the plant and used as needed for irrigation. In addition to rainwater also being collected and utilised. Together these sources ensure complete water autonomy.

Water from the treatment plant is first stored in the pond located near holes 4, 6, 8, and 7. From there, a pipeline system transfers the water to a second pond near holes 10 and 18, ensuring efficient irrigation across both sections of the course.

Regional Water Efficiency Plan for the Algarve – Volume II: Action Sheets for Implementation

Portuguese Environment Agency (APA) - Coordinated by Gonçalo de Freitas Leal and Pimenta Machado, with technical teams from APA, DGADR, ARH Algarve, and multiple local partners (APA)

Agência Portuguesa do Ambiente

Volume II of PRED+Alg provides a detailed catalogue of 62 actionable measures to improve water efficiency across key sectors in the Algarve—urban, agricultural, tourism (including golf), and industrial—under worsening drought conditions. The document outlines short- to medium-term initiatives that reinforce governance, improve monitoring, modernise infrastructure, and promote behavioural change.

Several actions specifically target the golf sector, such as redefining abstraction limits, encouraging treated wastewater reuse, requiring updated irrigation plans, and improving monitoring and telemetry for water withdrawals. A phased review of water abstraction licenses (LURH) is also planned to align legal limits with evolving climatic and hydrological realities. Other cross-sector measures include installing smart meters, increasing drought education campaigns, evaluating irrigation needs for green areas, and enhancing aquifer recharge zones.

LET'S DIVE IN

FEGGA CONFERENCE

WATER STEWARDSHIP WORKSHOP

Purpose and Goals

- Hear directly from the European greenkeeping community and sense check where the sector currently stands on key aspects of water stewardship
- Identify priority pressure points and opportunities facing golf across Europe — technical, regulatory, political and financial
- Shape a European Golf Water Stewardship Roadmap and inform updates to the Sustainable Golf Framework - Water Stewardship - focus areas and best practices

GROUP WORKING

FRONT OF ROOM

South

Portugal – Spain – Italy –
Bulgaria – Croatia – Slovenia –
Greece – Cyprus – US

**PATRONS ROOM
AND OUTDOORS**

Central

Netherlands – France –
Belgium – Switzerland –
Germany – Austria – Poland

BACK OF ROOM

North

Sweden – Iceland – Norway –
Finland – Denmark – Estonia –
Ireland – UK – Canada

Industry partners

Mix throughout the room

GROUP TASK

**SELECT THREE WATER
STEWARDSHIP
PRIORITIES FOR YOUR
REGION**

DISCUSS EACH IN MORE DETAIL

PROGRESS AND SUCCESSES

BARRIERS AND CHALLENGES

FUTURE NEEDS AND OPPORTUNITIES

PRIORITIES FOR WATER STEWARDSHIP

Collaborate within
catchments

Pricing and
regulation

Diversify sources
and supplies

Gathering data
and evidence

Resilient
landscaping

Efficient use

Adaptation to
flooding and erosion

Greenkeeper
education

Further research
and knowledge

Golfer
engagement

Protection of
water quality

Public
communications

**Select top 3 priorities. Discuss each. Successes; challenges; future needs and opportunities.
Nominate a reporter to track and share key points of discussion.**

GROUP FEEDBACK AND DISCUSSION

Reporters to share each group's insights.

Priorities. Successes. Challenges. Future needs / opportunities.

Open conversation.

Next Steps

- Review of workshop information
- Technical Working Group
- Association Survey – Data and Water Stewardship
- Drafting and sharing Roadmap
- Final working version in usable / adaptable format

Thank you for contributing!

Please share any follow up perspectives or sources of information with:

sustainability@ega-golf.ch and robbie@sustainable.golf