

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, one member from the Sports Turf Managers Association of America (STMA), 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 Evaluation Program, Inc.

CURRENT POLICY COMMITTEE MEMBERS:

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Mr. Micah Gould, Barenbrug USA.
Dr. Cole Thompson, USGA Green Section
Dr. Barry Stewart, Mississippi State University
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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>.

2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST

LOCATIONS SUBMITTING DATA FOR 2023

State	Location	Code
Approach 1 Locations (Rainout shelters)		
Indiana	West Lafayette	IN1
Approach 2 Locations (Zone level irrigation)		
Colorado	Ft. Collins	CO1
Minnesota	St. Paul	MN1

COOL-SEASON WATER USE/DROUGHT TOLERANCE TRIAL PROTOCOLS

Approach 1- Individual Plot Level Irrigation:

- a. Year 1- Plots are fully established under full irrigation levels (plot size is 1 meter x 1 meter or 10.76 sq. ft.)
- b. Years 2, 3, 4 - Following uniform irrigation of all plots to initiate the study, full scale, automated irrigation is terminated, and individual plots are thereafter monitored on a regular basis (could be daily, bi-weekly, or weekly to correspond to particular watering frequencies allotted by the region or budget provided the cooperator) during the morning hours of the dry-down 'season'.
- c. When quality attributes of a specific plot or plots are noted to have fallen below 80% fully green cover or 20% wilting, it is hand-irrigated with an amount of water necessary to recharge the root zone to field capacity (between ½" to 1"). Irrigation events are recorded on a per plot basis, so that total irrigation applied over the season can be calculated on a plot basis and statistics applied.
- d. A dry-down 'season' lasts around 100 days, then plots would be fully irrigated to assess recovery. Turf quality ratings will be collected as well during dry down and recovery.
- e. A rainout shelter is employed for this approach. Data produced through the work documents 1) 'water quantity required (inches) per entry' for each location, 2) turfgrass quality before and during dry-down, during and after recovery, and a 3) ranking of the entries used.

Approach 2- Zone Level Irrigation: Larger study area size (~3 to 4 times more area and plant material) is used for accommodating multiple studies or 'zones' of irrigation (3 ET₀ levels x 3 entry reps/ ET₀ level x 10.76 sq. ft/plot). This trial is not conducted under rainout shelters due to size constraints.

- a. Year 1- Similar to Approach 1, a full set of replicated entries is established, but within each of 3 target irrigation ET levels (zones). Plots (1 m x 1 m or similar size) will be fully established under full irrigation levels.
- b. Years 2-4- Irrigation treatments imposed. ET levels will correspond to 3 levels of historical reference evapotranspiration (ET₀) for the location, the maximum of which should be near full water requirement (0.8 x ET₀ for cool-season) and lowest of which should be ~1/2 of this maximum level. ET₀ levels for this trial are:
 - i. Cool-season: 0.8 x ET₀, 0.65 x ET₀, 0.5 x ET₀ applied 1-3x weekly (depends on location)
- c. Frequency of irrigation to plots would also be a constant 1 or 2 day per week irrigation schedule (a single frequency should be decided on for all locations).
- d. Irrigation 'season' is approximately 120 days.
- e. Irrigation scheduling to account for rainfall (determined by location)
 - i. Approach 1- Let system run regardless of rainfall, do not adjust irrigation
 - ii. Approach 2- Do not adjust schedule for any events <0.25". Account for 50% effective rainfall for all other events in adjusting irrigation applied for each zone. (For instance, if a 1" rainfall is received; all plots are turned off for one event. If ½" is received, only the low irrigation level may be turned off, but others receive appropriate % adjustments to account for ¼" effective rainfall.
 - iii. Ultimately, accounting of total water received within each zone on a weekly basis is most important.
- f. Quality attributes (wilt/firing/% green cover, etc.) of all plots within each irrigation level will be noted regularly during the study, just prior to an irrigation day during the morning hours.
- g. At the conclusion of the study, irrigation + rainfall for each zone would be totaled by week (~10-14 weeks in duration). Quality (>6) or other parameter (>80% green cover) of interest in determining acceptability would also be noted on a per plot basis for each week. Finally, the particular amount of water needed to sustain acceptable quality each week would be determined on a plot by plot basis and totaled for the study. This amount might fluctuate by week or month.
- h. This approach is best suited for areas of the US that likely see visible drought stress arise in summer months where irrigation is not applied, i.e. (New Mexico, California, Colorado, etc.).
- i. Repeating the studies over three years will allow for upper and lower end seasonal requirements to be determined for each location.
- j. Data produced through the work will document 1) 'water quantity required (inches)' per entry for each location, 2) turfgrass quality ratings at regular intervals, and a 3) ranking of the entries used.

