

Seeding Date and Seed Treatment Affects Success of Dormant-seeded Buffalograss



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Introduction

Dormant seeding has been used in Nebraska for establishing cool-season turfgrasses, as well as many crops. However, dormant seeding for establishing buffalograss [*Buchloe dactyloides* (Nutt.) Engelm.] has not been evaluated. Furthermore, buffalograss burrs contain growth-inhibiting oils which prevent the absorption of water and gases required for germination (Ahring and Todd, 1977). Thus buffalograss seeds are commercially treated with KNO_3 increasing production cost. Seed treatment may be not as important with dormant seeded buffalograss compared to seeding in early summer.

Objective: Determine the effect of commercial KNO_3 seed treatment on 'Cody' buffalograss germination when seeded at various dates in winter and spring.

Hypothesis: Seed treatment may not be necessary if buffalograss can be successfully dormant seeded.

Materials and Methods

- All studies were initiated in Nov of 2012 and 2013 with additional seedings and data recorded through 1 Aug of the following year.
- Treated or untreated 'Cody' buffalograss seeds were placed in aluminum screen packets and buried in soil in the third week of each month from November to April (**Figure 1**).
- On 22 May of each year, packets were extracted from soil and moved to the greenhouse in flats to test germination. The standards were seeds stored at 5°C and seeded directly into flats in the greenhouse on 22 May.
- Germination was rated twice per week with germinated seeds removed.
- Variance between years was heterogeneous, thus variances were fit separately for each year using PROC GLIMMIX in SAS (Version 9.3, SAS Institute Inc., Cary, NC).
- Mean separation was performed using Fisher's least significant difference at $P < 0.05$.

Results and Discussion

- There was significant interaction of year by seeding date in total germination, which may have been caused by difference in air temperature and precipitation during the winter. Winter of 2013-14 was unusually cold and dry, which may have decreased physical fracturing of the burr.
- In both years, treated seed had higher total germination than untreated seeds (**Figure 2a**).
- In 2013, untreated and treated seeds seeded in November had similar total germination (>70%) (**Figure 2a**).
- Untreated seeds in 2013 had higher germination when seeded in November through January compared to later seeding dates (**Figure 2a**).
- In 2014, untreated seeds had <15% germination regardless of seeding date (**Figure 2b**).



Figure 1: Seed packages extracted from soil on 22 May in 2014.

Summary

- Commercial KNO_3 and chilling seed treatment of buffalograss may not be necessary when dormant seeded between November and January.
- The effect of commercial KNO_3 and chilling seed treatment of buffalograss may be affected by winter weather.
- This study will continue for future years to better define effects of seed treatment when dormant seeding.

Reference: Ahring, R.M. and G.W. Todd. 1977. The burr enclosure of the caryopses of buffalograss as a factor affecting germination. *Agronomy Journal* 69, 15-17.

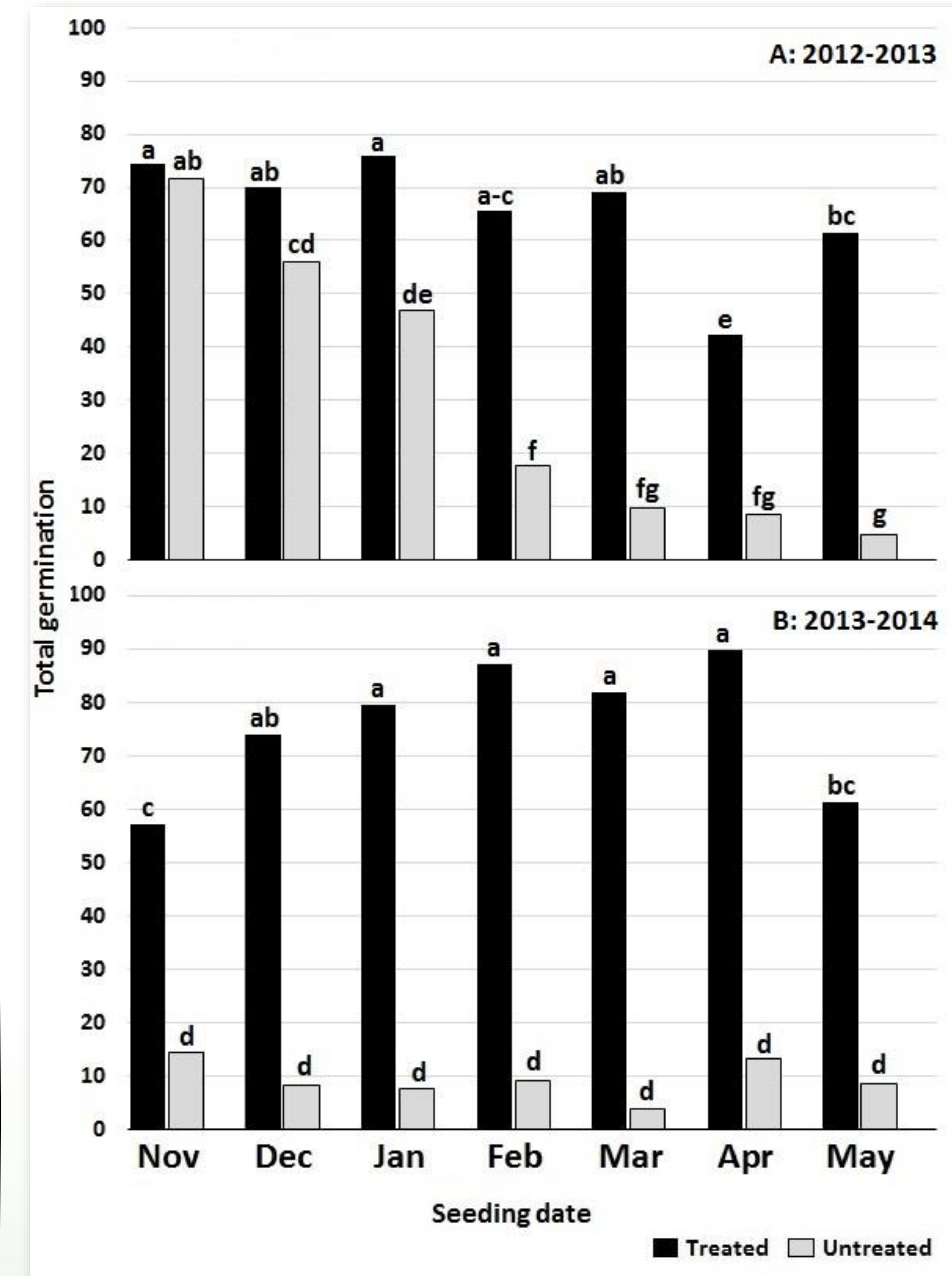


Figure 2: Cumulative total germination on 1 Aug in 2013 and 2014. Treated or untreated 'Cody' buffalograss of 100 seeds per treatment were buried in soil during winter months then moved to the greenhouse in May.