MEASURE WHAT MATTERS

The 2026 turfRad Customer Impact Study

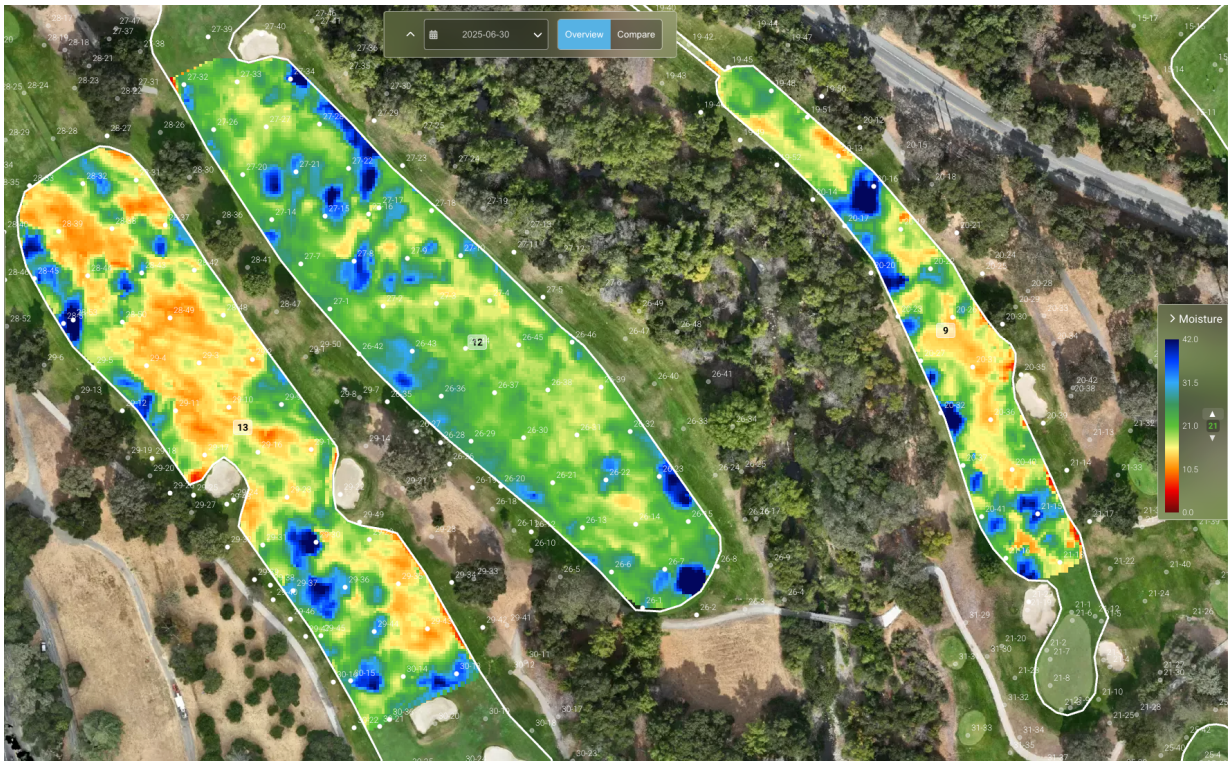
How turf management teams are using mapped moisture data to save water, reduce operating costs, and improve how courses are managed.

33 SITES • 3,240 IRRIGATED ACRES • EMEA + NORTH AMERICA + APAC

Customer survey completed September 2026

TANGIBLE	SUSTAINABILITY	INTANGIBLE
Reduce operating costs	**Save water**	**Improve how the course is managed**

Advanced Moisture Mapping Technology



Three impacts, one operation

The expanded dataset shows the same chain repeatedly: measured moisture data changes irrigation decisions, which changes how water, labor, and energy are used - and what the course experiences as a result.

TURFRAD DATA → CHANGED DECISIONS → DIFFERENT USE OF RESOURCES → MEASURABLE IMPACT

TANGIBLE IMPACT

71%

reported positive ROI

EMEA + North America: 22 of 31 who answered; 9 too early; none negative. 7 courses also reported one-off planning savings.

