NATIONAL TURFGRASS EVALUATION PROGRAM

The National Turfgrass Evaluation Program (NTEP) is designed to develop and coordinate uniform evaluation trials of turfgrass varieties and promising selections in the United States and Canada. Test results can be used by national companies and plant breeders to determine the broad picture of the adaptation of a cultivar. Results can also be used to determine if a cultivar is well adapted to a local area or level of turf maintenance.

Briefly, the NTEP is a self-supporting, non-profit program, sponsored by the Beltsville Agricultural Research Center and the National Turfgrass Federation, Inc. Program policy is made by a policy committee consisting of one member from each of the four (4) Regional Turfgrass Research Committees in the United States, one member from the Lawn Seed Division of the American Seed Trade Association, one member from the United States Golf Association (USGA) Green Section, one member from the Golf Course Superintendents Assoc. of America (GCSAA), one member for the Turfgrass Producers International (TPI), one member from the Turfgrass Breeders Association and an executive director. The program does not make variety recommendations. However, the data from tests can be used by extension specialists and others for making recommendations.

The policy committee is responsible for determining program policy including, (1) requirements for submission of entries, (2) scheduling tests, (3) evaluation methods, (4) selecting standard or control test entries, (5) setting entry fees, (6) coordinating tests in their respective regions, (7) establishing guidelines for publication and data distribution and (8) scheduling committee meetings.

Executive Director - Kevin N. Morris, National Turfgrass Federation, Inc.

CURRENT POLICY COMMITTEE MEMBERS:

Dr. Steve Johnson, DLF International Seeds
Ms. Chris McDowell, Pickseed West, Inc.
Dr. Michael Kenna, USGA Green Section
Dr. David Williams, University of Kentucky
Dr. Bernd Leinauer, New Mexico State University
Mr. Warren Bell, Biograss Sod Farms
Dr. Clark Throssell, Golf Course Superintendents Assoc. of America
Dr. Brian Horgan, University of Minnesota
Mr. Duane Klundt, Scotts Turf-Seed, Inc.

FOR ADDITIONAL REPORTS OR INFORMATION CONTACT:

Kevin Morris, Executive Director
National Turfgrass Evaluation Program
Beltsville Agricultural Research Center-West
Building 003, Room 218
Beltsville, Maryland 20705
kmorris@ntep.org
www.ntep.org

CONTENTS

2002 National St. Augustinegrass Test - 2006 data

A Guide to NTEP Turfgrass Ratings

Introduction

The quality and scientific merit of NTEP data is extremely important. However, the evaluation of turfgrass species and cultivars is a difficult and complex issue. Furthermore, turfgrass evaluation is generally a subjective process based on visual estimates of factors, like genetic color, stand density, leaf texture, uniformity and quality. These factors can not be measured in the same way as other agricultural crops. Turfgrass quality is not a measure of yield or nutritive value. Turfgrass quality is a measure of aesthetics (i.e. density, uniformity, texture, smoothness, growth habit and color), and functional use. The most common way of assessing turfgrass quality is a visual rating system that is based on the turfgrass evaluator's judgement.

General Considerations

Most visual ratings collected on NTEP trials are based on a 1 to 9 rating scale. One is the poorest or lowest and 9 is the best or highest rating. However, a few characteristics, such as winter kill or percent living ground cover, are rated on a percentage basis, again by using the evaluator's judgement. Most disease ratings found in NTEP reports will use the 1-9 scale, 9=no disease except where the evaluator made a judgement of the percentage of disease in each plot. Percent disease data will be found in separate tables and will normally not be included with disease data using the 1-9 scale.

Turfgrass Quality

Turfgrass Quality is based on 9 being outstanding or ideal turf and 1 being poorest or dead. A rating of 6 or above is generally considered acceptable. A quality rating value of 9 is reserved for a perfect or ideal grass, but it also can reflect an absolutely outstanding treatment plot. The NTEP requires quality ratings on a monthly basis. Quality ratings take into account the aesthetic and functional aspects of the turf. Quality ratings are not based on color alone, but on a combination of color, density, uniformity, texture, and disease or environmental stress.

