

# SPRINGTIME GERMINATION - ESTABLISHMENT OF CREEPING BENTGRASS

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- Selection of creeping bentgrass cultivars should be based on desirable characteristics such as turf quality, disease resistance, and long-term performance
- Cultivars such as 007 have documented quick germination, establishment and rapid root development over many years on golf courses under cool and warm weather conditions
- After seeding, both germination and establishment are important processes in obtaining a new stand of grass
- Recent university studies have looked at the germination process under cold temperatures in petri dishes in growth chambers. These are set for an 8 hour day/16 hour night and at a consistent temperature or consistent Day/Night temperatures. Variable results occurred between the 2 studies and different trials by Carroll et al, 2020. This does not reflect normal golf course conditions.
- Typical spring weather shows gradually increasing temperatures with increasing daylength, and occasionally colder periods unlike controlled growth chambers.
- 007 achieved a 50% germination in 14 days in the UMN study at 55 degrees F/35 degrees night. Most lots achieved over 50% germ in 18 days at 50 degrees F in the Penn State Study. The single lot of 777 achieved 70% germ in 18 days. Individual seedlots had wide variability and the best lots for many cultivars came from NTEP.
- To get back in play sooner covers can be used or Chewings fescue, which can achieve 50% germ in 6 days and establishes more rapidly, can be used as a nurse crop with the recovering creeping bentgrass.
- 007 in multiple plantings is one of the quickest cultivars to germinate under all weather conditions, and it has been well documented to then establish rapidly.

Heineck, G. C., Bauer, S. J., Cavanaugh, M., Hollman, A., Watkins, E., & Horgan, B.P. (2019). Variability in creeping bentgrass cultivar germinability as influenced by cold temperatures. *Crop, Forage, and Turfgrass Management*, 5(1), 1-7. <https://doi.org/10.2134/cftm2018.07.0054>

Carroll DE, Kaminski JE, Landschoot PJ. Creeping bentgrass seed germination in growth chambers at optimal and suboptimal temperatures. *Crop, Forage & Turfgrass Mgmt.* 2020;6:e20068. <https://doi.org/10.1002/cft2.20068>

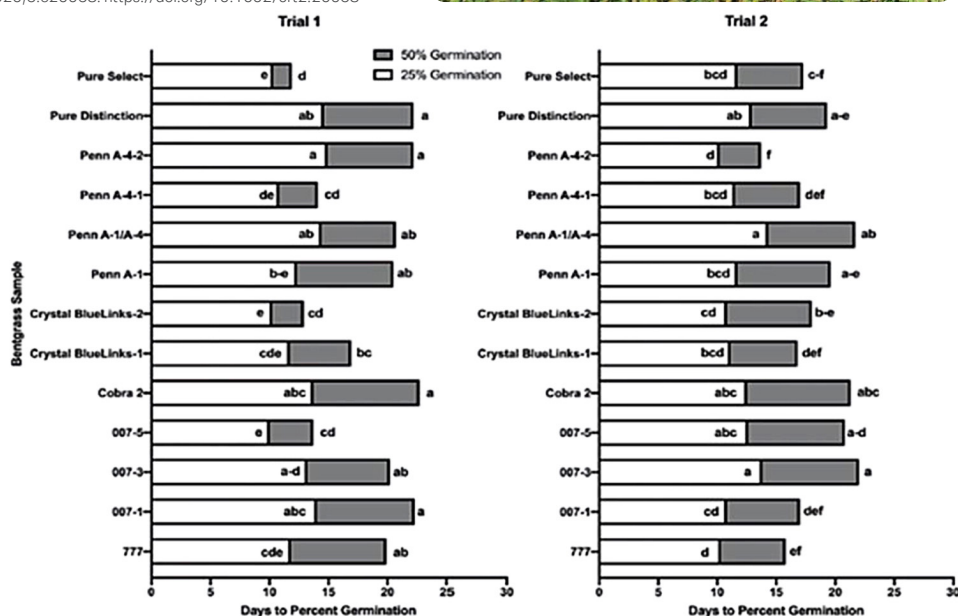


FIGURE 1 Days to 25 and 50% germination for 13 samples of bentgrass with a final germination percentage  $\geq 50\%$  in Trials 1 and 2 at 50 °F in an 8:16-h light-dark cycle. Bars followed by the same letter for each germination percent are not significantly different at  $P \leq .05$  according to Fisher's Protected LSD test

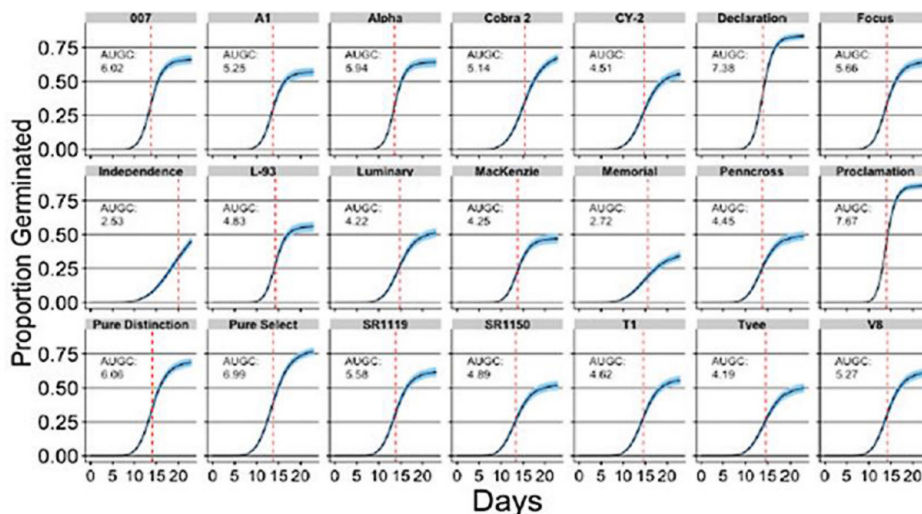


Fig. 3. Fitted germination curves for all 21 cultivars at the APR19 treatment (55/35°F). Area under the germination curve 98% is given for each cultivar. Red dashed line represents time to 50% germination ( $T_{50}$ ). The predicted germination curve is based on a three parameter log logistic model surrounded with a 84% confidence interval.