2022 USGA/NTEP Cool-Season Fairway Water Use/Drought Tolerance Test
Entries and Sponsors

Entry No.	Name	Species	Sponsor
*1	Gladiator	Hard Fescue	Standard
*2	Navigator II	Strong Creeping Red	Standard
*3	Compass II	Chewings Fescue	Standard
4	PPG FRC 127	Chewings Fescue	Mountain View Seeds
*5	SR 4650	Perennial Ryegrass	Standard
6	Helios	Perennial Ryegrass	DLF USA
*7	Musket	Colonial Bentgrass	Standard
*8	Piper	Creeping Bentgrass	Mountain View Seeds
*9	Oakley	Creeping Bentgrass	Mountain View Seeds
*10	Piranha	Creeping Bentgrass	Mountain View Seeds
*11	AU Victory	Creeping Bentgrass	Mountain View Seeds
*12	007XL	Creeping Bentgrass	DLF USA
*13	Macdonald	Creeping Bentgrass	DLF USA
*14	777	Creeping Bentgrass	DLF USA
15	DLF-AP-3084	Creeping Bentgrass	DLF USA
*16	T-1	Creeping Bentgrass	Barenbrug USA
*17	Kingdom	Creeping Bentgrass	Barenbrug USA
*18	Penncross	Creeping Bentgrass	Standard

*COMMERCIALY AVAILABLE IN THE USA IN 2024 OR ANY OTHER COUNTRY

TABLE 1A.

TURFGRASS QUALITY AND OTHER RATINGS OF ALL CULTIVARS WITH 50% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT FORT COLLINS, CO 1/
2023 DATA

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

NAME		SPRING	PERCENT POA		PRE-DROUGHT COVERAGE		PRE-DROUGHT QUALITY RATINGS		
		GREENUP 4/26	ANNUA 9/12	INVASION 6/30	PERCENT 7/12	7/27	6/30	7/27	8/14
PPG FRC 127	FF	5.3	0.0	96.0	93.7	99.0	5.3	6.7	6.7
NAVIGATOR II	FF	5.3	0.0	91.3	95.7	98.7	4.7	6.3	6.7
DLF-AP-3084	BT	3.7	0.0	78.7	86.0	94.7	4.7	6.0	6.3
COMPASS II	FF	4.7	0.0	90.7	95.0	99.0	3.7	6.3	6.7
GLADIATOR	FF	6.0	0.0	95.3	96.0	99.0	4.7	6.3	6.7
HELIOS	PR	2.7	0.0	67.0	87.3	97.7	4.0	5.3	6.0
OAKLEY	BT	3.0	0.0	67.7	78.7	95.0	4.0	5.7	5.3
PENNCROSS	BT	3.7	0.0	93.0	96.0	98.7	4.3	6.0	6.3
AU VICTORY	BT	4.0	0.0	92.3	98.7	98.7	4.7	6.0	6.3
PIRANHA	BT	3.0	2.7	68.3	79.0	88.3	3.0	5.7	5.7
T-1	BT	3.0	0.0	77.0	93.3	99.0	3.3	6.3	6.0
KINGDOM	BT	3.0	0.0	77.0	85.0	82.7	3.0	5.3	5.3
777	BT	3.0	0.0	93.7	99.0	99.0	4.0	4.0	6.3
PIPER	BT	3.0	0.0	92.3	99.0	99.0	3.7	5.7	6.0
MACDONALD	BT	2.7	0.0	71.3	91.0	93.7	4.3	5.3	5.0
007XL	BT	2.7	0.0	68.3	79.3	95.3	2.3	5.3	5.0
SR 4650	PR	3.0	5.3	54.7	83.3	95.0	3.7	5.0	4.0
MUSKET	BT	2.0	3.3	43.0	57.0	91.0	4.0	4.0	2.0
LSD VALUE		1.9	4.5	53.3	43.7	24.5	2.3	1.7	1.9
C.V. (%)		29.8	313.3	27.6	18.5	8.4	24.8	14.9	19.1

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 1A.
(CONT'D)

TURFGRASS QUALITY AND OTHER RATINGS OF ALL CULTIVARS WITH 50% OF ETo
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TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
QUALITY RATINGS DURING DROUGHT (AUGUST-SEPTEMBER) AND RECOVERY PERIODS (OCTOBER-NOVEMBER)

