

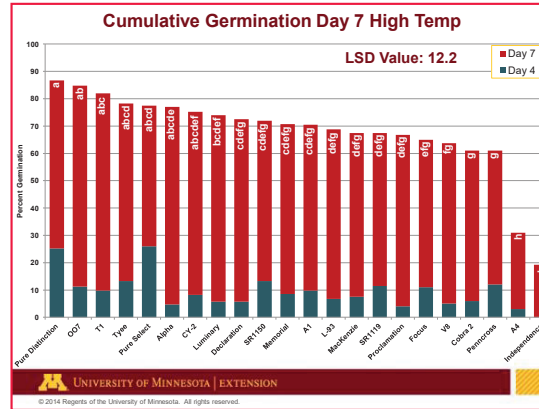
BENTGRASS INTERSEEDING AND CONVERSION - IT DOES WORK!

The introduction of new creeping bentgrass cultivars with superior genetics into stands of annual bluegrass, perennial ryegrass, or creeping bentgrass can reduce costs and increase golfer satisfaction. Lower inputs and less fear of turfgrass loss from cold or heat make conversion a long term solution. Superior disease resistance, higher density, improved cool temperature growth with drought and heat tolerance make these cultivars long term solutions

KEY CONCEPTS

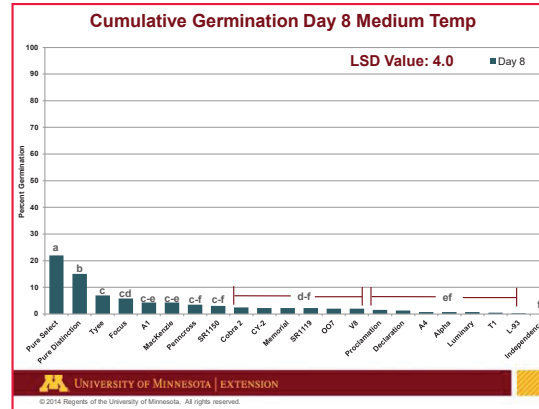
- Bentgrass seedlings are very small and initially weak. Varieties such as 007XL, 007, Flagstick, 777 and SR 1150 have been selected for greater seedling vigor and faster tillering to increase your chances of success.
- In competition for resources including light, water and nutrients an established plant has an advantage over seedlings.
- Creeping bentgrass germination is favored by warmer soil temperatures (above 71 degrees F or 22 degrees C) (See Figures 1 and 2 from University of Minnesota, Horgan, Bauer and Cavanaugh 2015). Timing the overseeding to correspond with favorable growing conditions in summer or early fall increases your chance of success.
- *Poa annua* germination primarily occurs in the fall when temperatures are below 68 degrees F (20 degrees C) see Figure 3 (Kaminski and Dermoeden, 2007) and in Pennsylvania this corresponds to most germination in a 2 week period between late September and mid-October.
- Existing plants must be weakened, or holes created, to give young seedlings a chance. *Poa annua* to Bentgrass or Bentgrass to New Bentgrass
- Do not apply a preemergent herbicide before seeding.
- Use a growth regulator 1 week before and wait at least 2 weeks after.
- Reduce height of cut on existing turf (scalp <0.1 or lower for greens).
- Verticut heavily to reduce thatch and further weaken existing turf (can also follow aerification).
- Core aerify with largest acceptable tines to create holes and topdress or drag cores to fill holes. Dimple tines, Gradensand inject or spiking have also worked. Key is reduce competition and have seed to soil contact.
- Best times for establishment are late spring through the summer into early fall. Seeding dates of June 19, July 1, August 17 and 20 were most successful in New Jersey trials and August seeding dates in Indiana.
- Seed with 007XL, 007, 777, Flagstick, SR 1150, Dominant Xtreme 7, Dominant Plus or Dominator at 1-3 lbs/1000 sq.ft. (5 -15 gr/sq.m) and topdress or drag seed in.
- Water at least 1 time per day and use wetting agents if needed.
- Fertilize lightly with foliar spray after seeds germinate.
- Keep height of cut low to enable more light to seedlings, reduce competition and encourage spread of new seedlings.
- Repeat late spring, summer and early fall for at least two years. Take before and after photos so you can see progress.

