

# WATER PRESSURE

by Brian Vinchesi

Irrigation is a complex issue on so many levels for superintendents. The industry's largest irrigation suppliers weigh in on future trends, availability issues and how this industry will be forced to cope.

**W**ater is a limited resource and the pressure on golf courses to use less water continues to rise.

With this in mind, I thought it would be interesting to place reps from the three major irrigation equipment manufacturers – Jon Truttman, director of market development at Hunter Golf; Paul Roche, national sales manager – golf division for Rain Bird; and Steve Snow, director of golf irrigation sales and service at Toro – in the hot seat and get their perspectives on water issues and our industry.

“If you had asked the same question 20 years ago, I am not sure the answer would not have been the same,” says Truttman about the complexity of today's water issues. “It is still about ET, uniformity and efficiencies. Golf courses are already the most efficient users of water and most superintendents do



“Superintendents will need to do a better job of **showing how efficient they are** with their water use to help stave off even more regulation.”

– Jon Truttman, Hunter Golf

a good job of working with what they have, as they are very incentivized to water in the most efficient way possible. They are under pressure to keep reducing use in certain geographical areas and that will occur everywhere over time.”

Snow concurs. “Less water availability will require better quality irrigation components to push the envelope to squeeze more water out of each irrigation system using new technology and to optimize water use,” he adds.

Roche foresees superintendents under

continued pressure to reduce their water use. “Regulations limiting water use are becoming more common,” he says. “To help manage new restrictions, water ‘budgeting’ based on a percent of ET is commonplace for golf and the trend is moving towards measuring moisture at the soil level.”

Golf course irrigation will continue to evolve and change as new technologies and regulation shapes its future, the trio concurs. Integration between various systems and components will have a huge affect on systems even in the near future. Clubs that can afford new technologies will lead the way, the group says, but over time the cost of technology will lower and a large majority of courses will be integrated. At the same time using water as efficiently as possible will be the priority and expect to measure and report that use.

## How do you see the immediate future of water in terms of quality?

**Roche:** Twenty years ago, when reclaimed water was starting to become a water source for golf irrigation, water departments couldn't wait to get rid of it. Today they are starting

“Spacing and sprinkler locations will be closely managed to ensure uniformity.”



to believe that it is too valuable a water supply. This will force golf courses to less quality supplies such as rain water capture systems. The use of grey water from clubhouses, restaurants and other facilities on the property is probably not too far into the future.



“The tighter spacings on most designs today are providing the **control and uniformity** needed to reduce water use.”

– Paul Roche, Rain Bird

*Snow:* It’s important to focus on things that the superintendent can control. Monitoring and measuring the quality of the water and having better tools to affect its manipulation are needed. Technology can provide more information to make better decisions, resulting in better water quality.

*Truttmann:* Practices will have to change as water quality decreases. The superintendent will need to be more in tune with the daily and weekly changes occurring in their water. They will have to learn more about their water treatment options and how various treatments affect both their water and agronomic practices.

#### **From a water-use standpoint, how will regulation impact golf course irrigation systems in the future?**

*Snow:* Regulation will vary market to market, but especially in areas with drought. There will be more regulation on everything; emission controls, pesticides, noise and water. With more regulation will come more reporting requirements and golf courses need to prepare.

*Roche:* All use will be metered and accurate reporting on use will be mandatory. Golf course water budgets will be enforced with penalties for overuse [similar to how electrical demand charges are imposed for electrical consumption].

*Truttmann:* There will be more water regulation, not just because it is a real issue, but also because it is a political issue. Superintendents will need to do a better job of showing how efficient they are with their water use to help stave off even more regulation.

#### **How will regulation impact golf course irrigation systems from a design/equipment/installation standpoint?**

*Roche:* Irrigation systems will be required to undergo periodic audits and comply with uniformity and management targets. Spacing and sprinkler locations will be closely managed to ensure uniformity. Irrigation consulting services to help maintain compliance

will be common. Golf sprinkler nozzles will need to have large “sweet spots” to ensure uniformity across the variable conditions seen on a golf course. Contractors will have maintenance contracts to ensure the sprinkler grade stays consistent over time.

*Snow:* The water industry is trying to be prescriptive for golf as it is already for residential irrigation. Water restrictions make

it incumbent on the industry to educate the water provider that golf courses are good water users and water managers. Compromise, like what occurred in Los Angeles, needs to be the norm and not the exception.

*Truttmann:* The golf industry will be better served if they develop their own metrics in terms of monitoring and reporting water use as opposed to being told how they need to

## **OUTLOOK**

### **WATER ISSUES IN 5 YEARS...**

*Roche:* Change is already underway in the arid southwest and the southwest will most likely lead the way as they did with the adoption of reclaimed water. With continued pressure on water resources, on site treatment of grey water will become a strong consideration as a supplemental water source. More courses will be required to have Drought Management Plans that can be easily implemented as water use restrictions become more common.

*Snow:* Water quantity and quality will always be important, not only now, but well into the future.

*Truttmann:* There will not be many changes in the immediate future, unless there are extreme weather conditions.

### **WATER ISSUES IN 10 YEARS...**

*Roche:* Soil sensing will be commonplace and, by this time, integration with the central control system may even be mandated. Superintendents will be breaking up their courses into site specific management zones to specifically target the volumetric water content targets for various areas across the golf course. Water management specialists that manage irrigation systems remotely, with input from site personnel will play a larger role in golf.

*Snow:* It’s hard to look past five years as technology develops very fast and water regulation is not a stable situation. Regulation will be ongoing and continue to be tweaked so the results are hard to predict.