NAME		DROUGHT										RECOVERY		MEAN	
		8/21	8/24	8/31	9/5	9/8	9/12	9/14	9/25	10/2	10/9	10/18	10/27		11/4
PPG FRC 127	FF	7.0	7.0	5.7	5.7	6.3	6.0	5.0	4.7	6.0	5.7	5.3	5.3	5.0	5.8
NAVIGATOR II	FF	7.0	7.0	5.7	6.0	6.0	5.7	5.0	4.7	5.0	5.0	5.0	5.3	4.7	5.6
DLF-AP-3084	BT	6.7	6.7	6.3	6.0	6.0	5.0	5.0	4.3	5.0	5.0	5.0	5.3	4.3	5.5
COMPASS II	FF	6.3	6.3	5.0	5.7	5.3	5.0	5.3	5.0	5.3	5.7	5.3	5.3	4.7	5.4
GLADIATOR	FF	6.7	6.3	5.3	5.3	5.3	5.0	5.0	4.3	5.3	4.7	5.3	5.0	4.3	5.4
HELIOS	PR	6.7	5.3	5.3	5.3	5.3	4.7	5.0	5.0	5.7	6.0	5.7	6.0	5.3	5.4
OAKLEY	BT	6.3	6.3	6.3	6.3	6.0	5.3	4.7	4.3	5.3	5.3	5.0	5.0	4.3	5.4
PENNCROSS	BT	6.3	6.0	6.7	6.3	6.0	5.3	5.3	4.3	5.0	5.0	4.7	5.0	4.0	5.4
AU VICTORY	BT	6.7	6.0	6.3	5.7	6.0	5.0	4.7	4.3	4.7	4.7	5.0	5.0	4.0	5.3
PIRANHA	BT	6.7	6.3	6.7	5.7	6.0	5.0	4.7	4.3	4.7	5.0	5.0	5.3	4.3	5.3
T-1	BT	6.7	6.0	6.0	5.7	6.0	5.0	4.3	4.3	5.0	5.3	5.0	5.0	4.0	5.3
KINGDOM	BT	5.3	5.7	6.3	6.0	6.0	5.0	5.3	4.3	5.3	5.3	5.3	5.3	4.7	5.2
777	BT	6.3	6.0	6.3	5.7	6.3	5.0	5.0	4.0	4.7	5.0	4.7	5.0	4.0	5.1
PIPER	BT	6.3	6.3	6.0	5.7	6.0	5.0	4.0	4.0	5.0	4.7	4.7	5.0	4.0	5.1
MACDONALD	BT	5.7	5.3	5.7	5.3	6.0	5.0	5.0	4.0	4.3	5.0	5.0	5.0	4.0	5.0
007XL	BT	4.7	5.7	4.3	6.0	6.0	5.0	4.7	4.3	5.0	5.3	5.0	5.3	4.3	4.9
SR 4650	PR	5.3	5.0	4.7	4.3	4.3	4.3	4.3	4.7	5.3	6.0	5.7	5.7	5.3	4.9
MUSKET	BT	2.0	4.3	2.0	3.3	2.0	3.0	2.0	2.0	3.7	3.3	3.3	3.3	3.0	3.0
LSD VALUE		1.7	1.9	1.5	1.6	0.8	0.9	0.8	0.8	2.6	1.4	1.2	1.0	1.0	0.5
C.V. (%)		16.6	14.5	16.2	14.4	9.3	10.4	10.4	11.1	18.0	13.4	11.5	10.4	12.4	6.7

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES, SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN.
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NAVIGATOR II	FF	5.7	0.0	87.0	91.7	97.7	5.0	5.7	7.3
COMPASS II	FF	3.7	0.0	92.3	95.3	98.7	5.0	6.0	7.0
PPG FRC 127	FF	4.7	0.0	95.0	94.7	98.7	5.0	5.7	7.0
SR 4650	PR	2.3	2.7	77.3	90.0	97.3	3.3	5.0	5.7
PENNCROSS	BT	3.0	0.0	97.0	99.0	99.0	4.7	5.7	6.7
HELIOS	PR	2.3	0.0	78.3	86.0	97.3	2.7	5.0	5.7
007XL	BT	3.0	2.7	92.3	98.7	99.0	4.3	5.3	6.3
GLADIATOR	FF	5.0	0.0	96.0	96.0	98.7	5.7	6.0	6.7
KINGDOM	BT	3.0	0.0	97.0	99.0	99.0	4.0	5.3	6.3
PIRANHA	BT	2.7	0.0	94.0	99.0	99.0	4.0	6.0	6.0
T-1	BT	2.7	0.0	95.7	99.0	99.0	5.0	5.3	6.7
777	BT	2.7	0.0	95.0	99.0	99.0	4.0	5.7	6.7
MACDONALD	BT	3.7	0.0	90.3	99.0	99.0	5.0	5.3	6.3
OAKLEY	BT	3.7	0.0	97.3	99.0	99.0	4.7	6.0	6.3
PIPER	BT	2.7	5.3	90.7	99.0	99.0	4.3	5.7	6.0
AU VICTORY	BT	4.0	0.0	98.3	99.0	99.0	4.3	5.7	7.0
DLF-AP-3084	BT	4.0	0.0	98.7	99.0	98.3	4.3	5.7	6.3
MUSKET	BT	2.0	3.3	66.0	75.3	92.5	4.0	3.3	2.0
LSD VALUE		1.4	5.2	16.1	12.6	1.5	2.0	1.0	0.7
C.V. (%)		24.1	278.5	9.5	6.9	0.9	20.4	10.3	7.1

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 1B.
(CONT'D)

TURFGRASS QUALITY AND OTHER RATINGS OF ALL CULTIVARS WITH 65% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT FORT COLLINS, CO 1/
2023 DATA

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

QUALITY RATINGS DURING DROUGHT (AUGUST-SEPTEMBER) AND RECOVERY PERIODS (OCTOBER-NOVEMBER)

