

How you're using water

Superintendents explain how they're utilizing water resources and their prevailing attitudes toward water consumption.

In conjunction with GCI, Trone Brand Energy conducted research to gain an appreciation for the differing attitudes and behaviors resulting from the variety of recent drought levels.

As Figure 1 shows, only 37 percent of the respondents reported not having to deal with any drought conditions at all and 14 percent noted they had experienced a severe drought in the last year. Despite these problems, most courses continue to operate at their own volition. Among those experiencing severe drought conditions less than half (42 percent) have had an outside authority intercede and put restrictions on their water consumption. And, most of those who had restrictions enforced felt the limitations were minor despite the fact that more than half (54 percent) reported

their water use would be 20 to 50 percent higher if consumption was not controlled.

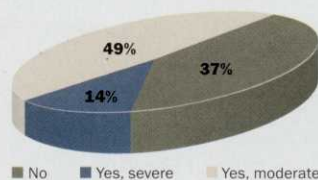
Consumption levels, cost and budget impact did not vary substantially based on the weather conditions experienced. As expected, expenditure levels were driven primarily by the number of holes maintained. As a percentage of the course's non-capital goods operating budget water remained remarkably consistent across the sample. For the overall sample the budget impact was 5 percent. That was also the case for those experiencing no or moderate drought conditions. Among those with severe drought conditions the number increased marginally to 6 percent.

The application of water by course part was also consistent regardless of the level of drought conditions experienced. Overall, courses are putting 21 percent of their water on greens 16 percent on tee boxes, a little over a third (35 percent) on the fairways, 15 percent on the rough and 14 percent elsewhere. The only disparity of note that surfaced was that those experiencing severe drought condi-

Figure 1: Drought impact

Has your area been affected by drought in the last year?

% of respondents



tions are putting slightly more water on the rough (18 percent) and slightly less on the fairways (33 percent). This phenomenon may be the result of the need for a minimum amount of water being necessary to keep from losing the rough completely.

Lakes/ponds (39 percent) and wells (30 percent) are the most common sources of water followed by municipalities (17 percent) and rivers and streams (14 percent). Among those experiencing severe drought conditions the municipality number jumps to 29 percent. This disparity is likely the result of an increased desire or requirement to use effluent or reclaimed water which is, in fact, much higher among those being short changed by Mother Nature. Overall, 13 percent of

Key observations

- The majority of superintendents believe an environmental obligation to conserve and/or recognize the risk of outside intervention (77 percent top three box agreement) if they don't conserve water.
- There is no silver bullet – success is a function of doing a lot of things right. As a result, most courses are continually striving to save.
- Some popular and productive saving practices have other positive financial implications. More natural areas require less water and fewer chemicals as well as less fertilizer and maintenance.
- Other productive savings practices (hand watering, wetting agents) have an adverse impact on the budget.
- Irrigation enhancements, which are an opportunity for some, have clearly been impacted by the financial downturn.
- Many don't feel they have the tools or trained staff they need to be effective.
- There isn't a lot of concern about water testing (effluent or reclaimed and ground water testing)
- Major outside influences are less than supportive. For example, management doesn't get it; players are demanding; "fast and firm" doesn't have great traction; lush continues to be the desired state by many.

Figure 2: Reduce Annual Consumption

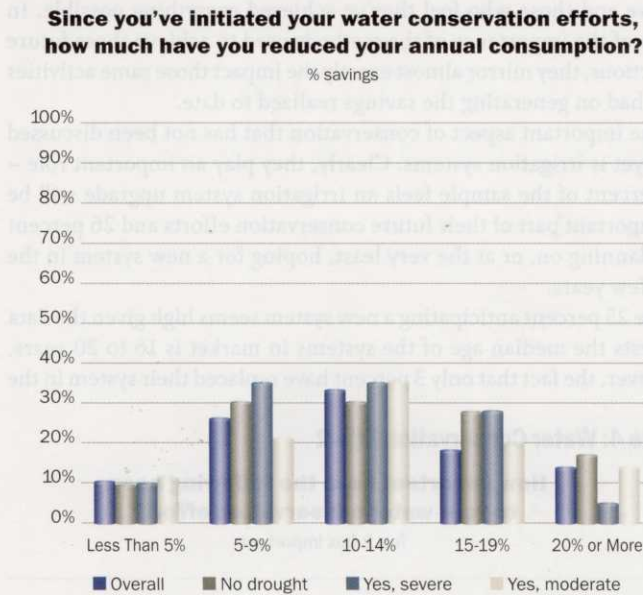
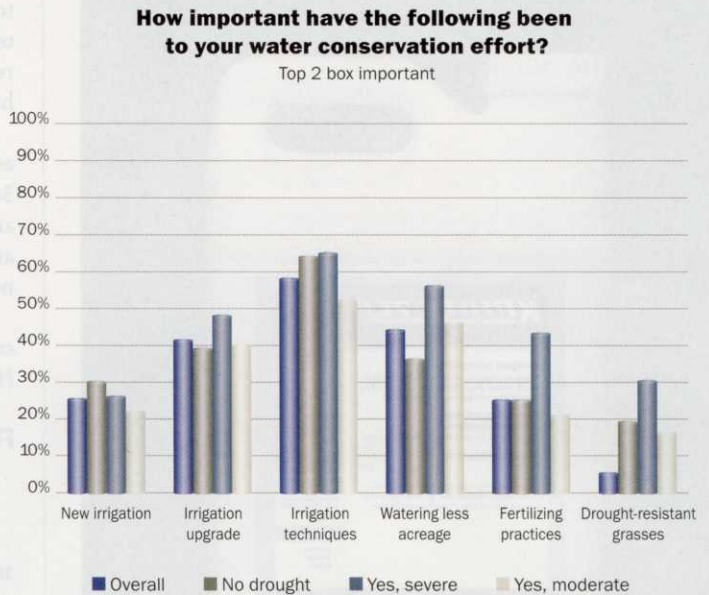


