Reducing Seed Dormancy in Southern-Adapted Native Forage Grasses¹

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Abstract: When Europeans arrived in North America they brought grazing animals, hay, and seed of familiar Old-World forages. Prior to arriving in North America, that germplasm had already undergone years of selection to tolerate close continuous grazing and rapid germination. This research focused on North American native grass species. These species have shown promise for use as forage, pasture, wildlife habitat and in land reclamation projects as well as biofuels. Most of these species are cross pollinated. As such, these native grass populations have large amounts of innate genetic variability that allows continued selection and improvement. Native warm-season perennial grasses are notoriously slow to establish, making the seedlings poor competitors with weeds, especially weedy grasses. An important obstacle to the cultivation of these grasses is seed dormancy. Large percentages of seed often fail to germinate or emerge when planted. Seed dormancy is present in all perennial native grass species and can provide a selective advantage under varying, unpredictable environmental conditions, but it is a strong disadvantage in a situation where quick establishment and cover are desirable. The objective of this project is to use recurrent phenotypic selection to reduce seed dormancy in these native grass species. Reducing the seed dormancy period will allow these grasses to respond quickly to planting, enhancing their role in forage production, conservation, habitat establishment, and as a source of biomass for alternative fuels while reducing cost of establishment. Seven species are currently undergoing seed increase in preparation for marketing.

Additional Key Words: genetic variation, reclamation, recurrent phenotypic selection.

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- 3. Work reported here was conducted near 33.4504° N, 88.8184° W.