NAME		DROUGHT										RECOVERY		MEAN	
		8/21	8/24	8/31	9/5	9/8	9/12	9/14	9/25	10/2	10/9	10/18	10/27		11/4
NAVIGATOR II	FF	7.0	7.0	6.3	6.3	6.0	5.7	6.0	5.3	5.7	6.0	5.7	5.7	5.3	6.0
COMPASS II	FF	6.7	7.0	5.3	5.7	6.0	5.3	5.3	5.0	5.3	5.7	5.7	5.7	5.7	5.8
PPG FRC 127	FF	7.0	7.0	5.7	6.3	5.7	5.7	5.7	5.3	5.7	5.3	5.7	5.7	5.0	5.8
SR 4650	PR	6.7	5.7	5.0	5.0	5.0	5.0	5.7	5.0	6.7	7.0	6.7	7.0	6.3	5.7
PENNCROSS	BT	7.0	6.7	6.7	6.7	6.0	5.7	4.7	4.7	5.0	5.7	4.7	5.0	5.0	5.6
HELIOS	PR	6.7	5.7	5.0	4.7	4.7	4.7	5.3	5.0	7.0	7.0	6.3	7.0	6.3	5.5
007XL	BT	6.3	5.7	6.0	6.0	6.0	5.3	5.0	4.7	5.0	5.0	5.0	5.3	5.0	5.4
GLADIATOR	FF	7.0	6.3	5.0	5.0	5.3	5.0	5.0	5.0	5.0	4.7	5.0	5.0	4.3	5.4
KINGDOM	BT	6.7	6.7	6.7	6.3	6.0	5.0	5.0	4.3	5.0	5.0	4.7	5.0	4.0	5.4
PIRANHA	BT	6.3	6.3	6.3	6.0	6.3	5.0	4.7	4.3	5.0	5.0	5.0	5.0	4.3	5.4
T-1	BT	6.7	6.3	6.3	6.0	6.0	5.3	4.7	4.0	4.7	5.3	4.7	5.0	4.7	5.4
777	BT	6.3	6.3	6.3	6.3	4.7	5.0	5.0	4.3	4.7	5.0	4.7	4.7	4.3	5.3
MACDONALD	BT	6.3	6.0	6.0	6.0	6.0	5.0	5.0	4.0	4.7	5.3	5.0	5.0	4.3	5.3
OAKLEY	BT	6.3	6.3	6.7	6.0	5.7	5.0	4.0	4.0	4.3	4.7	4.7	4.7	4.0	5.2
PIPER	BT	6.3	6.3	6.0	6.0	6.0	5.0	4.3	4.0	4.7	4.7	5.0	5.0	4.3	5.2
AU VICTORY	BT	6.3	5.7	6.3	6.3	5.7	5.0	4.3	4.0	4.3	4.7	4.3	4.3	4.0	5.1
DLF-AP-3084	BT	6.7	6.3	6.0	6.0	6.0	4.7	4.3	4.0	4.0	4.3	4.3	4.7	4.0	5.1
MUSKET	BT	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.7	3.3	2.0	2.0	2.7	2.4
LSD VALUE		0.7	1.1	0.8	0.7	1.1	0.6	0.8	0.8	0.7	0.9	0.7	0.6	0.8	0.3
C.V. (%)		7.4	11.0	9.4	8.0	11.9	8.0	10.1	11.0	9.2	10.6	9.7	7.9	11.1	3.9

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 1C.

TURFGRASS QUALITY AND OTHER RATINGS OF ALL CULTIVARS WITH 80% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT FORT COLLINS, CO 1/
2023 DATA

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

NAME		SPRING		PERCENT POA			PRE-DROUGHT QUALITY RATINGS		
		GREENUP 4/26	ANNUA 9/12	INVASION 6/30	PERCENT 7/12	PRE-DROUGHT 7/27	PRE-DROUGHT 6/30	7/27	8/14
COMPASS II	FF	3.0	0.0	90.3	97.0	98.7	4.7	5.3	6.7
PPG FRC 127	FF	3.3	0.0	90.7	96.0	98.7	5.3	6.0	7.3
NAVIGATOR II	FF	3.7	3.3	81.7	91.0	98.7	4.3	5.7	7.0
HELIOS	PR	2.3	1.7	71.7	80.0	97.7	4.7	5.0	5.7
PENNCROSS	BT	3.0	0.0	81.3	93.3	99.0	4.7	5.3	6.3
SR 4650	PR	2.0	1.7	62.7	72.3	97.7	3.7	4.7	5.3
GLADIATOR	FF	3.7	0.0	88.0	90.3	94.0	5.0	5.3	6.0
PIRANHA	BT	2.3	0.0	80.7	98.3	95.7	4.7	5.7	6.7
KINGDOM	BT	2.7	2.7	77.3	93.7	98.7	4.3	5.0	6.3
007XL	BT	2.0	2.7	61.7	85.3	90.7	4.7	5.0	5.7
AU VICTORY	BT	3.0	0.0	94.3	98.7	99.0	4.7	6.0	6.3
DLF-AP-3084	BT	2.3	2.7	87.0	96.7	97.7	4.7	5.7	6.0
PIPER	BT	2.3	0.0	84.7	94.3	94.3	4.3	5.3	6.3
OAKLEY	BT	2.0	2.7	82.3	99.0	95.3	4.0	5.3	6.7
T-1	BT	2.7	2.7	84.3	95.3	94.3	3.7	5.7	6.0
MACDONALD	BT	1.7	5.3	57.7	67.3	81.0	4.0	4.7	5.3
777	BT	1.7	0.0	51.3	70.3	82.7	2.7	5.0	6.3
MUSKET	BT	1.0	6.7	37.7	54.3	64.5	4.3	4.7	2.3
LSD VALUE		1.1	10.1	41.2	43.6	34.6	3.5	1.9	1.8
C.V. (%)		24.8	195.1	25.0	20.7	13.3	26.1	13.2	16.3

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 1C.
(CONT'D)