SUSTAINABILITY IMPACT

13.5%

average reported water-use reduction

148–214M gallons (560–809 thousand m³) across 21 exact baselines.

INTANGIBLE IMPACT

88%

reduced overwatering

76% moved to targeted irrigation; 73% reported improved playing conditions.

Study footprint

16 North American facilities, 16 EMEA facilities, and 1 APAC facility, representing approximately 3,240 irrigated acres (1,311 ha).

Adoption maturity

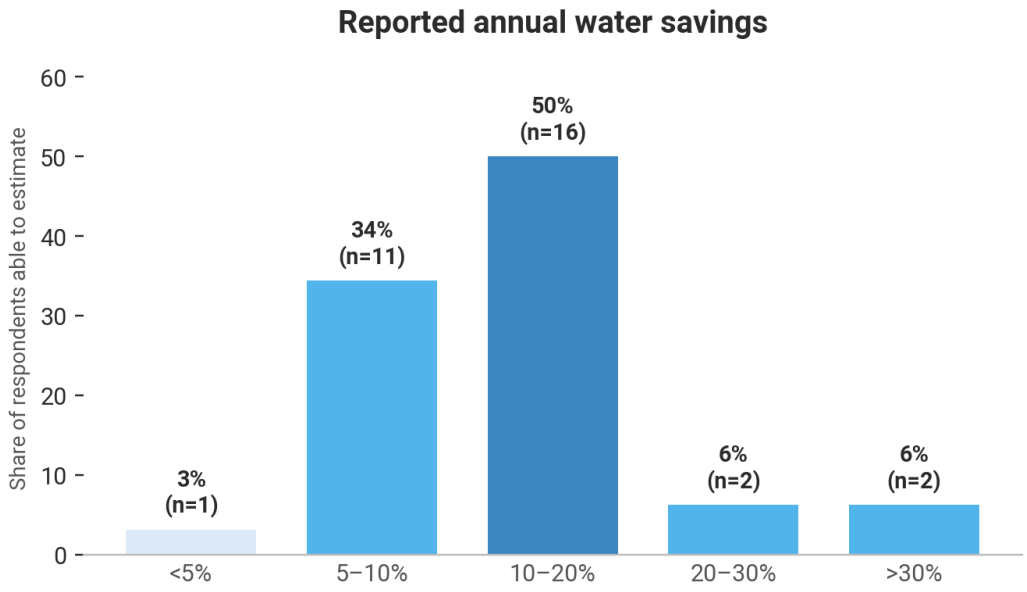
18 of 33 respondents (55%) had used turfRad for less than one year. Early impact is therefore an important part of the study.

> *"turfRad has helped us reduce our annual water use by 15% while delivering more consistent playing conditions for Ravenna's members."*
>
> **Steve Datwyler, Director of Agronomy, Ravenna Country Club**

Source: 2026 turfRad ROI & Impact Survey, n=33. Findings are self-reported by participating customers.

13.5% Average Reported Water-use Reduction

All 32 respondents who provided an estimate reported water savings; 31 selected a savings range of 5% or more.



n=32; one respondent said it was too early to estimate.

97%	63%	13.5%
selected a 5%+ savings range	**reported 10%+ savings**	**average normalized estimate**
31 of 32 respondents	20 of 32 respondents	Median also 13.5%

Estimated annual volume impact

Across the 21 sites with an exact baseline and usable savings estimate, the median course in this group reports saving about **9 million gallons (34,000 m³)** of water a year. Individual results range from roughly **0.7 to 24 million gallons (2,500 to 91,000 m³)**, largely tracking how much water each course used to begin with. Across the group, that is about 10% of their combined pre-turfRad water use.