Turfgrass quality ratings are grouped and presented by region, management level, a particular stress (shade, traffic, etc.) and in some cases, by individual location (starting with 2001 data, data from each location will be posted separately as well on the NTEP web site, *http://www.ntep.org*). Also available now is a summary table (Appendix) in the back of this report. This summary table includes various statistical measures not previously compiled for NTEP reports. For an explanation of this table and these changes, please go to the NTEP web site at *http://www.ntep.org/pdf/grandmean.mem.pdf.*

Other Ratings

More detailed information on the ratings of specific characteristics can be found on the NTEP web site at *http://www.ntep.org/reports/ratings.htm.*

2002 NATIONAL ST. AUGUSTINEGRASS TEST

LOCATIONS SUBMITTING DATA FOR 2006

State	Location	Code
California	Pomona	CA7
Florida	Jay	FL3
Georgia	Griffin	GA1
Georgia	Savannah (Shade)	GA2
Louisiana	Calhoun	LA2
Mississippi	Mississippi State	MS1
Oklahoma	Lane	OK2
South Carolina	Florence	SC1

2002 NATIONAL ST. AUGUSTINEGRASS TEST

Entries and Sponsors

Entry No.	Name	Sponsor
*1	Raleigh	Standard entry
*2	Floratam	Standard entry
*3	Delmar	Standard entry
*4	Mercedes	Super Sod/Patten Seed
5	MSA 31	Mississippi State Univ.
6	MSA 2-3-98	Mississippi State Univ.

* COMMERCIALLY AVAILABLE IN THE USA IN 2007.

TABLE A. 2006 LOCATIONS, SITE DESCRIPTIONS AND MANAGEMENT PRACTICES IN THE 2002 NATIONAL ST. AUGUSTINEGRASS TEST

LOCATION	SOIL TEXTURE	SOIL PH	SOIL PHOSPHOROUS (LBS/ACRE)	SOIL POTASSIUM (LBS/ACRE)	NITROGEN (LBS/1000 SQ FT)	SUN OR SHADE	MOWING HEIGHT (IN)	IRRIGATION PRACTICED
CA7	SANDY LOAM	7.1-7.5	0-60	376-500	6.1-7.0	LIGHT SHADE	1.1-1.5	TO PREVENT STRESS
FL3	-	-	-	-	-	-	-	-
GA1	SANDY LOAM	5.6-6.0	0-60	0-150	3.1-4.0	FULL SUN	2.6-3.0	TO PREVENT STRESS
GA2	-	-	-	-	-	-	-	-
LA2	-	-	-	-	2.1-3.0	FULL SUN	2.6-3.0	TO PREVENT STRESS
MS1	SANDY LOAM	6.6-7.0	151-270	241-375	2.1-3.0	FULL SUN	2.6-3.0	TO PREVENT STRESS
OK2	SAND	7.6-8.5	61-150	0-150	3.1-4.0	FULL SUN	2.6-3.0	TO PREVENT STRESS
SC1	SANDY LOAM	5.6-6.0	61-150	0-150	1.1-2.0	FULL SUN	2.6-3.0	TO PREVENT STRESS

TABLE B. LOCATIONS AND DATA COLLECTED IN 2006

LOCATION	APRIL QUALITY RATING	MAY QUALITY RATING	JUNE QUALITY RATING	JULY QUALITY RATING	AUGUST QUALITY RATING	SEPTEMBER QUALITY RATING	OCTOBER QUALITY RATING	NOVEMBER QUALITY RATING	DECEMBER QUALITY RATING	GENETIC COLOR	SPRING GREENUP	LEAF TEXTURE
CA7	X	X	X	X	X	X	X	X	X	X		
FL3		X	X	X	X	X	X	X		X		
GA1			X	X	X		X			X		
GA2	X		X	X	X							
LA2		X	X	X	X	X						
MS1	X	X	X	X	X	X	X	X		X	X	X
OK2		X	X	X	X	X		X			X	X
SC1	X	X	X	X	X	X	X					

TABLE B. (CONT'D) LOCATIONS AND DATA COLLECTED IN 2006

LOCATION	SUMMER DENSITY	FALL DENSITY	PERCENT COVER SPRING	FROST TOLERANCE	PERCENT WINTER KILL	FALL COLOR OCTOBER	SEEDHEAD RATINGS	PERCENT SPRING GREENUO	NUMBERS OF CHINCH BUG AUGUST ADULT	AUGUST NYMPH	DECEMBER ADULT	DECEMBER NYMPH	BROWN PATCN MAY	BROWN PATCN OCTOBER
CA7														
FL3	X	X												
GA1								X	X	X	X	X		
GA2	X		X					X						
LA2														
MS1	X		X	X										
OK2			X	X	X	X	X							
SC1													X	X