### **WATER ISSUES IN 20 YEARS...**

*Roche:* Golf equipment and machinery, drones and other vehicles with positioning based soil-moisture sensing and photography that detects plant stress will gather information for the golf course superintendent and their management teams to analyze and respond accordingly. Map based soil moisture data will sync with the irrigation management software. Water capture systems will be much more common, collecting water lost from the root zone and returning it to the central water source.

*Snow:* It’s hard to imagine 20 years out in the future, as technology can move faster than implementation but implementation will move at the pace the superintendent is willing to accept and pay for.

*Truttmann:* Evolution will continue. In some places water use has come a long way in 20 years and in others it will take 20 years to catch up. Water use and its regulation vary regionally and with what type of golf course it is. You can pretty much bank on water being more expensive to use and to pump and the quality will be lower. This will drive innovation such as drought tolerant turf and better irrigation equipment which will hopefully drive costs down.



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– Steve Snow, Toro

do the measuring and reporting. All courses will have to monitor, measure and report their water use in the future.

**From a design standpoint, what is lacking in today’s golf course irrigation systems?**

Roche: Designs today have evolved to a point where application uniformity is of major importance. The tighter spacings on most designs today are providing the control and uniformity needed to reduce water use. We

are starting to see more designs that take into consideration drought management needs with the use of more and more full/part circle sprinklers.

**From an equipment standpoint, what does today’s golf course irrigation system lack?**

Truttmann: Manufacturers continue to strive to improve efficiencies with specific uniformity goals and to drive down the scheduling coefficient. There is a

need to have one sprinkler cover a wider range of spacings while maintaining high uniformity. Golf courses need to provide ongoing maintenance of worn out sprinklers and nozzles and keep sprinklers level and at grade. Maintenance is required so the equipment provides good uniformity throughout its life.

**From an installation standpoint, what is lacking in golf course irrigation systems?**

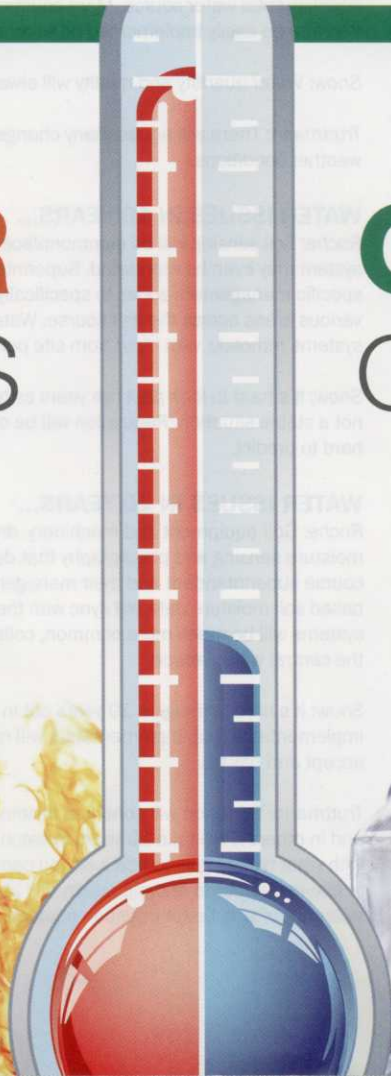
Snow: Contractors have not

caught on to working with newer technologies such as two wire systems. They need to stay connected to the manufacturer and communicate with them up front on a project. One person should be doing all the splicing or grounding for consistency and reliability which is critical on today’s systems.

Roche: Professional irrigation contractors do a great job. Many offer extended service contracts that help ensure that the system

**HOTTER**  
ON WEEDS

**COOLER**  
ON TURF



continues to operate at peak efficiency for the years after the initial system installation.

*Truttmann:* Irrigation contractors today are better than ever as the bad economy flushed out some of the poor installers. Most are okay at installing, which is a lot better than it was 15 years ago.

**Current technology aside, where is irrigation system equipment development headed for golf?**

*Roche:* Saving water, energy and labor will continue to be top priorities. This will be achieved with integration with sensors and mobile devices. Today's busy golf course superintendents need information at their fingertips. Sprinkler uniformity and dura-

bility will always be a priority.

*Snow:* More integration and control will be the norm. Sensing everything and having connectivity to sense even more things such as chemicals to improve water quality is needed. Systems will provide a convenient way to provide more predictive modeling in the future; anticipated flow and weather conditions for example. Control needs to be easy and on the same platform for integration.

*Truttmann:* There will be more use of off the shelf technology such as the internet and the cloud to react to the needs of the superintendent faster. The manufacturer has to evolve too, so that they are quicker to use technology and innovation and

to get to market with it quicker.

**Will future irrigation systems be sold differently than today?**

*Snow:* Value-added services that can be charged for is changing selling. Technology is helping distributors to be more effective and efficient, such as troubleshooting remotely even for service people. Distributors are more connected to the manufacturer so the distributor can be more connected to the customer.

*Roche:* The cost of an irrigation system has always been important consideration. We see more of a push to two wire control where signal and power are both communicated across the wire path. Superintendents today are also concerned about future coverage and control needs and

two wire provides an easy way to modify and expand the system as needed.

*Truttmann:* The overall cost of irrigation system renovations need to be reduced because new systems are too expensive for most facilities. The irrigation system as a whole needs to be a smaller asset of the overall golf course. **GCI**

*Brian Vinchesi is president of Irrigation Consulting Inc., headquartered in Pepperell, Mass., and writes GCI's irrigation column.*

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