



Effects of Seeding Rate and Season of Seeding on Establishment of Ten Native Grasses in the Rio Grande Plain of Texas

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Seeding rate and season of seeding were studied to determine the optimum seeding strategies for establishing 10 native warm season grasses in highly disturbed rangelands dominated by the exotic buffelgrass (*Pennisetum ciliare*). Four 9.30 m² plots of each native grass species were seeded at 3 seeding rates (low (10 pure live seeds (PLS)/ ft²), standard (20 PLS/ft²), and high (30 PLS/ft²)) in spring (May), summer (August) and fall (November) 2006 seeding dates in adjacent blocks prepared by two-pass disking at Rancho Blanco near Laredo, Texas. Each block was irrigated to insure optimum establishment conditions for one month following planting and cut with a rotary mower once following seeding to reduce shading of seedlings. Seedling density and canopy cover of planted species and buffelgrass were measured at 1, 3, 6, and 9 months after seeding (MAS). A rank scheme was used to evaluate plots for successful, moderate, poor, or failed establishment at 6 and 12 MAS. To date, seeding rates have had no effect on rank of establishment at 6 and 12 months. Season of seeding had significant effects on emergence and establishment of several species. Pappusgrass (*Pappophorum bicolor* & *P. vaginatum*), multiflowered false rhodesgrass (*Chloris pluriflora*), and Kinney germplasm false rhodesgrass (*Chloris crinita* var. Kinney germplasm) established in summer seeded plots only. Catarina Bristlegrass Blend (*Setaria leucopila* & *S. vulpisetia* var. Catarina Blend) and Falfurrias Germplasm big sacaton (*Sporobolus wrightii* var. Falfurrias Germplasm) established in the fall seeded plots only. Dilley germplasm slender grama (*Bouteloua repens* var. Dilley germplasm) and Welder germplasm shortspike windmillgrass (*Chloris subdolistachya* var. Welder germplasm) showed the best overall establishment in competition with buffelgrass, with successful establishment observed in all seasons 12 MAS. La Salle Germplasm Arizona cottontop (*Digitaria californica* var. La Salle Germplasm), Mariah Germplasm Hooded windmillgrass (*Chloris cucullata* var. Mariah Germplasm), and Atascosa Germplasm Texas grama (*Bouteloua rigidiseta* var. Atascosa Germplasm) had good initial emergence and establishment at all planting dates, but were outcompeted by buffelgrass by 12 MAS. This project indicates that native grasses with high seedling vigor and low sprawling growth habits such as slender grama and shortspike windmillgrass possess the best competitive ability to establish from seed and compete in ranges dominated by buffelgrass. Results from this experiment underscore the need for diverse seed mixtures for native rangeland revegetation plantings as germination and establishment ability appear to be seasonally specific for many species.

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