TURFGRASS QUALITY AND OTHER RATINGS OF ALL CULTIVARS WITH 80% OF ETo
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT FORT COLLINS, CO 1/
2023 DATA

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

QUALITY RATINGS DURING DROUGHT (AUGUST-SEPTEMBER) AND RECOVERY PERIODS (OCTOBER-NOVEMBER)

NAME		DROUGHT										RECOVERY		MEAN	
		8/21	8/24	8/31	9/5	9/8	9/12	9/14	9/25	10/2	10/9	10/18	10/27		11/4
COMPASS II	FF	7.0	6.3	7.0	6.3	6.7	5.3	5.7	6.0	6.7	6.3	5.7	5.7	5.7	6.1
PPG FRC 127	FF	7.0	6.7	6.3	6.7	6.7	6.0	5.3	5.7	6.3	6.3	5.3	5.3	6.0	6.1
NAVIGATOR II	FF	6.3	6.3	6.0	6.3	6.3	5.3	5.7	5.7	6.3	6.7	6.0	6.0	5.7	6.0
HELIOS	PR	5.7	5.7	5.3	4.7	5.0	5.0	5.0	6.0	6.3	7.7	7.0	7.0	7.0	5.8
PENNCROSS	BT	6.3	6.3	6.3	6.0	6.3	5.7	5.7	5.0	6.0	6.0	5.3	6.0	5.0	5.8
SR 4650	PR	5.7	5.3	5.7	4.7	5.3	5.0	5.0	6.0	6.3	7.0	7.0	6.7	6.7	5.6
GLADIATOR	FF	6.0	6.3	5.7	6.0	6.0	5.3	5.3	5.0	5.3	5.3	5.3	5.0	4.7	5.5
PIRANHA	BT	6.3	6.7	6.3	6.0	6.0	5.3	5.0	4.3	4.7	5.3	5.3	5.3	4.7	5.5
KINGDOM	BT	6.0	6.3	6.3	6.3	6.3	5.0	5.0	4.7	5.0	5.3	5.0	5.3	4.7	5.4
007XL	BT	6.0	6.0	6.0	5.7	6.0	5.0	4.7	4.0	5.3	5.7	5.3	5.7	4.7	5.3
AU VICTORY	BT	6.3	6.3	6.0	6.0	6.0	5.0	5.0	4.0	5.0	5.0	4.7	4.7	4.3	5.3
DLF-AP-3084	BT	6.3	6.0	6.3	6.0	6.0	5.0	5.0	4.0	4.3	5.0	5.0	5.0	4.7	5.3
PIPER	BT	6.3	6.3	6.3	6.0	6.0	5.3	4.7	3.7	4.7	5.0	5.0	5.0	4.3	5.3
OAKLEY	BT	5.7	6.3	6.0	5.7	6.0	5.0	4.3	4.0	4.7	5.0	5.0	5.0	4.3	5.2
T-1	BT	6.0	6.3	6.0	5.3	6.3	5.0	5.0	4.0	4.7	5.0	4.3	4.7	4.7	5.2
MACDONALD	BT	5.0	5.7	5.3	4.7	5.3	5.0	4.7	4.3	5.3	5.7	5.3	5.3	5.0	5.0
777	BT	5.3	5.3	4.7	4.7	5.3	4.0	4.3	3.7	4.7	5.3	4.7	5.0	4.7	4.7
MUSKET	BT	2.0	2.7	2.7	2.7	2.7	3.0	2.7	3.0	4.0	4.0	3.7	3.3	3.3	3.2
LSD VALUE		1.7	1.7	1.8	1.3	1.3	1.6	1.0	1.1	1.4	1.4	1.1	1.4	1.5	0.9
C.V. (%)		16.7	15.2	16.6	14.0	13.3	15.1	12.3	14.8	14.5	13.9	12.1	14.5	16.8	9.8

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 2A.

TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS WITH 50% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT FORT COLLINS, CO 1/
2023 DATA

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

NAME		SPRING	PERCENT POA		PRE-DROUGHT COVERAGE		PRE-DROUGHT QUALITY RATINGS		
		GREENUP 4/26	ANNUA 9/12	INVASION 6/30	PERCENT 7/12	7/27	6/30	7/27	8/14
DLF-AP-3084	BT	3.7	0.0	78.7	86.0	94.7	4.7	6.0	6.3
OAKLEY	BT	3.0	0.0	67.7	78.7	95.0	4.0	5.7	5.3
PENNCROSS	BT	3.7	0.0	93.0	96.0	98.7	4.3	6.0	6.3
AU VICTORY	BT	4.0	0.0	92.3	98.7	98.7	4.7	6.0	6.3
PIRANHA	BT	3.0	2.7	68.3	79.0	88.3	3.0	5.7	5.7
T-1	BT	3.0	0.0	77.0	93.3	99.0	3.3	6.3	6.0
KINGDOM	BT	3.0	0.0	77.0	85.0	82.7	3.0	5.3	5.3
777	BT	3.0	0.0	93.7	99.0	99.0	4.0	4.0	6.3
PIPER	BT	3.0	0.0	92.3	99.0	99.0	3.7	5.7	6.0
MACDONALD	BT	2.7	0.0	71.3	91.0	93.7	4.3	5.3	5.0
007XL	BT	2.7	0.0	68.3	79.3	95.3	2.3	5.3	5.0
MUSKET	BT	2.0	3.3	43.0	57.0	91.0	4.0	4.0	2.0
LSD VALUE		1.3	5.4	51.4	47.2	25.2	2.4	2.1	1.8
C.V. (%)		20.5	407.5	27.8	21.7	9.6	27.1	17.5	18.5