Figure 1 - Bentgrass Seedlings



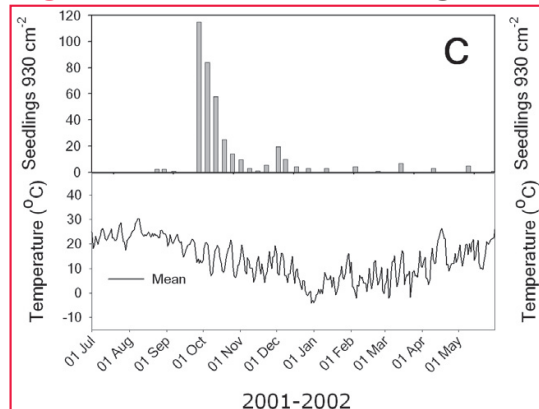
Poa annua not germinating
High Temp = 21.7 Degrees C (71 Degrees F)

Figure 2 - Bentgrass Seedlings



Poa annua germinating rapidly
Medium Temp = 16.1 Degrees C (61 Degrees F)

Figure 3 - Poa annua Seedlings



Temps Below 20 Degrees C (68 Degrees F)



CREEPING BENTGRASS REPORT CARD



Whisper Rock Golf Club – Scottsdale, AZ | Interseeding with SUPER BENTS™ in Summer 2018-2019-2020



Cultivar (Company)	Color	Leaf Texture	Establish	OM/Thatch	Bentgrass Bloat - Scalp	Summer Stress Tolerance	Dollar Spot Resistance	Brown Patch Resistance	Cool Temp. Active Growth	Poa annua Resistance	Winter Hardiness	Salt Tolerance	Wear Tolerance
SUPER BENTS™ - High Density, Low OM Greens/Tees/Fairways													
Tillinghast (DLF/Seed Research)	Dark Green	Very Fine	Very Rapid	Very Low	None	Superior	Superior	Superior	Superior	Superior	Superior	Excellent	Superior
007XL (Seed Research)	Medium Dark Green	Very Fine	Very Rapid	Low	None	Superior	Superior	Superior	Excellent	Superior	Excellent	Excellent	Superior
777 (Seed Research)	Dark Green	Very Fine	Very Rapid	Low	Low	Superior	Very High	Very High	Excellent	Superior	Superior	Excellent	Superior
007 (Seed Research)	Dark Green	Fine	Very Rapid	Low	None	Very High	Very High	Very High	Excellent	Excellent	Superior	Excellent	Excellent
Macdonald (DLF)	Dark Green	Very Fine	Very Rapid	Low	Slight	Superior	Very High	Very High	Superior	Superior	Excellent	-	Superior
Flagstick (DLF/Seed Research)	Dark Green	Fine	Very Rapid	Very Low	None	Very High	Superior	Superior	Excellent	Excellent	Superior	-	Excellent
MacKenzie (DLF/Seed Research)	Dark Bright Green	Very Fine	Rapid	Very Low	None	Very High	High	High	Excellent	Excellent	Very Good	High	Very Good

HIGHER MAINTENANCE - Greens only

Diplomacy (PV-1) (Lebanon)	Medium Green	Fine	Rapid	Low	None	Superior	Superior	Superior	Very High	Superior	Excellent	-	Excellent
Prodigy (PV-2) (Lebanon)	Medium Dark Green	Fine	Rapid	Low	None	Excellent	Superior	Superior	Excellent	Superior	Excellent	-	Excellent
Spectrum (Landmark)	Blue Green	Very Fine	Very rapid	Low	Slight	Superior	Superior	Very High	Moderate	Superior	Excellent	-	Excellent
Authority (Site One)	Dark Blue Green	Very Fine	Rapid	High	Low	High	High	Moderate	Good	Excellent	Moderate	-	-
AU Victory (Auburn)	Dark Green	Fine	Moderate	Medium	Medium	Superior	Very Low	High	Moderate	Very Good	-	-	Very Good
Barracuda (Mountain View)	Dark Green	Very Fine	Moderate	Very High	Slight	High	Very High	High	Good	Very Good	Excellent	-	Very Good
Chinook (Vista)	Very Dark Green	Very Fine	Moderate	High	Low	Very High	High	High	Excellent	Very Good	-	-	Excellent
Declaration (Lebanon)	Dark Green	Fine	Very Rapid	High	High	Moderate	Very High	Moderate	Excellent	Excellent	Good	Excellent	Moderate
L93XD (Barenbrug/Jacklin)	Medium Green	Very Fine	Slow	High	High	High	Moderate	Low	Good	Very Good	Very Good	-	Moderate
Luminary (Landmark)	Dark Green	Very Fine	Moderate	Very High	Slight	High	Moderate	High	Good	Good	Very Good	-	Moderate
Match Play (Landmark)	Dark Green	Fine	Moderate	Very High	Moderate	High	High	Very High	Excellent	Very Good	Good	-	Excellent
Penn A-1 (Tee-2-Green)	Dark Green	Fine	Slow	Very High	Slight	High	Moderate	Low	Low	Very Good	Moderate	High	Poor
PinUp (ProSeeds)	Dark Green	Fine	Slow	Low	Moderate	High	Moderate	Moderate	Moderate	Good	-	-	Very Good
Piranha (Mountain View)	Blue Green	Very Fine	Moderate	Medium	Moderate	High	Very High	Very High	Moderate	Very Good	Excellent	-	Excellent
Piper (Mountain View)	Medium Dark Green	Very Fine	Moderate	Low	None	Excellent	Very High	Very High	Excellent	Superior	Excellent	Very High	Superior
Oakley (Mountain View)	Dark Green	Very Fine	Moderate	Low	Slight	Superior	Superior	Superior	Very High	Superior	Excellent	Excellent	Excellent
Proclamation (Lebanon)	Dark Green	Fine	Rapid	High	Slight	Moderate	Very High	Moderate	Good	Good	-	-	Poor
Pure Distinction (Tee-2-Green/PureSeed)	Light Green	Very Fine	Moderate	Very High	Medium	Very High	Low	High	Moderate	Excellent	Low	-	Moderate
Pure Eclipse (Tee-2-Green/PureSeed)	Dark Green	Very Fine	Slow	High	Medium	Moderate	Very Low	High	Moderate	Moderate	-	-	Excellent
Pure Select (Tee-2-Green/PureSeed)	Dark Green	Very Fine	Rapid	High	Slight	High	Low	Very High	Moderate	Good	Superior	-	Moderate
V8 (Barenbrug/Jacklin)	Dark Green	Very Fine	Slow	Medium	Slight	Very High	High	Low	Moderate	Very Good	Very Good	-	Poor