TABLE 1. MEAN TURFGRASS QUALITY RATINGS OF ST. AUGUSTINEGRASS CULTIVARS GROWN AT SEVEN LOCATIONS IN THE U.S. 1/
2006 DATA

TURFGRASS QUALITY RATINGS 1-9; 9=IDEAL TURF 2/

NAME	CA7	FL3	GA1	LA2	MS1	OK2	SC1
* DELMAR	5.7	3.3	6.7	6.7	6.0	5.1	3.3
* FLORATAM	6.0	4.0	6.1	6.7	4.4	5.9	3.3
* MERCEDES	6.4	3.6	7.3	6.5	7.1	5.9	4.6
MSA 2-3-98	6.1	3.7	6.8	6.6	7.6	4.0	4.5
MSA 31	6.7	3.0	6.3	6.5	6.6	4.1	4.0
* RALEIGH	5.7	3.3	6.3	6.7	6.5	5.2	4.0
LSD VALUE	0.7	0.7	0.8	0.6	0.7	2.0	1.2
C.V. (%)	6.7	13.2	7.7	5.2	6.7	24.7	18.7

* COMMERCIALLY AVAILABLE IN THE USA IN 2007.

1/ 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).

2/ C.V. (COEFFICIENT OF VARIATION) INDICATES THE PERCENT VARIATION OF THE MEAN IN EACH COLUMN.

TABLE 2. MEAN TURFGRASS QUALITY AND OTHER RATINGS OF ST. AUGUSTINEGRASS CULTIVARS AT SAVANNAH (SHADE), GA 1/
2006 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/

NAME	DENSITY SPRING	DENSITY SUMMER	PERCENT COVER SPRING	PERCENT SPRING GREENUP	QUALITY RATINGS APR	JUN	JUL	AUG	MEAN
MSA 31	7.7	6.7	88.3	81.3	7.0	7.3	7.3	4.7	6.6
RALEIGH	7.3	5.3	81.7	78.3	6.7	6.7	6.0	5.3	6.2
DELMAR	7.0	6.0	78.3	75.0	6.0	6.0	6.7	5.3	6.0
MERCEDES	7.0	5.3	81.7	80.0	5.0	6.3	6.0	6.0	5.8
MSA 2-3-98	6.7	6.5	75.0	73.0	6.0	6.5	5.7	5.7	5.7
FLORATAM	5.0	3.7	60.0	61.7	3.7	4.3	5.7	4.3	4.5
LSD VALUE	2.7	1.4	25.3	21.0	1.9	0.8	2.8	1.9	1.6
C.V. (%)	17.8	12.5	15.0	12.7	17.4	7.2	18.7	16.3	13.1

TABLE 3. GENETIC COLOR RATINGS OF ST. AUGUSTINEGRASS CULTIVARS 1/
2006 DATA

GENETIC COLOR RATINGS 1-9; 9=DARK GREEN 2/

NAME	CA7	FL3	GA1	MS1	MEAN
MSA 2-3-98	6.7	3.3	7.0	8.0	6.3
MERCEDES	7.0	3.0	7.3	7.3	6.2
DELMAR	7.0	2.0	7.3	8.0	6.1
MSA 31	7.0	2.0	7.0	8.0	6.0
FLORATAM	6.0	3.7	5.3	8.0	5.8
RALEIGH	6.7	2.0	6.7	7.3	5.7
LSD VALUE	0.8	0.5	1.2	0.5	0.4
C.V. (%)	7.8	12.5	11.0	4.3	8.6

1/ 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).

2/ C.V. (COEFFICIENT OF VARIATION) INDICATES THE PERCENT VARIATION OF THE MEAN IN EACH COLUMN.

TABLE 4. SPRING GREENUP RATINGS OF ST. AUGUSTINEGRASS CULTIVARS 1/
2006 DATA

SPRING GREENUP RATINGS 1-9; 9=COMPLETELY GREEN 2/

NAME	MS1	OK2	MEAN
RALEIGH	6.3	3.0	4.7
MERCEDES	6.7	2.3	4.5
MSA 2-3-98	7.0	1.7	4.3
DELMAR	5.0	2.3	3.7
FLORATAM	2.0	4.3	3.2
MSA 31	3.7	2.3	3.0
LSD VALUE	1.3	1.6	1.0
C.V. (%)	16.0	36.4	23.1

TABLE 5. LEAF TEXTURE RATINGS OF ST. AUGUSTINEGRASS CULTIVARS 1/
2006 DATA

LEAF TEXTURE RATINGS 1-9; 9=VERY FINE 2/

NAME	MS1	OK2	MEAN
MSA 31	8	5.3	6.7
MSA 2-3-98	7	5.0	6.0
FLORATAM	5	6.7	5.8
RALEIGH	6	5.7	5.8
MERCEDES	7	4.0	5.5
DELMAR	6	4.3	5.2
LSD VALUE	0	1.2	0.6
C.V. (%)	0	14.4	9.0

1/ 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).

