

Wastewater Use for Turfgrass Irrigation

The availability of fresh water for irrigation in many parts of the United States is becoming critically limited. This is especially true for irrigation of non-food and -fiber production sites including parks, commercial and residential lawns, athletic fields, golf courses, cemeteries, sod farms, and other landscape plantings. This is true even for the northeastern US where many people perceive an abundance of fresh water. Major metropolitan water suppliers in the northeastern US are required to double the supply capacity of their systems for the three summer months that are dominated by landscape irrigation demands.

As urban and suburban sprawl continues to grow, the demand for freshwater resources also increases. There is an obvious need to consider water conservation and the use of alternative water sources for landscape irrigation. Wastewater has long been successfully used for irrigation in the southwestern US. Wastewater includes treated sewage effluent and nonhuman wastewater: gray water. Most large-scale wastewater irrigation comes from sewage treatment plant effluent.

The benefits of wastewater as an irrigation source include conservation of freshwater that would be used for irrigation, supply of small

amount of nutrients to enhance plant growth every time the site is watered, and a reduction of pollutant (phosphorus and nitrogen) discharge to surface water.

The potential hazards from wastewater irrigation involve salt injury to plants, long term effects on soil health (reducing drainage and increasing runoff and erosion), other soluble compounds entering the water, and human pathogens in the wastewater. Proper water treatment has all but eliminated the human pathogen issue. Long-term use of wastewater irrigation of turfgrass sites in Arizona (Hayes, et al.), a low rainfall area, has shown to increase salt levels in the soil which could harm plant growth and destroy the structure of soils with clay.

In the northeast there has been very limited use of wastewater for irrigation. For example, in New York there are just two of more than 850 golf courses in the state that use wastewater for irrigation. One golf course (36 holes) in Lake Placid, NY gets all its irrigation water from the Village of Lake Placid. The village has reduced its phosphorus loading into Lake Champlain by 25 percent. To date, the Lake Placid golf courses, which have very sandy soil, have seen no turf damage from salt.

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Program Spotlight

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