

## Identifying Important Considerations for Successful Bunchgrass Restoration from Seed

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The first few years of ecosystem restoration are undoubtedly the most challenging and uncertain. Restoration practitioners benefit enormously from information on methods that could circumvent limitations or improve progress toward objectives. We started a field restoration project to examine how using different seeding rates and managing competition with regrowing vegetation affected restoration of wiregrass (*Aristida beyrichiana*) in a degraded pine savanna in Florida. Wiregrass is a native bunchgrass typically included in restoration projects because its flammability promotes the spread of fires that are important for maintaining pine savannas. We set up plots with different seeding rates (10 lbs/acre, 15 lbs/acre, 25 lbs/acre) and levels of competition (weeded or not weeded). Given evidence for wiregrass ecotypes, practitioners advise that seeds be obtained from local areas, and to source and plant seeds into similar soils. We, therefore, replicated the Latin square design using wiregrass seeds from locations with dry and wet soils sown into dry and wet plots in our study site. We tested whether the seed source, soil type, seeding rate, and competition with regrowing vegetation affected wiregrass density, growth, and reproduction in the field. We found that competition removal resulted in significantly larger plants and a greater proportion of reproductive plants with more culms. Seeds sourced from the wet site resulted in more plants per plot than seeds from the dry site, likely because of differences in initial seed viability. None of the wiregrass variables we measured differed between seeding rates. Although manually weeding restoration plots might prove impractical on a large scale, competition removal could be feasible on smaller-scale restoration projects if the goal is to increase the density of germinating and surviving plants. Most importantly, however, our findings add to a predominance of evidence that seed viability is a critical consideration for wiregrass restoration projects.

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