2/ C.V. (COEFFICIENT OF VARIATION) INDICATES THE PERCENT VARIATION OF THE MEAN IN EACH COLUMN.

TABLE 6. SUMMER DENSITY RATINGS OF ST. AUGUSTINEGRASS CULTIVARS 1/
2006 DATA

DENSITY RATINGS 1-9; 9=MAXIMUM DENSITY 2/

NAME	FL3	MS1	MEAN
MSA 2-3-98	6.7	8.0	7.3
MERCEDES	5.7	7.3	6.5
RALEIGH	6.0	6.7	6.3
FLORATAM	7.3	5.3	6.3
DELMAR	4.7	7.0	5.8
MSA 31	3.0	8.0	5.5
LSD VALUE	1.8	0.7	0.9
C.V. (%)	19.9	5.8	13.2

TABLE 7. FALL DENSITY RATINGS OF ST. AUGUSTINEGRASS CULTIVARS 1/
2006 DATA

DENSITY RATINGS 1-9; 9=MAXIMUM DENSITY 2/

NAME	FL3
DELMAR	7.3
MSA 31	7.3
MSA 2-3-98	7.0
FLORATAM	6.7
RALEIGH	6.0
MERCEDES	5.7
LSD VALUE	1.7
C.V. (%)	15.4

1/ 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).

2/ C.V. (COEFFICIENT OF VARIATION) INDICATES THE PERCENT VARIATION OF THE MEAN IN EACH COLUMN.

TABLE 8. PERCENT LIVING GROUND COVER (SPRING) RATINGS OF ST. AUGUSTINEGRASS CULTIVARS 1/
2006 DATA

PERCENT LIVING GROUND COVER IN SPRING: LOCATIONS 2/

NAME	MS1	OK2	MEAN
RALEIGH	98.0	35.0	66.5
MERCEDES	97.7	26.7	62.2
FLORATAM	55.0	60.0	57.5
MSA 2-3-98	99.0	9.3	54.2
DELMAR	81.7	21.7	51.7
MSA 31	81.7	18.3	50.0
LSD VALUE	17.0	33.9	18.9
C.V. (%)	12.3	73.9	29.2

TABLE 9. FROST TOLERANCE RATINGS OF ST. AUGUSTINEGRASS CULTIVARS 1/
2006 DATA

FROST TOLERANCE RATINGS 1-9; 9=NO INJURY 2/

NAME	MS1	OK2	MEAN
MSA 2-3-98	7.3	6.7	7.0
RALEIGH	6.7	7.0	6.8
MERCEDES	7.0	6.0	6.5
DELMAR	5.0	7.3	6.2
MSA 31	5.0	6.7	5.8
FLORATAM	3.3	6.7	5.0
LSD VALUE	0.9	1.4	0.8
C.V. (%)	10.1	12.6	11.7

1/ 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).

2/ C.V. (COEFFICIENT OF VARIATION) INDICATES THE PERCENT VARIATION OF THE MEAN IN EACH COLUMN.

TABLE 10. PERCENT WINTER KILL RATINGS OF ST. AUGUSTINEGRASS CULTIVARS 1/
2006 DATA

PERCENT WINTER KILL RATINGS: LOCATIONS 2/

NAME	OK2
MSA 2-3-98	86.7
DELMAR	81.7
MSA 31	78.3
MERCEDES	76.7
RALEIGH	60.0
FLORATAM	33.3
LSD VALUE	37.4
C.V. (%)	33.5

TABLE 11. FALL COLOR (OCTOBER) RATINGS OF ST. AUGUSTINEGRASS CULTIVARS 1/
2006 DATA

FALL COLOR RATINGS 1-9; 9=COMPLETE COLOR RETENTION 2/

NAME	OK2
RALEIGH	7.3
FLORATAM	6.0
MSA 2-3-98	6.0
DELMAR	5.7
MERCEDES	5.3
MSA 31	5.3
LSD VALUE	1.2
C.V. (%)	12.5

1/ 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).