Figure 3: Water Conservation Effort



the water being used is effluent and 11 percent is reclaimed. Those numbers more than double to 26 percent and 25 percent for the courses being hardest hit by the drought. In keeping with the earlier findings few courses are having restrictions placed on their consumption by outside agencies. Only a third using effluent or reclaimed water are required to do so.

An interesting side note is that only half (51 percent)

of courses using effluent or reclaimed water are bothering to test it and the same limited number (51 percent) are using additives. Among those treating the water wetting agents (78 percent) are by far the most popular followed by gypsum (35 percent), acids (31 percent) and all other (24 percent).

Ninety-plus percent have taken some measures to reduce consumption. And, it is consistent across all the groups analyzed. The overall sample was at 91 percent with those experiencing no drought at 90 percent, moderate drought conditions at 91 percent and severe drought at 88 percent. Given the consistency of these numbers there are forces at work other than the simple availability of water. As noted, water has significant cost implications and that is likely a motivation.

To support the concept that the economic impact is a significant motivation for water conservation efforts, it is noteworthy that half of the courses have initiated their activities since the economic downturn of 2008. It is also worth pointing out that among those in the

areas most heavily impacted by the drought 43 percent of the courses began their reductions prior to 2005 as opposed to 26 percent of the overall sample having started that long ago.

As Figure 2 shows, the savings generated varies substantially but, in most cases it's significant with 60 percent or more of the sample realizing annual reductions in excess of 10 percent. Accomplishing those savings, however, is a big effort. There is no "silver bullet." As Figure 3 shows, supers are implementing numerous and varied changes to achieve the results. Of note is how much more aggressive those in the heavily drought stricken areas have been than their those elsewhere. Equally noteworthy is that while water conservation brings with it a cost savings many of the steps being taken to reduce consumption (upgrades, wetting agents, hand-watering) have their own adverse cost implications.

Across the sample the most important (top 2 box) activities in their conservation efforts have been the implementation of new irrigation techniques (48 percent), addition of wet-

ting agents (48 percent) and hand watering (48 percent). These same activities have been most critical for those achieving reductions in excess of 10 percent annually. The notable difference between the overall respondent base and those achieving the highest levels of savings (>15 percent) is the importance of a maintaining a drier course which jumps from 40 percent to 70 percent.

Another significant conservation technique is the watering of less acreage which 37 percent of the sample indicated had top 2 box importance. Far and away the increase of natural areas (73 percent) was the most popular way to reduce the acreage irrigated followed by not watering the rough (34 percent) and narrowing of fairways (21 percent).

Despite the extensive conservation efforts put in place to date, the industry is far from finished. 83 percent of courses have goals to further reduce their water consumption over the next three years. And many of those goals are significant. Forty percent are planning to save 10 percent or more with ten percent striving for reductions

Implications

- There is an industry-wide obligation to create new conservation opportunities.
- There is a need for more education: superintendents/staff; management on the benefits; and players on the need
- How big a role should water quality versus water consumption play?
- An improving economy bodes well for the irrigation companies.
- There appears to be pent up demand but, how are they positioning themselves today for tomorrow's sale?

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the WATER issue

in excess of 20 percent. Among the 17 percent planning no reduction there is undoubtedly a mix of those who have no particular motivation to save and those who feel they've achieved everything possible. In terms of the importance of the methods used to achieve those future reductions, they mirror almost exactly the impact those same activities have had on generating the savings realized to date.

One important aspect of conservation that has not been discussed as of yet is irrigation systems. Clearly, they play an important role – 38 percent of the sample feels an irrigation system upgrade will be an important part of their future conservation efforts and 26 percent are planning on, or at the very least, hoping for a new system in the next few years.