How to read the number

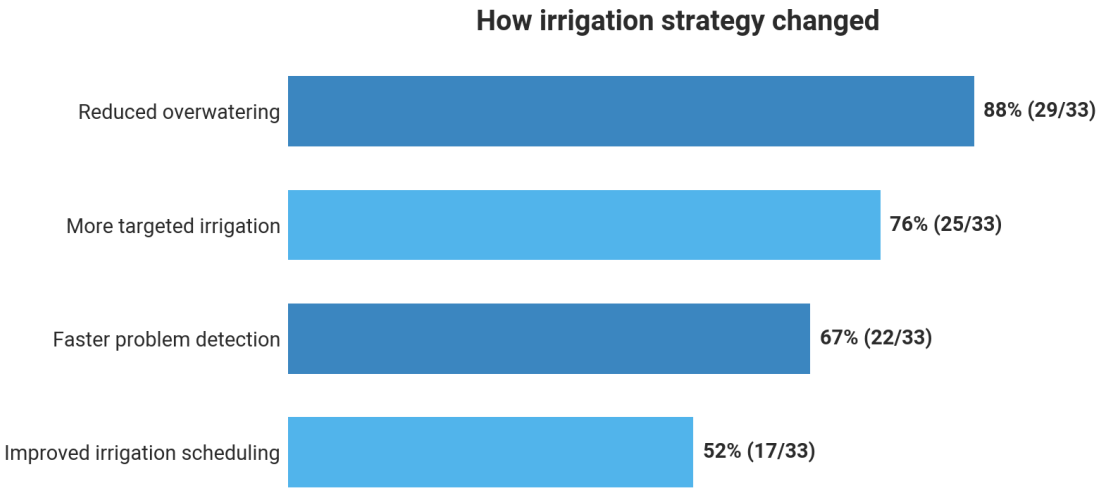
The **13.5%** figure uses all **32 respondents** with a usable savings estimate. The per-acre calculation uses the subset of **21 courses** that supplied an exact annual water-use baseline. Across their **2,229 irrigated acres**, the midpoint equals about **81,200 gallons** saved per acre per year.

> *"Water savings by millions of gallons annually."*
>
> **Lance Lauer, Director of Grounds, Country Club at Castle Pines**

Percentage findings use all 32 usable savings estimates; exact values where valid, otherwise range midpoints. The volume estimate uses the 21 sites with a plausible exact baseline; three baselines inconsistent with the reported irrigated area are excluded pending confirmation. Results are customer-reported and not independently audited.

The mechanism: water moved to where it was needed

Respondents most often described more targeted placement, less overwatering, and earlier identification of problems.



What the pattern means

Reduced overwatering was reported by 88% of participants, while 76% moved toward more targeted irrigation. Faster problem detection followed at 67%, and about half (52%) reported improved irrigation scheduling.

Why this matters

Mapped moisture data helps teams separate persistent wet and dry patterns from one-off conditions, adjust smaller areas, and verify whether irrigation produced the intended result.

