

Year-round Halophyte Grass Systems in a Semi-arid Environment

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Objectives:

1. Determine if *Paspalum* can be winter overseeded with a cool-season halophyte grass to maintain a year-round turf system using salt tolerant grasses.

Start Date: 2006

Project Duration: two years

Total Funding: \$10,000

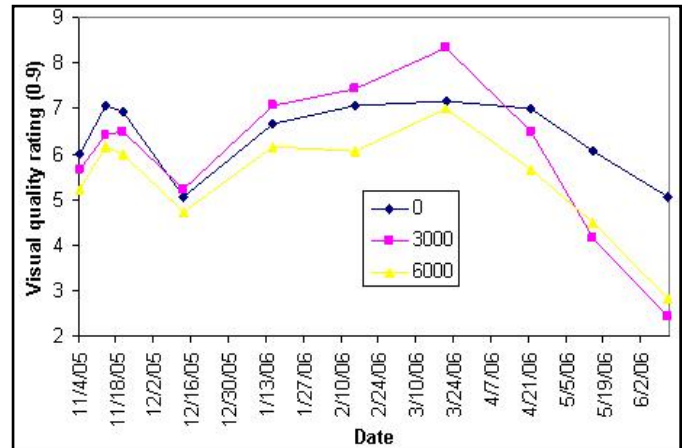
A suitable system of year-round grasses and a management system needs to be developed for overseeded turfgrasses using reclaimed water for irrigation. A test was conducted using salt tolerant 'Sea Isle 1' seashore paspalum overseeded with: (1) perennial ryegrass (*Lolium perenne*) 650 lbs/acre, (2) alkalai saltgrass (*Puccinellia distans*), and (3) 50/50 (by number) mixture of perennial ryegrass/alkalai grass.

Three levels of salinity stress were used including: (1) 680 ppm effluent only, (2) 3000 ppm including effluent, and (3) 6000 ppm including effluent. The plots were observed for turf quality, color, and clipping weight that were taken from November 2005 to May 2006.

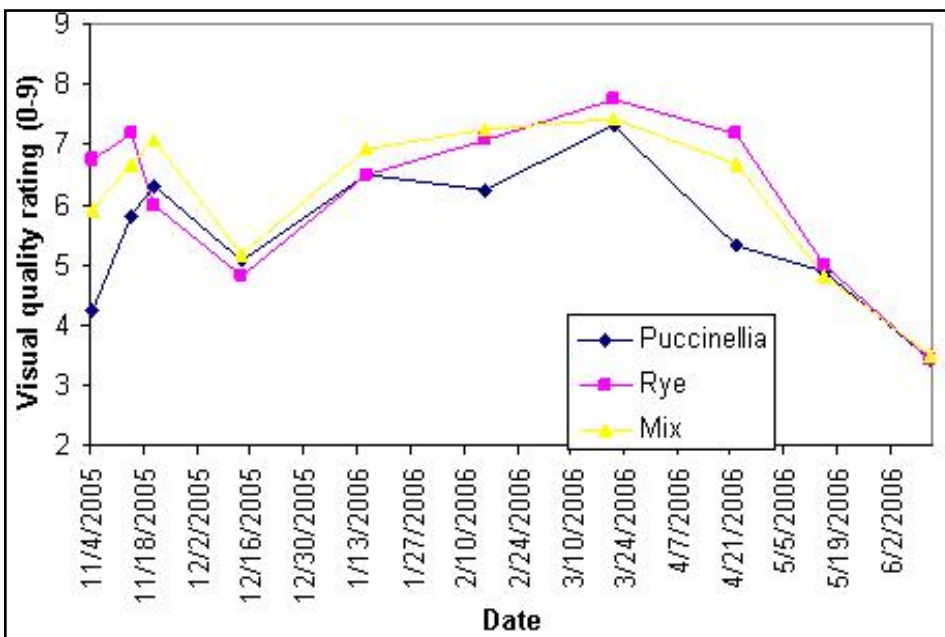
All three grass treatments produced more dry weight clippings at the 3000 ppm level than at the 6000 ppm level from shortly after the overseed until the warm weather in May 2006. Overall turfgrass quality for the test plots from November 2005 to May 2006 was margin-

al for overseeded plots. From mid-January, the medium salt treatment (3000 ppm) showed increased turf quality over that of the (effluent only) control plots all the way until mid-April 2006. When transition started in early May, both salt treatments showed a rapid decline in quality as the salt and higher temperatures caused the overseed to fail. The alkalai grass is not heat tolerant and declines with or without salt, even though it is salt tolerant.

Alkalai grass had low quality initially because of its slower germination rate. It did have acceptable quality at about four weeks after overseeding. The ryegrass and the mixture of rye/alkalai grass had good quality turf right after overseeding due to the ryegrass component. The ryegrass alone had similar performance as the mixture. In May, all grasses started to decline regardless of salt levels.



Quality levels of both the 1x (3000 ppm) and the 2x (6000 ppm) salt levels had produced poor quality turfs for all grasses with mean quality scores of 3 to 4 on a 1-9 scale.



Overall turfgrass quality for the test plots from November 2005 to May 2006.

Quality levels of both the 3000 ppm and 6000 ppm salt levels had produced poor quality turfs for all grasses with mean quality scores of 3 to 4 on the 1-9 scale. When no salt was added, the ryegrass and the ryegrass mixture also had poor turfgrass quality. The alkalai saltgrass alone had acceptable quality (6.5).

All three grass overseed treatments declined about the same time period, and the alkalai grass had about 15% plot cover at both salt levels, while the mixture and the ryegrass had essentially no overseed left. Perhaps the ryegrass may have some carry over effect in preventing the paspalum from returning.

Summary Points

- *Puccinellia distans* (alkalai saltgrass) was slow to establish as an overseed and did produce a moderate quality turf when mowed at 5/8".
- Quality of the mixture was acceptable due to the addition of ryegrass in the 50/50 mixture of perennial ryegrass/alkalai grass.
- When no salt was added, the adverse effects of overseeding were much less severe during spring transition..
- Paspalum is slow to re-establish itself as the dominant grass when overseeded.