2/ C.V. (COEFFICIENT OF VARIATION) INDICATES THE PERCENT VARIATION OF THE MEAN IN EACH COLUMN.

TABLE 12. SEEDHEAD RATINGS OF ST. AUGUSTINEGRASS CULTIVARS 1/
2006 DATA

SEEDHEAD RATINGS 1-9; 9=NONE 2/

NAME	OK2
MSA 2-3-98	8.7
DELMAR	6.7
MSA 31	6.3
MERCEDES	6.0
RALEIGH	5.7
FLORATAM	4.3
LSD VALUE	2.9
C.V. (%)	28.8

TABLE 13. PERCENT SPRING GREENUP RATINGS OF ST. AUGUSTINEGRASS CULTIVARS 1/
2006 DATA 2/

NAME	GA1
MERCEDES	58.3
DELMAR	46.7
MSA 2-3-98	41.7
RALEIGH	41.7
MSA 31	28.3
FLORATAM	16.7
LSD VALUE	21.0
C.V. (%)	33.6

1/ 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).

2/ C.V. (COEFFICIENT OF VARIATION) INDICATES THE PERCENT VARIATION OF THE MEAN IN EACH COLUMN.

TABLE 14. CHINCH BUG COUNTS OF ST. AUGUSTINEGRASS CULTIVARS
AT GRIFFIN, GA 1/
2006 DATA

CHINCH BUGS COUNTED IN 3 SQ.FT. 2/

NAME	AUGUST ADULT	AUGUST NYMPH	DECEMBER ADULT	DECEMBER NYMPH	MEAN
RALEIGH	70.7	13.3	65.7	151.7	75.3
MSA 2-3-98	18.0	10.0	15.7	52.3	24.0
MSA 31	25.7	6.7	6.0	24.3	15.7
MERCEDES	20.0	8.3	0.0	8.3	9.2
DELMAR	12.7	0.7	0.0	5.3	4.7
FLORATAM	7.0	0.3	0.0	0.3	1.9
LSD VALUE	23.5	11.8	47.3	47.9	19.8
C.V. (%)	50.7	85.4	161.7	67.4	52.3

TABLE 15. BROWN PATCH RATINGS OF ST. AUGUSTINEGRASS CULTIVARS
AT FLORENCE, SC 1/
2006 DATA

BROWN PATCH RATINGS 1-9; 9=NO DISEASE 2/

NAME	MAY	OCTOBER	MEAN
MSA 31	6.7	5.7	6.2
DELMAR	6.0	5.0	5.5
FLORATAM	5.7	5.0	5.3
MSA 2-3-98	4.7	4.0	4.3
MERCEDES	4.0	4.0	4.0
RALEIGH	2.0	2.0	2.0
LSD VALUE	2.0	1.6	1.7
C.V. (%)	22.3	19.9	20.6

1/ 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).

2/ C.V. (COEFFICIENT OF VARIATION) INDICATES THE PERCENT VARIATION OF THE MEAN IN EACH COLUMN.

APPENDIX TABLE. SUMMARY OF TURFGRASS QUALITY RATINGS FOR ST. AUGUSTINEGRASS CULTIVARS IN THE 2002 NATIONAL ST. AUGUSTINEGRASS TEST */
2006 DATA

TURFGRASS QUALITY RATINGS 1-9; 9=IDEAL TURF **/

NAME	QUALITY MEAN 1/	MAXIMUM IN TOP 25% 2/
DELMAR	5.2	0.0
FLORATAM	5.2	28.6
MERCEDES	5.9	42.9
MSA 2-3-98	5.6	14.3
MSA 31	5.3	14.3
RALEIGH	5.4	14.3
LSD VALUE	0.4	
CV VALUE	12.1	

*/ 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).

**/ C.V. (COEFFICIENT OF VARIATION) INDICATES THE PERCENT VARIATION OF THE MEAN IN EACH COLUMN.

1/ MEAN - AN AVERAGE OF ALL THE TURFGRASS QUALITY RATINGS FROM ALL LOCATIONS.

2/ MAXIMUM IN TOP 25% - THE PERCENTAGE OF LOCATIONS WHERE THAT ENTRY FINISHED IN THE TOP 25% OF ALL ENTRIES.