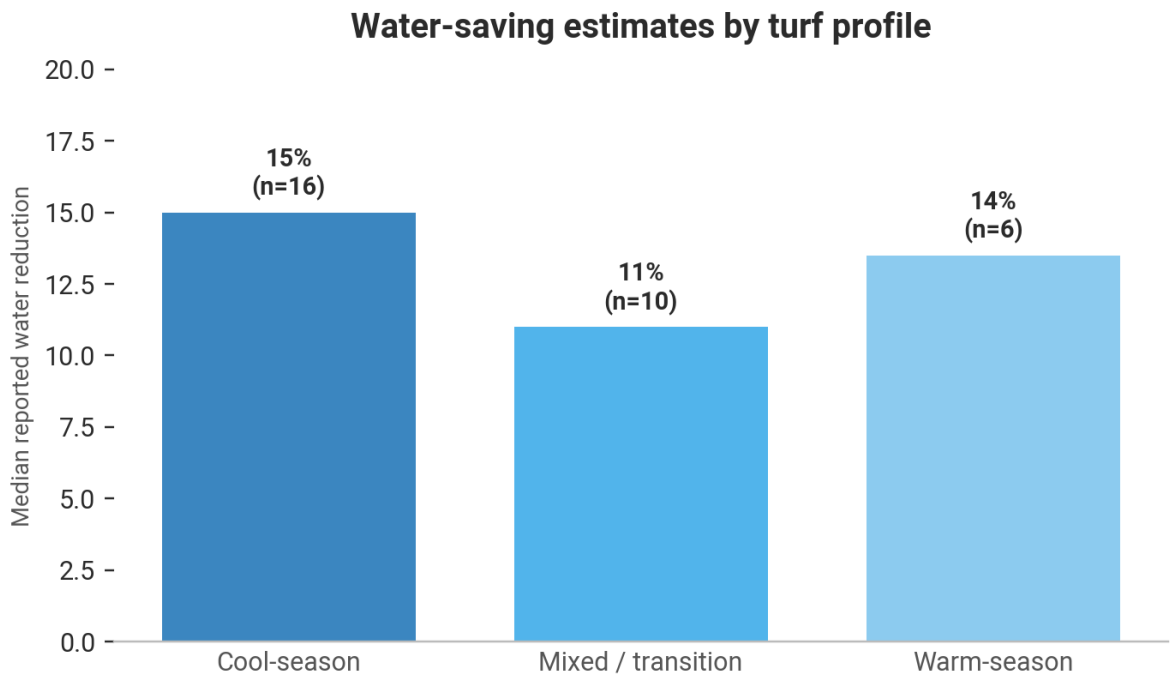
> *"We use less water but place it where it needs to go."*
>
> **Rick Hynson, Golf Course Superintendent, Boone Valley Golf Club**

> *"Seeing how the course drains and dries out after a rain event and how few sprinklers really need to be run at times."*
>
> **Jim Pavonetti, CGCS, Director of Golf and Grounds Maintenance, Fairview Country Club**

Percentages do not total 100% because respondents could select multiple answers.

The Pattern Across Turf Species

The current dataset is weighted toward cool-season turf, but all three profiles reported meaningful water-use changes. These comparisons are descriptive and should not be treated as causal.



Turf profile	Sites	Median water reduction	Targeted irrigation	Reduced overwatering	Faster problem detection
Cool-season	17	15% (n=16)	82%	88%	71%
Mixed / transition	10	11% (n=10)	60%	90%	70%
Warm-season	6	14% (n=6)	83%	83%	50%

What stands out

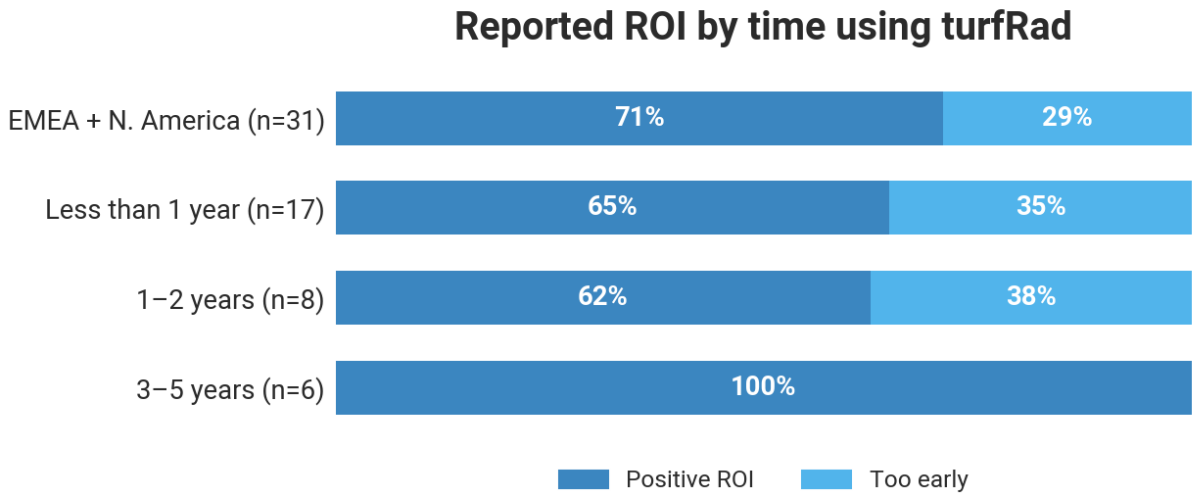
Cool-season respondents most often reported reduced overwatering (88%) and targeted irrigation (82%). Mixed/transition respondents most often emphasized reduced overwatering (90%). Four of six warm-season sites reported both targeted irrigation and reduced overwatering.