IMPROVED - Moderately High Density Greens/Tees/Fairways

Kingdom (Barenbrug)	Dark Blue Green	Fine	Rapid	Low	Low	High	High	High	Excellent	Very Good	Very Good	Excellent	Moderate
Nightlife (Barenbrug)	Dark Blue Green	Fine	Rapid	Low	Low	High	High	High	Excellent	Very Good	Very Good	Excellent	Moderate
Cobra 2 (Cobra Nova) (DLF)	Dark Blue Green	Fine	Rapid	Low	Low	High	High	High	Excellent	Very Good	Very Good	Excellent	Moderate
SR 1150 (Seed Research)	Dark Bright Green	Fine	Very Rapid	Very Low	Low	Very High	Very High	High	Good	Very Good	Very Good	High	Moderate
Crystal Blue Links (Tee-2-Green/PureSeed)	Dark Blue Green	Fine	Rapid	Medium	Low	High	High	Moderate	Good	Good	Very Good	Moderate	Poor
S1 (Site One/LESCO)	Dark Green	Very Fine	Moderate	Low	Slight	Very High	Very High	High	Excellent	Excellent	Very Good	-	Excellent
Shark (Mountain View)	Dark Blue Green	Very Fine	Rapid	Medium	Low	High	Low	Moderate	Moderate	Excellent	Very Good	High	Good
T1 (Barenbrug/Jacklin)	Very Dark Blue Green	Fine	Rapid	Very High	Low	High	Low	Moderate	Very Low	Good	Good	Very High	Moderate
Tour Pro (Semillas Fito)	Medium Green	Very Fine	Rapid	High	Moderate	High	High	High	Good	Good	Very Good	-	Very Good

ABOVE STANDARD - Moderate Density Tees/Fairways

Kingpin (ProSeeds)	Dark Blue Green	Medium Fine	Slow	Low	Slight	Moderate	Moderate	Very Low	Moderate	Good	Good	Moderate	Poor
Memorial (Landmark)	Medium Green	Medium	Rapid	Medium	Slight	High	High	Moderate	Very Low	Good	Very Good	High	Poor
PC 2.0 (Tee-2-Green/PureSeed)	Medium Green	Medium Fine	Slow	Low	None	Low	Low	Very Low	Low	Moderate	-	-	Poor

STANDARD - Low Density Tees/Fairways

Penncross (Tee 2 Green/Pure Seed)	Medium Green	Coarse	Very Rapid	Very Low	Slight	Very Low	Moderate	Very Low	Low	Very Low	Good	Moderate	Poor
Pennlinks II (Tee-2-Green/PureSeed)	Medium Green	Medium	Moderate	Medium	Moderate	Moderate	Moderate	Low	Moderate	Very Low	Low	High	Poor
TrueLine (TMI)	Blue Green	Medium	Moderate	Low	Medium	Low	Low	Low	Very Low	Very Low	Moderate	-	Poor

BLENDING BENTGRASS - Match density, color, texture. Select other characteristics based on importance on NTEP data, additional trials, and observations by Dr. Leah Brilman and others.