The 25 percent anticipating a new system seems high given the data suggests the median age of the systems in market is 16 to 20 years. However, the fact that only 3 percent have replaced their system in the

Figure 4: Water Conservation Effort

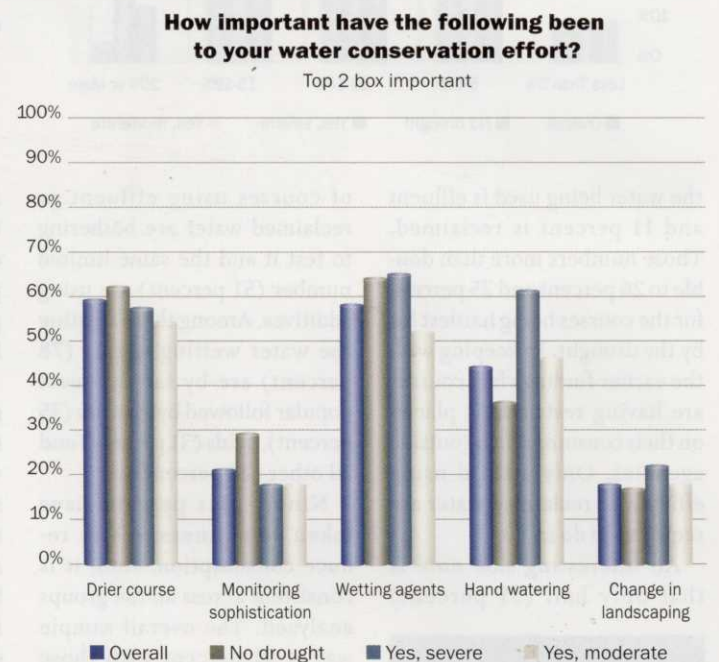
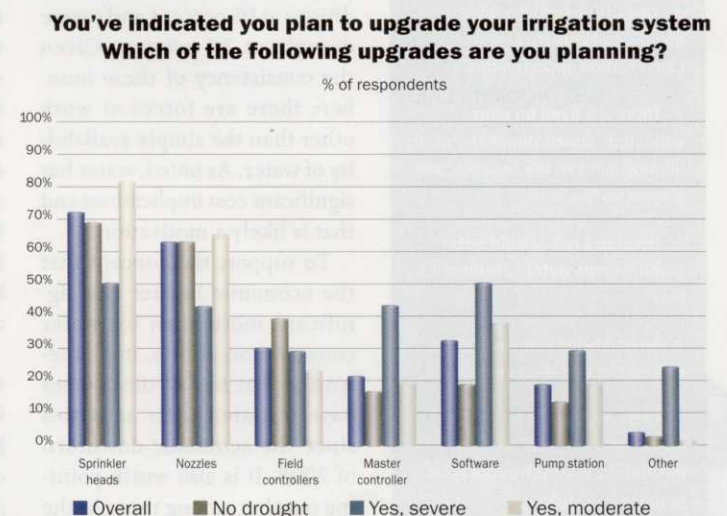


Figure 5: Water Conservation Effort



last three years and only 7 percent replaced in the three years prior would suggest the economic downturn has had a significant impact and the market is experiencing significant demand. This phenomenon is true of major irrigation system upgrades where more than half of courses have not had one in the past decade and 38 percent are anticipating one in the next few years.

As Figure 4 shows, of those planning an upgrade, the more sophisticated components will be most popular with those experiencing severe drought conditions.

In addition to the behavioral information, one of the study's goal was to understand superintendents' attitudes about water, as well as the attitudes of those who influence them.

Clearly, supers understand the dilemma.

Over half (54 percent) top 2 box agreed they have an environmental obligation to conserve water. They are also very pragmatic with 62 percent recognizing there is a significant possibility of outside intervention if the industry does not act responsibly. With that said, less than half (48 percent) agreed they were well versed in conservation techniques and only a third felt there employees were trained to save water. Most disappointingly, only 14 percent indicated they are using the most sophisticated water management techniques. This number is tempered somewhat by the fact that 34 percent feel hampered by antiquated systems.

And throughout it all, the super remains the man in the middle. On the one side they are dealing with management that still doesn't appreciate the issue. Only 38 percent were in top two box agreement that management understands the environmental impact of water use and even fewer (36 percent) feel management understands the financial impact. The other side is comprised of players who will always want a lush, green course (46 percent top 2 box) and for whom the concept of a faster, firmer course has not taken hold (only 31 percent top 2 box agreement). **GCI**

Methodology and notes

The median age of the respondents was 45 and they have an average of 11 years in their position. The courses were geographically dispersed and represented an appropriate mix of private, semi-private and daily fee facilities. As expected the majority (73 percent) were 18-hole layouts.

The study was fielded in May 2012 to the GCI circulation database. 192 responses were collected yielding a 95 percent confidence level with a margin of error of +/-7.04 points. The survey was programmed in Perseus and the analysis was conducted using SAS software. The reference to "top 2 box" is based on a six-point Likert scale. Trone Brand Energy prefers this to the more common five-point scale in that it eliminates the default neutral position (box 3 in a five-point scale) and adds meaning to the findings by not including those indicating marginal agreement (box 4 in the six-point scale).



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