Important limitation

Mixed/transition indicates a combination of cool- and warm-season species; it is not a formal climate-zone classification. The warm-season sample has grown to 6 sites but remains small.

Financial Return Extends Beyond Direct Water Charges

Among the 32 EMEA and North American respondents, eleven submitted a zero direct water price and three did not provide one. Labor, pumping energy, and resource allocation remain central to the financial case. The sole APAC response is shown separately because n=1 is not a regional benchmark.



EMEA + North America only, respondents who answered; percentages rounded. APAC n=1 is shown separately in the report.

22 / 31	9 / 31	APAC n=1
reported positive ROI	**said it was too early**	**reported no positive ROI**
71% of EMEA + North America	29% of EMEA + North America	single observation; not a regional benchmark

Return by length of use

EMEA + North America only, respondents who answered: less than 1 year, 11 positive and 6 too early; one to two years, 5 positive and 3 too early; three to five years, all 6 reported positive ROI.

Most common sources of savings

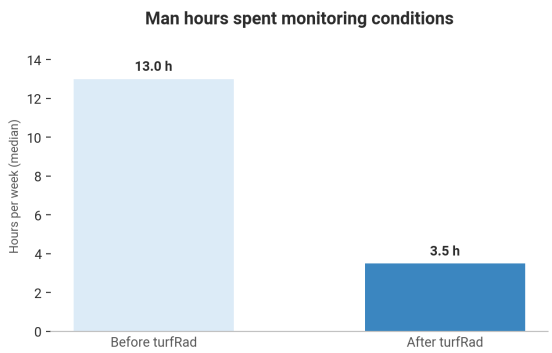
EMEA + North America, n=32: Water reduction 25 (78%) • Improved resource allocation 17 (53%) • Labor savings 16 (50%) • Reduced turf loss 15 (47%)

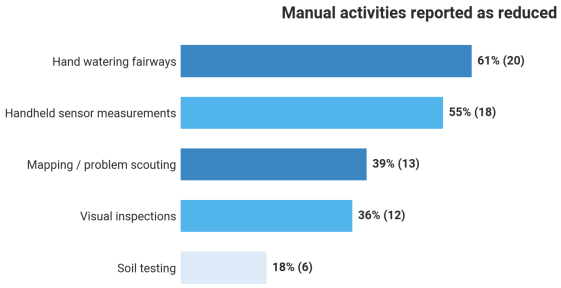
ROI was self-reported rather than calculated from a common purchase price or accounting method. One EMEA respondent did not answer the ROI question. EMEA and North America rates exclude the single APAC response. APAC n=1 is shown separately and should not be interpreted as a regional benchmark.

06 | TANGIBLE IMPACT - LABOR

The labor effect is time redirected, not observation eliminated

Respondents reported less time spent on repetitive irrigation monitoring, hand watering, handheld measurements, and problem scouting. The stronger interpretation is that staff time can be redirected to higher-value course-management work.