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 2A.
(CONT'D)

TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS WITH 50% OF ETo
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT FORT COLLINS, CO 1/
2023 DATA

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

QUALITY RATINGS DURING DROUGHT (AUGUST-SEPTEMBER) AND RECOVERY PERIODS (OCTOBER-NOVEMBER)

NAME		DROUGHT								RECOVERY			MEAN		
		8/21	8/24	8/31	9/5	9/8	9/12	9/14	9/25	10/2	10/9	10/18		10/27	11/4
DLF-AP-3084	BT	6.7	6.7	6.3	6.0	6.0	5.0	5.0	4.3	5.0	5.0	5.0	5.3	4.3	5.5
OAKLEY	BT	6.3	6.3	6.3	6.3	6.0	5.3	4.7	4.3	5.3	5.3	5.0	5.0	4.3	5.4
PENNCROSS	BT	6.3	6.0	6.7	6.3	6.0	5.3	5.3	4.3	5.0	5.0	4.7	5.0	4.0	5.4
AU VICTORY	BT	6.7	6.0	6.3	5.7	6.0	5.0	4.7	4.3	4.7	4.7	5.0	5.0	4.0	5.3
PIRANHA	BT	6.7	6.3	6.7	5.7	6.0	5.0	4.7	4.3	4.7	5.0	5.0	5.3	4.3	5.3
T-1	BT	6.7	6.0	6.0	5.7	6.0	5.0	4.3	4.3	5.0	5.3	5.0	5.0	4.0	5.3
KINGDOM	BT	5.3	5.7	6.3	6.0	6.0	5.0	5.3	4.3	5.3	5.3	5.3	5.3	4.7	5.2
777	BT	6.3	6.0	6.3	5.7	6.3	5.0	5.0	4.0	4.7	5.0	4.7	5.0	4.0	5.1
PIPER	BT	6.3	6.3	6.0	5.7	6.0	5.0	4.0	4.0	5.0	4.7	4.7	5.0	4.0	5.1
MACDONALD	BT	5.7	5.3	5.7	5.3	6.0	5.0	5.0	4.0	4.3	5.0	5.0	5.0	4.0	5.0
007XL	BT	4.7	5.7	4.3	6.0	6.0	5.0	4.7	4.3	5.0	5.3	5.0	5.3	4.3	4.9
MUSKET	BT	2.0	4.3	2.0	3.3	2.0	3.0	2.0	2.0	3.7	3.3	3.3	3.3	3.0	3.0
LSD VALUE		1.8	2.6	1.5	1.4	0.3	1.0	0.8	0.4	1.7	1.2	1.1	1.0	0.7	0.5
C.V. (%)		17.7	16.9	15.9	13.3	2.9	11.2	10.8	7.0	14.5	11.9	11.4	10.7	9.5	6.1

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 2B.

TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS WITH 65% OF ETo
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT FORT COLLINS, CO 1/
2023 DATA

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

NAME		SPRING		PERCENT POA			PRE-DROUGHT QUALITY RATINGS		
		GREENUP 4/26	ANNUA 9/12	INVASION 6/30	PERCENT 7/12	COVERAGE 7/27	6/30	7/27	8/14
PENNCROSS	BT	3.0	0.0	97.0	99.0	99.0	4.7	5.7	6.7
007XL	BT	3.0	2.7	92.3	98.7	99.0	4.3	5.3	6.3
KINGDOM	BT	3.0	0.0	97.0	99.0	99.0	4.0	5.3	6.3
PIRANHA	BT	2.7	0.0	94.0	99.0	99.0	4.0	6.0	6.0
T-1	BT	2.7	0.0	95.7	99.0	99.0	5.0	5.3	6.7
777	BT	2.7	0.0	95.0	99.0	99.0	4.0	5.7	6.7
MACDONALD	BT	3.7	0.0	90.3	99.0	99.0	5.0	5.3	6.3
OAKLEY	BT	3.7	0.0	97.3	99.0	99.0	4.7	6.0	6.3
PIPER	BT	2.7	5.3	90.7	99.0	99.0	4.3	5.7	6.0
AU VICTORY	BT	4.0	0.0	98.3	99.0	99.0	4.3	5.7	7.0
DLF-AP-3084	BT	4.0	0.0	98.7	99.0	98.3	4.3	5.7	6.3
MUSKET	BT	2.0	3.3	66.0	75.3	92.5	4.0	3.3	2.0
LSD VALUE		1.6	5.4	15.3	16.4	1.4	2.8	0.9	0.6
C.V. (%)		24.4	249.8	8.9	8.1	0.8	20.9	10.0	6.8

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 2B.
(CONT'D)

TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS WITH 65% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT FORT COLLINS, CO 1/
2023 DATA

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

QUALITY RATINGS DURING DROUGHT (AUGUST-SEPTEMBER) AND RECOVERY PERIODS (OCTOBER-NOVEMBER)

