IMPROVING THE ROOTING ENVIRONMENT OF NEARLY IMPERMEABLE SOILS IRRIGATED WITH RECLAIMED WATER

By Brian Whitlark

Hollow-tine aeration of fairways and roughs remains the “gold

standard” for improving the rooting environment of nearly impermeable soils irrigated with reclaimed water. But there are other methods that can also be effective, depending on the soil type, the level of impermeability, and the type of reclaimed water used.

One of the positive outcomes of the USGA Turfgrass and Environmental Research Program has been the successful development of breeding programs for warm-season turfgrasses. With funding from the USGA and the U.S. Department of Agriculture, the USGA and its partners have developed new turfgrasses that are better suited to the challenges of reclaimed water irrigation.

An example of this is the use of sorghum-sudangrass. This grass is easily adapted to dry areas, has high water-use efficiency, and is suitable for irrigation with reclaimed water. It can also be used to create naturalized roughs on golf courses, which can reduce water consumption by as much as 70%.

Macropores - or small channels in the soil - become sealed. Without macropores, water is unable to infiltrate the soil, and instead runs off the surface. This can lead to increased evaporation and a higher risk of drought stress for turfgrasses.

But there are alternatives to hollow-tine aeration. For example, using a combination of aeration and rootzone amendments can help improve the rooting environment of nearly impermeable soils. This can be done by applying amendments such as compost, peat moss, or perlite to the rootzone, which can help improve soil structure and water infiltration.

In addition, using a combination of irrigation and soil amendments can also be effective. For example, applying soil amendments before irrigation can help improve soil structure and water infiltration, which can help reduce the risk of drought stress for turfgrasses.

Ultimately, it is the golfer that will benefit from improvements in the rooting environment of nearly impermeable soils. Improved rooting environments can lead to healthier, more resilient turfgrasses, which can help golf courses conserve water and reduce the risk of drought stress.

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