85%
reduced at least one manual activity
28 of 33 respondents

83%
reduced fairway hand-watering / man-hours
24 of 29 applicable

5.0 h
median weekly monitoring-time reduction
Approximately 260 hours/year

€2.6K / $8.3K
annual modeled value of redirected time
EMEA / North America median per course

> *"The ease of collection. Going from manual collection to riding on the machine with my team that's already doing a different job is a win-win."*
>
> **Andy Lindloff, Director of Agronomy, The Fountaingrove Club**

Time categories were converted to midpoints (e.g. "more than 15 h" = 17.5 h, "more than 10 h" = 12.5 h); results are directional. Median modeled annual value of redirected monitoring time was €2,600 per EMEA course (n=9) and $8,320 per North American course (n=15). Values reflect site-wide activity.

Labor and pumping turn resource efficiency into financial value

Each value below is an annual modeled median per participating course and reflects site-wide activity, not one individual fairway. Regional values are shown separately so currencies are not mixed.

MEDIAN MODELED ANNUAL VALUE PER COURSE	EMEA (EUR)	NORTH AMERICA (USD)
Site-wide fairway labor value	**€1,976** (n=6)	**$8,970** (n=11)
Site-wide pump-electricity value	**€6,300** (n=5)	**$3,840** (n=13)

Labor model

Site-wide fairway labor value = reported weekly reduction in fairway hand-watering or related man-hours × submitted hourly labor rate × 52 weeks. The table reports the regional median per course.

Pumping model

Site-wide pump-electricity value = submitted annual pump-station electricity cost × normalized water reduction. The EMEA median excludes one clearly implausible pump-cost entry; North American records without currency are treated as USD.

11 / 32
submitted a zero direct water price
EMEA + North America

18
sites contribute to the pump model
5 EMEA + 13 North America

17
sites contribute to the labor model
6 EMEA + 11 North America

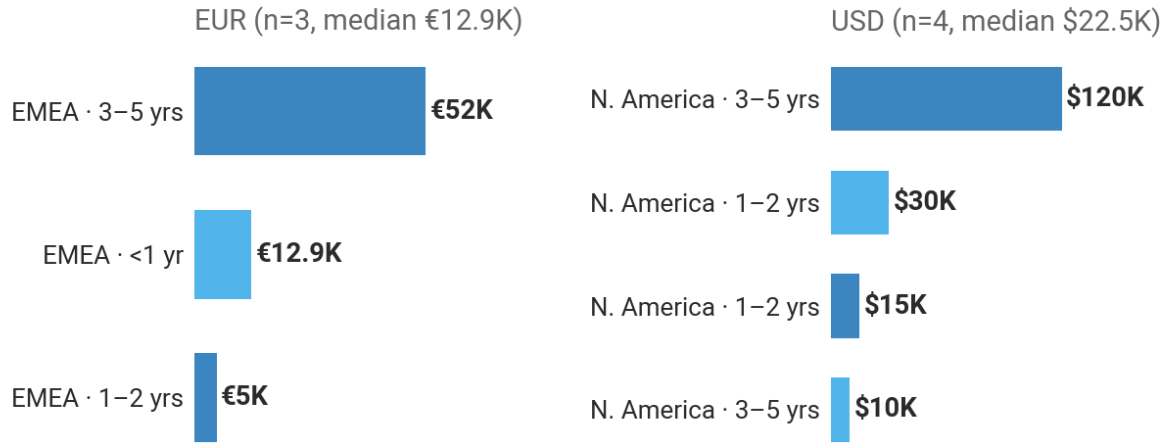
> *"Consistency of playing surfaces and better allocation of our team's time evaluating irrigation scheduling."*
>
> **Brian Boll, Director of Golf Course and Grounds, Interlachen Country Club**

Labor and pumping medians use different respondent subsets and should not be added. Among four EMEA courses with complete inputs for both models, combined annual modeled value ranged from €3,635 to €20,844 (median €13,582). The sample is too small for a regional payback claim. The sole APAC response remains in global sustainability and operational findings but is excluded from EMEA/North America ROI rates and financial medians. Its ROI response is shown separately on page 6. Direct water-cost savings should be calculated course by course after validating units and tariffs.

