

QA

Harivandi: Effluent and salt tolerance studies reaping benefits

Dr. Ali Harivandi, a 1995 recipient of the Golf Course Superintendents Association of America Distinguished Service Award, has been a regional advisor specializing in turf, soil and water with the



Dr. Ali Harivandi

University of California Extension in the San Francisco Bay Area since 1980. He has written and spoken extensively, particularly on the topics of reclaimed water use and recycling grass clippings. Harivandi earned his doctorate in turfgrass management at Colorado State University and is a member of the GCSAA Technical/Resource Advisory Committee.

Golf Course News: What is your research showing in the area of reclaimed water use on golf courses?

Ali Harivandi: We have a couple projects. We just concluded a study with colleagues at the University of California at Davis looking at using potassium chloride as a water softener instead of the traditional sodium chloride products. We want to see if the residential and industrial use of water softeners containing potassium chloride instead of sodium chloride would have any effect on the resultant reclaimed water and whether that would impact golf course turf and plants.

One of the main problems with reclaimed water is excessive amounts of sodium. It is one of those ions that contributes to the total salinity of water. Sodium by itself can also ruin the soil structure. It is a toxic material. If we can move from sodium chloride to potassium chloride water softeners our recycled water would be better for everyone, including those who use it for golf course irrigation.

That information is very useful to water agencies responsible for treating the water and providing reclaimed water to users. Some municipalities are in the process of banning the use of water softeners altogether. If we have a water softener with potassium chloride, there is no problem and no reason to ban them.

We have a lot of research on salt tolerance, sodium tolerance or boron tolerance among turfgrasses. But there is not as much information available on the salt, sodium, or boron tolerance of other plants used on golf courses and in landscaping — trees, ground covers, shrubs and things like that. Some of these plants are much more sensitive to those materials. Since there is not enough information, we have just started a project, again with our colleagues at Davis, to screen most

of the non-turf plants we use in California. We'll do 20 a year and determine their salt-tolerance levels. In a few years we should have a good database and be able to recommend certain trees, ground covers or shrubs at golf courses where they use reclaimed water.

GCN: Can you update us on your grass clippings and recycling research?

AH: I don't have an active grass recycling project right now. That research was finished last year and has created quite a bit of interest, especially here in California, where landfill space is a big issue. In California we are running out of landfill space, which I understand is also a problem in the Eastern

states. Golf courses are not a major source of green waste since many already recycle their material. The few that move their material out won't be able to do it much longer, and, if they can recycle the material on the property, will benefit [from our research].

A few of the golf organizations, like Pebble Beach Co., have

started extensive recycling programs. Pebble's program includes not only grass clippings, which it basically leaves on the ground, but also composting using all the materials gathered from the golf courses. For the next five years or so, some of my energy will go toward composting and the use of

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Rubigan	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
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Aliette	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Chipco 26019	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Subdue	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Banner Maxx	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Bayleton	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Eagle	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
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composts for turf purposes. I haven't started a project yet, but I'm talking to people and looking for funding. I won't concentrate on making compost, but after it is made how that compost could be used, either as a soil amendment or top-dressing material for general-purpose turf, which would include fairways and roughs. That

would be a useful piece of research to undertake in California.

GCN: Can you tell us about the grasses you are evaluating for the National Turfgrass Evaluation Program (NTEP) trials?

AH: We are evaluating creeping bentgrass on two experimental greens at one of our municipal courses, one pure sand and the other soil. The plan was to water these greens with reclaimed water and see if any one

of these varieties, and there were about 20, performed better with reclaimed water. That project will happen. Unfortunately, something went wrong at the treatment plant and the golf course can't get reclaimed water, but is getting fresh water instead. That project is on hold. But it should [eventually] give us good information on creeping bentgrasses where reclaimed water is used for irrigation.

We've started the NTEP/USGA/GCSAA on-site, creeping bentgrass evaluation project. There are 30 sites throughout the country. We received 18 different creeping bentgrasses and will begin evaluating them in January at Crystal Springs Golf Course on the San Francisco peninsula. The course is in the San Francisco watershed, an environmentally sensitive area. The course is maintained at the high-

est professional level to reduce the environmental impact. The green, designed by Robert Trent Jones Jr.'s office, is located in an environmentally sensitive area and should get a lot of publicity.

GCN: Are you doing any work on drought-tolerant plants?

AH: We have looked at buffalograsses and their suitability for use in Northern California, primarily roughs and, in some cases, fairways. We started six or seven years ago during the drought here. We have developed quite a bit of information and released two varieties patented by our colleagues at UC-Davis. We continue that work because there is interest, although, since the drought ended, people have kind of forgotten what they were looking for...We are looking at weed management in buffalograss.

There is another grass that not many people are using...It is a grass for minimal-use areas, roughs, the fringe of fairways and around bunkers. We have looked at hard fescue and done a lot of research in terms of its management, fertility, herbicide tolerance, water requirements and so on. It has been used in many areas as a ground cover. Spanish Bay in Monterey is one of the best-known courses to use it.

We are continuing our work to develop more information and just started a project to look at its sodding characteristics. So far, people have been mainly seeding it. One of the main disadvantages is its slow germination and slow rate of seedling growth. Here in California we have every weed imaginable, all ready to emerge once you put a little water on the soil, meaning problems with weed invasion the first couple of years. So we are trying to produce sod and see whether it will root easily or not. We can produce harvestable sod at eight months. We sodded at two different thicknesses, transplanted them and are looking at their rooting characteristics under different fertilization regimes. It seems we should not have a problem and be able to get rooting with very little fertilizer. That would benefit golf courses, especially around bunkers or small areas where they just want to sod and not mess with seeding or weed control.

GCN: Are there any other areas you would like to explore?

AH: Doing research for the sake of doing research is not that unique. We should look at how that information is communicated to the golf course superintendent. What are some of the successful educational programs, regional meetings where superintendents come together on a regular basis, for the purpose of getting education? Are we successfully getting that information to our clientele, the superintendents? Many people are, but it seems to me it's not something we talk about very often.



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