NAME		DROUGHT										RECOVERY		MEAN	
		8/21	8/24	8/31	9/5	9/8	9/12	9/14	9/25	10/2	10/9	10/18	10/27		11/4
PENNCROSS	BT	7.0	6.7	6.7	6.7	6.0	5.7	4.7	4.7	5.0	5.7	4.7	5.0	5.0	5.6
007XL	BT	6.3	5.7	6.0	6.0	6.0	5.3	5.0	4.7	5.0	5.0	5.0	5.3	5.0	5.4
KINGDOM	BT	6.7	6.7	6.7	6.3	6.0	5.0	5.0	4.3	5.0	5.0	4.7	5.0	4.0	5.4
PIRANHA	BT	6.3	6.3	6.3	6.0	6.3	5.0	4.7	4.3	5.0	5.0	5.0	5.0	4.3	5.4
T-1	BT	6.7	6.3	6.3	6.0	6.0	5.3	4.7	4.0	4.7	5.3	4.7	5.0	4.7	5.4
777	BT	6.3	6.3	6.3	6.3	4.7	5.0	5.0	4.3	4.7	5.0	4.7	4.7	4.3	5.3
MACDONALD	BT	6.3	6.0	6.0	6.0	6.0	5.0	5.0	4.0	4.7	5.3	5.0	5.0	4.3	5.3
OAKLEY	BT	6.3	6.3	6.7	6.0	5.7	5.0	4.0	4.0	4.3	4.7	4.7	4.7	4.0	5.2
PIPER	BT	6.3	6.3	6.0	6.0	6.0	5.0	4.3	4.0	4.7	4.7	5.0	5.0	4.3	5.2
AU VICTORY	BT	6.3	5.7	6.3	6.3	5.7	5.0	4.3	4.0	4.3	4.7	4.3	4.3	4.0	5.1
DLF-AP-3084	BT	6.7	6.3	6.0	6.0	6.0	4.7	4.3	4.0	4.0	5.0	4.3	4.7	4.0	5.1
MUSKET	BT	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.7	3.3	2.0	2.0	2.7	2.4
LSD VALUE		0.8	1.3	0.7	0.7	1.2	0.5	0.7	0.6	0.7	0.7	0.7	0.6	0.8	0.3
C.V. (%)		8.3	13.2	7.7	7.6	13.0	7.0	9.5	9.3	8.9	8.7	9.5	7.9	11.2	3.9

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 2C.

TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS WITH 80% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT FORT COLLINS, CO 1/
2023 DATA

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

NAME		SPRING	PERCENT POA		PRE-DROUGHT COVERAGE		PRE-DROUGHT	QUALITY RATINGS	
		GREENUP 4/26	ANNUA 9/12	INVASION 6/30	PERCENT 7/12	7/27	6/30	7/27	8/14
PENNCROSS	BT	3.0	0.0	81.3	93.3	99.0	4.7	5.3	6.3
PIRANHA	BT	2.3	0.0	80.7	98.3	95.7	4.7	5.7	6.7
KINGDOM	BT	2.7	2.7	77.3	93.7	98.7	4.3	5.0	6.3
007XL	BT	2.0	2.7	61.7	85.3	90.7	4.7	5.0	5.7
AU VICTORY	BT	3.0	0.0	94.3	98.7	99.0	4.7	6.0	6.3
DLF-AP-3084	BT	2.3	2.7	87.0	96.7	97.7	4.7	5.7	6.0
PIPER	BT	2.3	0.0	84.7	94.3	94.3	4.3	5.3	6.3
OAKLEY	BT	2.0	2.7	82.3	99.0	95.3	4.0	5.3	6.7
T-1	BT	2.7	2.7	84.3	95.3	94.3	3.7	5.7	6.0
MACDONALD	BT	1.7	5.3	57.7	67.3	81.0	4.0	4.7	5.3
777	BT	1.7	0.0	51.3	70.3	82.7	2.7	5.0	6.3
MUSKET	BT	1.0	6.7	37.7	54.3	64.5	4.3	4.7	2.3
LSD VALUE		1.5	8.1	50.2	51.6	41.0	3.1	2.0	1.5
C.V. (%)		31.7	156.4	30.3	24.6	16.5	26.3	14.3	15.0

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 2C.
(CONT'D)

TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS WITH 80% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT FORT COLLINS, CO 1/
2023 DATA

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

QUALITY RATINGS DURING DROUGHT (AUGUST-SEPTEMBER) AND RECOVERY PERIODS (OCTOBER-NOVEMBER)

