

# Can Non-Potable Saline Groundwater be Used for Turfgrass Irrigation?

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## PURPOSE OF STUDY

Due to rapid population growth and urban development in the U.S., current water allocations coupled with expected future demands might soon exceed the supply required to satisfy current per-capita water-use rates. This study was conducted at New Mexico State University's Golf Course to assess the feasibility of using saline groundwater for the irrigation of turfgrasses. The researchers investigated if groundwater that does not meet drinking water standards could be used for the irrigation of cool and warm season grasses in the desert Southwest. The objective of the study was to determine if adequate quality turfgrass can be achieved using subsurface drip irrigation. The combination of (1) irrigation through subsurface drip systems, (2) the use of turfgrasses that are adapted to the climatic and soil conditions in the desert southwest, and (3) the use of saline water could combine to reduce or potentially eliminate the quantity of potable water used for turf irrigation and increase the efficiency of irrigation systems in turf areas.

## RESULTS

- Salt tolerant turfgrasses such as Alkaligrass, Seashore paspalum, Bermudagrass, and Saltgrass can be successfully established with high saline groundwater.
- Subsurface drip irrigation in combination with high saline groundwater appears to improve establishment only for the warm season grasses.

## BENEFITS

- The current drought has every southwestern town or city interested in conserving water used for landscape irrigation, whether on recreational fields for student athletics, golf courses, or municipal beautification projects. Results of this study will assist city managers plan for the use of their water resources, including low-quality groundwater that does not meet standards for human consumption.
- This project is part of a long-term study underway at New Mexico State University to assess the feasibility of using saline groundwater to irrigate turfgrasses.



Casey Johnson, NMSU graduate student examines a blade of grass at the NMSU golf course. He and others are trying to produce recreational lawns using low quality groundwater, brackish water, and wastewater effluent. (Photo by J. Victor Espinoza)



Establishment of buffalograss cv. SWI 2000 after 150 days of saline



Establishment of bermudagrass cv. Princess after 150 days of saline



Establishment of seashore paspalum cv. Seaspray after 150 days of saline

Computer screen showing pixel distribution of experimental plot.

