

# **A Summary of 007XL Creeping Bentgrass and How This Elite Variety Came to Market**

**The 007XL bentgrass was experimentally designated as MGH and developed out of the Rutgers University long-term bentgrass breeding program.**

Richard Hurley, PhD

What follows is a story that started around the year 1982, when I asked Dr. Funk, who was my mentor and the one who Chaired my PhD studies at Rutgers, if he would work with me to initiate a creeping bentgrass program. Dr. Funk said yes, and that initiated our focus on collecting bentgrass germplasm primarily from putting greens on older golf courses.

Over the next eight to ten years, we collected over 1,000 creeping bentgrass clones -- mostly small, one by two inch knife cut-outs from a putting green -- to bring back to Rutgers Hort Farm II for space plant evaluations. Dr. Funk and I, either together or separately, visited many older golf courses in the states of New Jersey, New York, Pennsylvania, Arizona, and California looking to identify one of a kind, unique selections. Going to older golf courses the thought was the segregated patches of bentgrass found growing on a green had been there for years, in many cases for over 50 years, being subjected to close mowing, summer and winter stresses, and significant disease pressure.

Over the past 25 years, there have been additional efforts to add significantly to the creeping bentgrass germplasm pool at Rutgers resulting from collection trips made by Dr. Stacy Bonos, Dr. Bill Meyer, Dr. Jim Murphy and myself. Some of these collection trips included visits to Europe.

**Out of all of the thousands of plants selected only a few plants have proven to produce enhanced turf qualities for use in a long-term creeping bentgrass breeding program.**

The qualities we are looking for in creeping bentgrass include a pleasing, medium green leaf color, no cool weather purple color, medium fine leaves, high turf

density, the ability to recover quickly from traffic -- both foot and mechanical, the ability to tolerate a low height of cut (to .110 inch), and enhanced genetic resistance to the most common turf disease to include dollar spot, brown patch, Anthracnose, and snow mold -- both pink and gray.

### **Utilizing advanced generation bentgrass progenies allows for highly significant enhancements in turf quality.**

So today, we can say it has taken 40 years of collection, selection, evaluation, progeny testing, and many cycles of breeding to have germplasm available to produce the most enhanced turf qualities in a creeping bentgrass variety -- medium fine leaves, high turf density, the ability to tolerate a low height of cut, improved traffic tolerance, and enhanced genetic resistance to the most common turf diseases.

It was in the years 2016 - 2017 when the following eight advanced generation experimental maternal progenies were identified by Dr. Stacy Bonos and Dr. Richard Hurley as parental selections for the 007XL variety. These eight parental plants were unique in their ability to provide the most advanced turf qualities -- based on long-term putting green turf trail data sets conducted at Rutgers.

### **When you know you have something special!**

The 007XL has been the No. 1 rated variety in the Rutgers turf evaluation trials for four years, 2017, 2018, 2019, 2020 in both the greens and fairway / tee tests. The naming of 007XL has the meaning of XL = Excels. To be clear, the 007XL is a totally unique variety and not an improved 007.

### **What makes 007XL so special? It is the parental selections -- the elite genetics -- that make up each variety; what I refer to as the "one in a million" elite rare finds.**

The historical genetic composition of the 007XL maternal parents can be traced back as follows; 38% percent to several plants collected from Piping Rock GC, NY; 26% trace to several plants selected from Spring Lake GC, NJ; 12% to plants selected from Harkers Hollow GC, NJ; 12% to plants selected from a 1988 putting green trial at the Hort Farm -- Rutgers University; and 12% trace to a plant related to L-93.

With the 007XL parental plants identified, the following steps are necessary to produce viable seed in mass quantities to include: breeder seed production (10 to 12 pounds of seed produced in year one); next is foundation seed (3,000 to 5,000 pounds); then, and only then, can certified seed be produced (20,000 pounds and as much as is needed to meet demand). This alone entails a four year process.

### **Who will produce seed and market the 007XL variety?**

One point is clear: The decision of what company would produce and distribute the 007XL has been my independent choice. I had the opportunity to approach any of the major turfgrass seed companies with the 007XL variety. I understand very well that having a genetically enhanced bentgrass is only half of the equation. Without quality seed production, a very good variety may be compromised. I knew the company I could trust with having the highest seed testing and quality protocol for bentgrass, and that company is Seed Research of Oregon (now a DLF / Pickseed brand).

### **From experimental bentgrass progenies, to breeder seed, to foundation seed, to certified seed in four years, 2018 -- 2021.**

The plan developed for 007XL was designed to produce large quantities of high quality seed for golf courses. This project was a team effort using an expedited process under a condensed scheduling plan under the direction of Bill Dunn, VP of Seed Research of Oregon. Historically, an expedited variety launch should only be considered when there is confidence the new variety has significant advanced turf quality traits and the commercialized variety will enhance visibility within a designated marketing program. The 007XL bentgrass met this criteria.

