

Treatments to Overcome Dormancy of Eastern Gamagrass Seed

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Seed dormancy in eastern gamagrass [*Tripsacum dactyloides* (L.) L.] is controlled by a hard fruit covering surrounding the caryopsis which must be modified to permit germination. Standard commercial practice is to use cold stratification to overcome this dormancy. Germination rate and percentage for seed of two eastern gamagrass accessions (9058543 and 9062708) treated with hot water soaking were compared to stratification and an untreated control. Hot water treatments used were 70, 80, and 90°C, and duration ranged from 60 to 240 seconds in 30 second increments. Germinator tests showed that germination rate was faster and total percentage was significantly higher for stratified seed of both accessions. The 70°C, 240 second soak had the highest germination percentage of the soaking treatments, and was significantly greater than germination of the control. Each accession responded differently to soaking, with 9062708 showing a greater response, and stratification, with 9058543 showing a greater response. Another germinator planting showed that accession 9062680 responded favorably to hot water treatment, but germination percentages were lower than stratified seed. Field plantings did not duplicate the beneficial effects of hot water treatment shown in the germinator for any accession. Field and germinator testing was conducted to determine the effect of a 24 hour soak in 1000 mg/l gibberellic acid (GA) or 0.2 percent potassium nitrate (KNO₃) solution on germination rates and percentages of hot water treated and stratified seed of all three accessions. Germination percentages of stratification alone and plus GA or KNO₃ treatments were similar and significantly higher than those of the control or any of the hot water treatments. Germination rate for the stratification plus GA treatment was faster; however, the seedlings were elongated, chlorotic and appeared to be weakened by this treatment. Additional testing will determine what GA concentrations improve germination rate without causing abnormal growth.