Nativegrasses and Groundcovers for the Arid Southwest

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Background

The use of low input nativegrasses and alternative groundcovers for landscapes in low desert regions of the southwest U.S. is gaining interest. This project evaluates and investigates the performance of nativegrasses and alternative groundcovers as a low input turfgrass replacement in non-play areas of golf courses.

Objectives

1. Evaluate and investigate the performance of nativegrasses and alternative groundcovers in the low desert southwest United States as a low input turfgrass replacement in non-play areas of golf courses
2. Generate local research-based information on the feasibility of growing new groundcovers and the nativegrasses by properly assessing their interactions with insect pests and weeds, water, and fertility requirements.
3. Increase the awareness of stakeholders about the characteristics of nativegrasses and alternative groundcovers for low water use requirements and potential resource saving capacity.

Materials and Methods

A multi-year field trial was initiated and consisted of nine native and two non-native plant species in a replicated field experiment in Scottsdale, AZ. Plants were seeded or plugged on May 31, 2016 and established under optimum sprinkler irrigation receiving an equivalent of 0.354 inch/day. Six weeks after seeding, plants were grown with less irrigation equivalent to 0.236 inch/day. Starting in September, plants were grown only with the equivalent of 0.157 inch/day irrigation. Beginning in November, irrigation was suspended for the winter. Evaluations were done weekly and data were collected for plant emergence, survival, and growth in height, and visual estimates of quality for color, percent ground cover, and aesthetic value. Data were analyzed using JMP 11 Statistical Software and Student's t-test used in comparison for each pair.

Table 1. Alternative Planting Materials for Landscapes in Scottsdale, Arizona in 2016

Common name	Scientific name	Seed rate (lb/Acre)
Alkali sacaton	*Sporobolus airoides*	3.0
Alkali muhly	*Muhlenbergia asperifolia*	1.2
Blue grama	*Bouteloua gracilis*	4.0
Buffalograss	*Bouteloua dactyloides*	218.0
Teff	*Eragrostis tef*	5.0
Plains lovegrass	*Eragrostis intermedia*	1.0
Big galleta	*Hilaria rigida*	174.0
Sand dropseed	*Sporobolus cryptandrus*	1.0
Spike dropseed	*Sporobolus contractus*	1.0
Desert zinnia	*Zinnia acerosa*	2.2
Kurapia	*Lippia nodifora* 43,560 (plugs/Acre)	

Results and Discussion

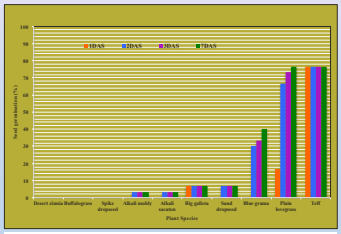

Figure 1. Determination of nativegrasses seed germination rates in the laboratory at intervals after seeding, June 2016.

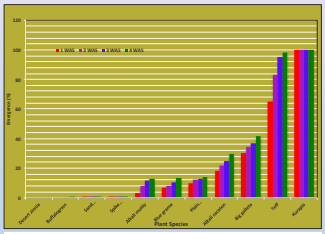

Figure 2. Emergence and stand establishment of nativegrasses and groundcovers in the field for 4 weeks after seeding (WAS).

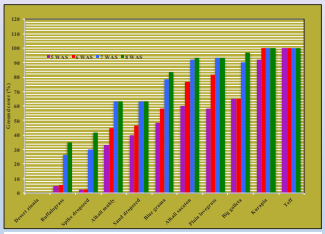

Figure 3. Performance of nativegrasses and groundcovers to provide ground surface cover starting 5 WAS.

Figure 4. Performance of nativegrasses and groundcovers at 4 months after planting and 4 weeks after a third mowing on 12 October 2016.

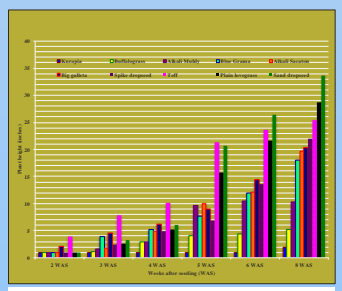

Figure 5. Heights of nativegrasses and groundcovers before the first mowing

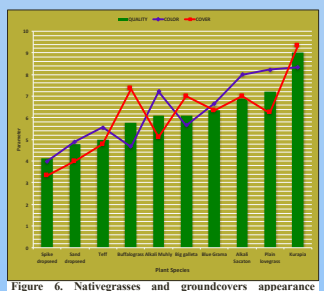

Figure 6. Nativegrasses and groundcovers appearance following three mowing events and three seasons (summer, fall, winter 2016-17)

Figure 7. Evaluating performance of nativegrasses and groundcovers under field conditions

Conclusion

Before the first mowing in early July, all plant species that germinated and established a stand exhibited good quality and vigor. All of the native grasses performed at varying and acceptable levels to establish and provide surface area coverage throughout the late summer. Late summer observations showed that kurapia was very aggressive and vigorous as a groundcover. Kurapia, plains lovegrass, alkali sacaton, alkali muhly, and blue grama, in that order, performed well during the fall and into winter. Desert zinnia seed did not germinate in the laboratory or in the field.

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