### **Efficient scheduling and timely implementation of the process to get this variety to market as quickly as possible.**

During early summer of 2018 vegetative material from each of the eight progenies identified to make up the 007XL variety were shipped from the Rutgers Hort Farm II in New Jersey to the DLF research farm in Oregon -- under the direction of Steve Reid, Barbara Hinds Cook, and Dr. Leah Brillman.



Photo: Late summer 2018. The 007XL breeder nursery was established in a replicated randomized format at the DLF research farm in Oregon.



Photo: May 2019. The individual maternal plants that make of the 007XL breeder nursery have grown from small plants into large clones. These eight maternal selections that make up the 007XL were allowed to randomly pollinate in late June / early July. The nursery is isolated attempting to eliminate wild bentgrass pollen from entering the nursery area. The seed harvested from the nursery will be bulked together and "tagged" as 007XL breeder seed.

Approximately one half of the seed harvested from this breeder nursery in 2019 was used for a foundation field planting in Oregon, with the other half of breeder seed reserved for including the 007XL into the NTEP bentgrass trials to be seeded in 2020 in both greens and fairway / tee trials.



Photo: December 2019. This 007XL foundation field was seeded in late September of 2019 using 007XL breeder seed harvested by Barbara Hinds Cook at the DLF research farm. The foundation planting for the 007XL was established with a farmer having a history of growing quality bentgrass.

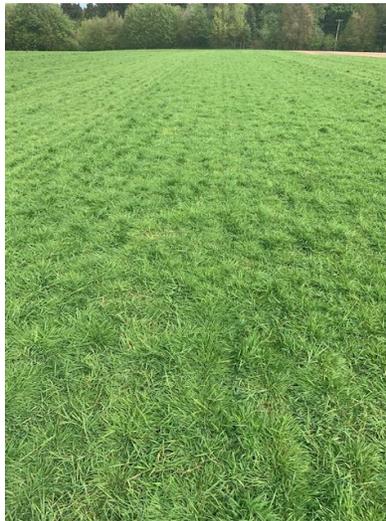


Photo April 2020. This same 007XL foundation field has grown and matured. The narrow individual rows of bentgrass, as initially seeded in the field, have vegetatively grown laterally and will produce the first crop of foundation seed -- harvested in August 2020.

Seed of 007XL was included in the new 2020 NTEP bentgrass trials for both greens and tee / fairway use. Each of the Rutgers University sponsored turf trials were seeded in the fall of 2020. The first year data sets recorded during the 2021 growing season are expected to be available to the public in the spring of 2022, coordinated with the commercial release of 007XL seed.



Photo: June 2021. PVP (Plant Variety Protection) morphological measurement nursery at the DLF research farm, Oregon -- Barbara Hinds Cook is responsible for recording measurements on leaf width, plant height, flowering date, and other designated plant characteristics necessary for filing the PVP application for the 007XL variety.



Photo: June 2021, Rich Hurley standing, Bill Dunn on one knee. Foundation seed harvested in 2020 was used to establish a Certified Seed production field of 007XL in September of 2020 in Oregon. Seed was harvested off this field in August of 2021, cleaned, and tested in November 2021 and available for commercial sale in 2022.



Photo: July 2021. Seed samples from the foundation field harvest of 2020 were sent to selected sites for evaluation. This 007XL bentgrass putting green nursery, Colonial Country Club, Fort Worth, Texas seeded in October of 2020.

**The first commercial production of 007XL will be publically introduced at the GCSAA Golf Show in San Diego, February 2022 as the newest "Super Bent" variety.**



**The XL in the 007XL = Excels**

**The FIRST ever creeping bentgrass to be rated No. 1 across all four trial years in both greens & fairways -- Rutgers turf trials 2017, 2018, 2019, 2020.**

To be clear, the 007XL is a totally unique variety and not an improved 007.

**A team effort, after 40 years of breeding creeping bentgrass.**

I can attest that the process that developed the 007XL would not have been possible without Dr. C. Reed Funk, my mentor, Dr. Stacy Bonos, Dr. Bill Meyer, Dr. James Murphy, Dr. Bruce Clarke, and all of my associates and collaborators over the years at Rutgers University. Additionally, the creeping bentgrass variety 007XL required the combined efforts of Bill Dunn and Dr. Leah Brilman and all of the support at Seed Research of Oregon, Pickseed and DLF. Steve Reid and Barbara Hinds Cook with DLF Research have been outstanding with the production of breeder seed for 007XL bentgrasses.