

# Breeding and Development of Bentgrass

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## **Goals:**

- *Develop stress tolerant bentgrass cultivars with specific emphasis on heat tolerance, root growth characters, turf quality, and resistance to natural disease and insect pests.*
- *Continue genetic studies involving heritability and stability of biological traits associated with stress tolerance.*

## **Cooperators:**

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CRENSHAW and CATO were released in April 1993. Considerable success has been realized in the performance and utility of both grasses, especially throughout the southern United States. CATO was licensed to Pickseed West, Tangent, Oregon and was commercially available in the fall of 1994. CRENSHAW was licensed to Lofts Seed, Inc., Somerset, New Jersey and was available commercially with limited supplies in 1993. The demand for CRENSHAW increased steadily in 1994, and despite increased production, seed was sold out for the year.

Syn 1-88 is a reselection from SEASIDE and has been optioned to Pick Seed West for increase. It will be commercially available in 1996. Syn 1-88 has been tentatively named MARINER and is recognized for its low maintenance requirements and excellent salt tolerance. This variety was released as a utility bentgrass targeted to replace SEASIDE creeping bentgrass with quality similar to the standard PENNCROSS.

A series of four synthetic creeping bentgrass populations were developed in 1992 and designated as the Syn 92 series. These populations (varieties) incorporate stronger physiological and disease resistance traits to produce better stress tolerant grasses. Each of these populations was comprised of four to ten parental lines which underwent further selection and breeding for floral initiation, leaf texture, color and field performance under close mowing and cultivation.

Burlingham & Sons have an option agreement with Texas A&M University for

testing and evaluation rights on Syn92-1 (CENTURY) and Syn92-5 (IMPERIAL) creeping bentgrasses. Turf Merchant Inc. and Scotts have a joint option for testing and evaluation of Syn92-2. These three experimental varieties were entered into the National Turfgrass Evaluation Program's 1993 Creeping Bentgrass Trials and are performing well. Sufficient seed stocks of Syn92-4 has allowed for limited testing and evaluation. In 1996, larger quantities of seed will permit more extensive testing and

evaluation of Syn92-4.

Vegetative selections of creeping bentgrasses were identified in the Oregon production fields among the progeny of the advanced lines. These selections will be included in field and greenhouse performance tests at TAES-Dallas to evaluate vegetative growth characters, turf quality, disease resistance, insect resistance, traffic and salinity tolerance, heat tolerance and root growth characters.

Mean Turfgrass Quality Ratings of Bentgrass Cultivars for Each Month Grown on a Green at Twenty-Six Locations in the United States. 1994 NTEP Data.<sup>2</sup>

NAME	Turfgrass Quality Ratings 1 - 9; 9 = Ideal Turf: Months <sup>1</sup>												MEAN
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
A-4	5.2	6.2	5.6	5.7	6.2	6.6	6.6	6.5	6.5	6.4	5.9	4.9	6.5
L-93	3.8	5.2	5.3	5.1	5.8	6.1	6.4	6.6	6.7	6.6	5.8	4.5	6.4
PROVIDENCE	4.8	5.8	5.5	5.6	6.1	6.4	6.3	6.4	6.4	6.3	5.8	4.4	6.3
A-1	5.0	5.4	5.4	5.3	5.9	6.1	6.4	6.4	6.6	6.5	5.9	4.8	6.3
CRENSHAW	5.7	5.4	5.6	5.3	6.1	6.1	6.4	6.5	6.2	6.1	5.5	3.9	6.2
CATO	4.8	5.0	5.3	5.3	6.1	6.3	6.4	6.3	6.2	6.2	5.7	4.4	6.2
G-6	4.3	5.2	4.7	4.9	5.6	6.0	6.2	6.3	6.3	6.4	5.8	4.4	6.1
G-2	4.2	4.7	4.8	4.9	5.6	5.9	6.0	6.2	6.4	6.4	5.8	5.0	6.1
SOUTHSHORE	5.0	5.9	5.4	5.4	5.8	6.1	6.1	6.2	6.3	5.9	5.5	4.4	6.1
SYN 92-1	4.5	5.4	5.3	5.3	6.2	6.3	6.3	6.3	6.1	5.9	5.3	3.8	6.0
SYN 92-5	4.3	6.1	5.2	5.5	5.9	6.0	6.1	5.9	6.1	6.0	5.3	4.2	6.0
SYN 92-2	4.2	5.7	5.6	5.2	6.0	6.0	6.0	6.1	6.0	5.8	5.1	3.9	5.9
SR 1020	5.2	5.1	5.3	5.2	5.8	5.9	6.0	6.0	5.9	5.9	5.6	4.4	5.9
PENNLINKS	4.0	4.8	5.3	5.4	5.7	5.8	5.8	5.9	6.0	5.9	5.3	4.1	5.8
REGENT	5.5	5.6	5.6	4.8	5.5	5.7	5.8	5.9	6.0	5.8	5.3	4.5	5.8
BAR WS 42102	3.8	4.6	5.2	5.1	5.7	5.8	6.0	5.8	6.0	5.9	4.6	3.5	5.8
MSUEB	4.3	4.6	5.5	5.3	5.6	5.6	5.7	5.8	5.9	5.8	5.2	4.1	5.7
ISI-AP-89150	4.3	5.2	4.8	5.0	5.7	5.6	5.6	5.8	5.9	5.8	5.3	3.8	5.7
18TH GREEN	4.2	3.8	4.8	4.9	5.6	6.0	5.9	6.0	5.6	5.5	4.7	3.1	5.7
LOPEZ	3.5	4.4	4.6	4.9	5.1	5.4	5.8	5.9	5.9	5.9	5.1	4.2	5.6
PRO/CUP	4.5	5.0	5.3	4.9	5.6	5.6	5.5	5.8	5.7	5.7	4.8	3.8	5.6
DG-P	4.0	4.8	4.4	4.4	5.1	5.4	5.6	5.9	5.8	5.8	5.1	3.9	5.6
PENNCROSS	5.0	5.1	5.5	5.4	5.5	5.7	5.6	5.5	5.5	5.6	4.8	3.8	5.5
TURELINE	3.5	4.8	5.0	4.5	5.2	5.4	5.6	5.8	5.7	5.7	5.0	3.8	5.5
SYN-1-88	3.8	4.7	5.6	4.7	5.2	5.5	5.2	5.4	5.6	5.3	5.1	4.2	5.4
TENDENZ	3.0	4.9	5.1	5.0	4.9	5.2	4.7	4.7	4.9	4.9	4.2	3.4	4.8
BAR AS 492	2.8	3.9	4.0	4.1	4.5	4.3	4.5	4.5	5.0	4.9	4.4	4.1	4.6
SEASIDE	4.5	4.8	5.8	5.0	4.9	4.5	4.4	4.4	4.6	4.3	4.2	3.2	4.5
LSD VALUE	2.1	1.5	1.1	0.8	0.7	0.5	0.5	0.5	0.5	0.6	0.9	1.1	0.4

<sup>1</sup> To determine statistical differences among entries, subtract one entry's mean from another entry's mean. Statistical differences occur when this value is larger than the corresponding LSD Value (LSD 0.05).

<sup>2</sup> Source: National Turfgrass Evaluation Program. National Bentgrass Test - 1993 (Putting Greens)