Moisture maps also pay off in capital decisions

Beyond day-to-day irrigation, seven courses put a figure on money saved by making a renovation, drainage, or irrigation-upgrade decision with turfRad data: for example, draining only the areas the maps showed to be wet, or sizing an irrigation upgrade to measured need. These are one-off, self-reported estimates in local currency, not annual values.

Reported cost savings from data-driven planning decisions



7 / 33	$22.5K	€12.9K
reported a planning saving	**median reported, North America**	**median reported, EMEA**
4 North America, 3 EMEA; 14 used data for planning	n=4; range $10K–$120K, total $175K	n=3; range €5K–€52K, total €70K

What the money came from

Projects respondents said were informed by turfRad data: drainage installation (11 courses), irrigation upgrades (8), course renovations (4), sand capping (2), aeration and turf replacement (1 each). The largest single saving, $120,000, came from a course that used the data for irrigation upgrades, turf replacement, and renovations.

How to read the number

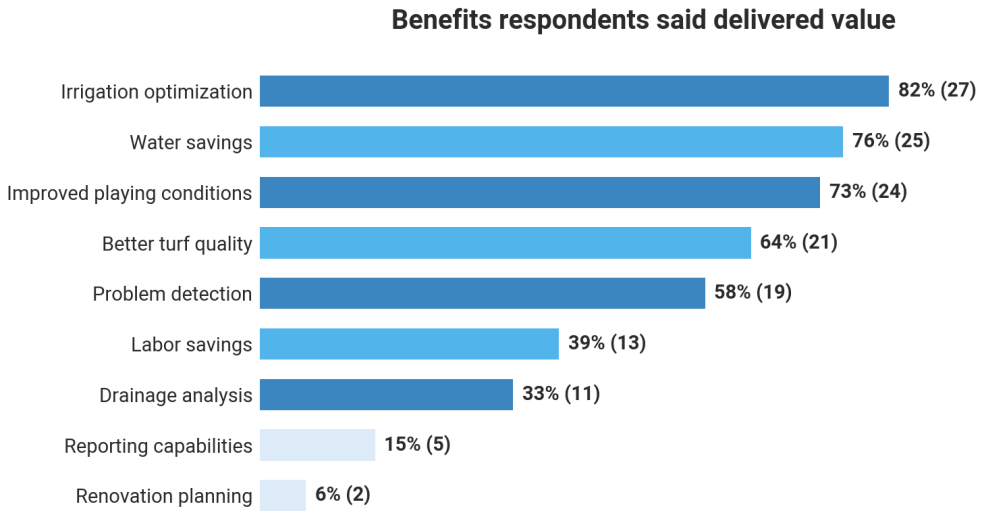
Unlike the labor and pumping values on the previous page, these are one-time savings the course itself estimated, not modeled from survey inputs, and the courses used different definitions. Four of the seven reported a saving without also ticking “used for planning”, so the question was likely read as avoided cost in general. Treat the figures as evidence that the value exists, not as its size.

> *“All the other information we can collect from it, like the need for new drains, the different types of soil and how moisture performs.”*
>
> **Luis Pinto, Golf Course Superintendent, Els Club Vilamoura**

Savings are customer-reported, one-off estimates in local currency and are not included in the annual modeled medians. Currencies are shown separately and should not be combined. Course identities are withheld where respondents chose anonymous quoting.

What got better on the course

The median respondent selected five different areas of value. Irrigation optimization ranked first, followed by water savings, improved playing conditions, better turf quality, and problem detection.



82%	73%	64%	58%
irrigation optimization	**improved playing conditions**	**better turf quality**	**problem detection**
27 of 33	24 of 33	21 of 33	19 of 33

> *"The quality of the grass in many areas we used to overwater has improved; those areas, which were previously very wet, are now in better condition."*
>
> **Ricardo Baron, Head Greenkeeper, La Hacienda Links Golf Resort**

Potential downstream value

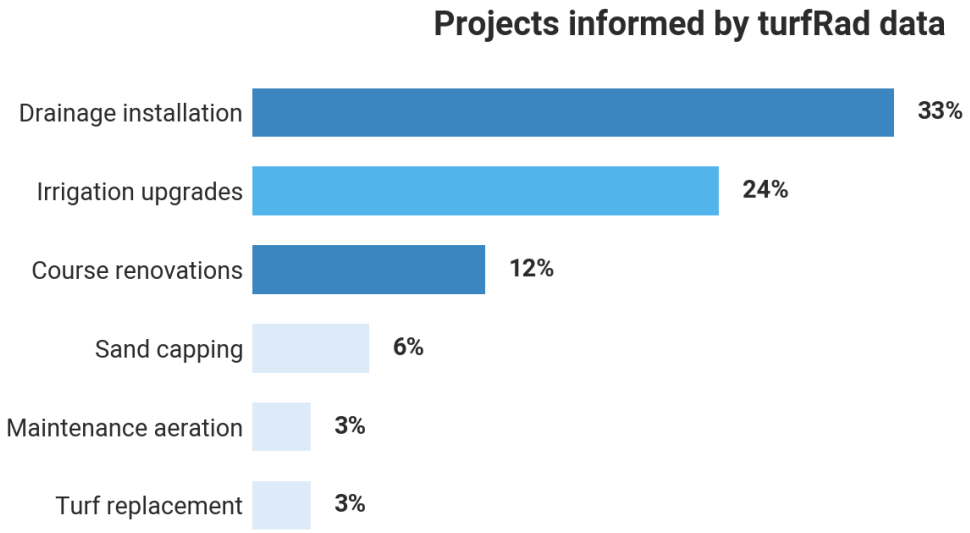
More consistent conditions and playability may support member or player satisfaction, retention, reputation, or rounds played. These are downstream business effects, not financial outcomes measured by this survey.

Decision-making value

Respondents repeatedly described faster conclusions, more consistent decisions, and clearer evidence for managers, boards, and committees.

Moisture maps beyond nightly irrigation

Respondents used mapped moisture patterns to investigate drainage, verify irrigation performance, plan upgrades, and identify issues before visible turf stress. Fourteen respondents (42%) had already used turfRad data for planning; 64% of applicable respondents (18 of 28) rated drainage identification moderately, very, or extremely valuable.



> *"The ability to hone in on issues before they were visible to the eye through plant stress."*
>
> **Lance Lauer, Director of Grounds, Country Club at Castle Pines**

Reported examples

Courses described detecting a closed irrigation valve, finding an incorrect sprinkler configuration, and recognizing wet areas before turf quality declined.

Single-course financial example

La Cumbre Country Club reported $120,000 in estimated savings from data-driven renovation planning, the largest of seven such cases (see page 9). This is one customer-reported case, not a study-wide average.

Project categories are based on multiple-choice responses; percentages use all 33 respondents and may total more than 100%. The La Cumbre figure is a single self-reported case.

Four customer stories show how the buckets connect

The survey's strongest evidence is the relationship between the numbers and the operating changes customers described.

SUSTAINABILITY **15%** WATER SAVINGS	**Ravenna Country Club** *"turfRad has helped us reduce our annual water use by 15% while delivering more consistent playing conditions for Ravenna's members."* **Steve Datwyler, Director of Agronomy**
TANGIBLE **TIME**	**The Fountaingrove Club** *"The ease of collection. Going from manual collection to riding on the machine with my team that's already doing a different job is a win-win."* **Andy Lindloff, Director of Agronomy**
INTANGIBLE **EARLIER**	**Country Club at Castle Pines** *"The ability to monitor moisture levels across the entire property in a short time on a daily basis, and be comfortable knowing the data is accurate, has changed the way we schedule our irrigation cycles."* **Lance Lauer, Director of Grounds**
ALL THREE **VALUE**	**Interlachen Country Club** *"Greater playability on the course and confidence with irrigation scheduling for multiple users."* **Brian Boll, Director of Golf Course and Grounds**

Quotes were used only where respondents granted permission and were lightly edited for spelling, clarity, and length without changing meaning.