NAME		DROUGHT								RECOVERY			MEAN		
		8/21	8/24	8/31	9/5	9/8	9/12	9/14	9/25	10/2	10/9	10/18		10/27	11/4
PENNCROSS	BT	6.3	6.3	6.3	6.0	6.3	5.7	5.7	5.0	6.0	6.0	5.3	6.0	5.0	5.8
PIRANHA	BT	6.3	6.7	6.3	6.0	6.0	5.3	5.0	4.3	4.7	5.3	5.3	5.3	4.7	5.5
KINGDOM	BT	6.0	6.3	6.3	6.3	6.3	5.0	5.0	4.7	5.0	5.3	5.0	5.3	4.7	5.4
007XL	BT	6.0	6.0	6.0	5.7	6.0	5.0	4.7	4.0	5.3	5.7	5.3	5.7	4.7	5.3
AU VICTORY	BT	6.3	6.3	6.0	6.0	6.0	5.0	5.0	4.0	5.0	5.0	4.7	4.7	4.3	5.3
DLF-AP-3084	BT	6.3	6.0	6.3	6.0	6.0	5.0	5.0	4.0	4.3	5.0	5.0	5.0	4.7	5.3
PIPER	BT	6.3	6.3	6.3	6.0	6.0	5.3	4.7	3.7	4.7	5.0	5.0	5.0	4.3	5.3
OAKLEY	BT	5.7	6.3	6.0	5.7	6.0	5.0	4.3	4.0	4.7	5.0	5.0	5.0	4.3	5.2
T-1	BT	6.0	6.3	6.0	5.3	6.3	5.0	5.0	4.0	4.7	5.0	4.3	4.7	4.7	5.2
MACDONALD	BT	5.0	5.7	5.3	4.7	5.3	5.0	4.7	4.3	5.3	5.7	5.3	5.3	5.0	5.0
777	BT	5.3	5.3	4.7	4.7	5.3	4.0	4.3	3.7	4.7	5.3	4.7	5.0	4.7	4.7
MUSKET	BT	2.0	2.7	2.7	2.7	2.7	3.0	2.7	3.0	4.0	4.0	3.7	3.3	3.3	3.2
LSD VALUE		1.4	1.2	1.3	1.3	1.1	1.4	0.9	1.4	1.4	2.3	1.8	1.9	2.5	0.7
C.V. (%)		14.8	12.2	13.6	13.9	11.6	14.9	11.2	15.7	13.4	16.7	15.1	16.9	19.4	8.4

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 3A.

TURFGRASS QUALITY AND OTHER RATINGS OF FINELEAF FESCUE CULTIVARS WITH 50% OF ETo
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT FORT COLLINS, CO 1/
2023 DATA

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

NAME		SPRING		PERCENT POA			PRE-DROUGHT QUALITY RATINGS		
		GREENUP 4/26	ANNUA 9/12	INVASION 6/30	PERCENT 7/12	PRE-DROUGHT 7/27	6/30	7/27	8/14
PPG FRC 127	FF	5.3	0	96.0	93.7	99.0	5.3	6.7	6.7
NAVIGATOR II	FF	5.3	0	91.3	95.7	98.7	4.7	6.3	6.7
COMPASS II	FF	4.7	0	90.7	95.0	99.0	3.7	6.3	6.7
GLADIATOR	FF	6.0	0	95.3	96.0	99.0	4.7	6.3	6.7
LSD VALUE		1.5	0	9.1	11.2	0.7	1.9	0.7	1.2
C.V. (%)		12.9	.	4.3	5.0	0.3	18.9	4.5	7.5

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 3A.
(CONT'D)

TURFGRASS QUALITY AND OTHER RATINGS OF FINELEAF FESCUE CULTIVARS WITH 50% OF ETo
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT FORT COLLINS, CO 1/
2023 DATA

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

QUALITY RATINGS DURING DROUGHT (AUGUST-SEPTEMBER) AND RECOVERY PERIODS (OCTOBER-NOVEMBER)

NAME		DROUGHT							RECOVERY				MEAN		
		8/21	8/24	8/31	9/5	9/8	9/12	9/14	9/25	10/2	10/9	10/18		10/27	11/4
PPG FRC 127	FF	7.0	7.0	5.7	5.7	6.3	6.0	5.0	4.7	6.0	5.7	5.3	5.3	5.0	5.8
NAVIGATOR II	FF	7.0	7.0	5.7	6.0	6.0	5.7	5.0	4.7	5.0	5.0	5.0	5.3	4.7	5.6
COMPASS II	FF	6.3	6.3	5.0	5.7	5.3	5.0	5.3	5.0	5.3	5.7	5.3	5.3	4.7	5.4
GLADIATOR	FF	6.7	6.3	5.3	5.3	5.3	5.0	5.0	4.3	5.3	4.7	5.3	5.0	4.3	5.4
LSD VALUE		0.8	0.7	1.9	0.8	1.3	0.6	0.7	1.1	1.0	2.0	1.4	1.2	0.8	0.5
C.V. (%)		5.5	5.0	14.8	6.6	10.0	5.3	5.7	10.1	8.1	16.5	11.0	9.5	8.0	4.2

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 3B.

TURFGRASS QUALITY AND OTHER RATINGS OF FINELEAF FESCUE CULTIVARS WITH 65% OF ETo
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT FORT COLLINS, CO 1/
2023 DATA

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

NAME		SPRING		PERCENT POA			PRE-DROUGHT QUALITY RATINGS		
		GREENUP 4/26	ANNUA 9/12	INVASION 6/30	PERCENT 7/12	PRE-DROUGHT 7/27	PRE-DROUGHT 6/30	QUALITY 7/27	RATINGS 8/14
NAVIGATOR II	FF	5.7	0	87.0	91.7	97.7	5.0	5.7	7.3
COMPASS II	FF	3.7	0	92.3	95.3	98.7	5.0	6.0	7.0
PPG FRC 127	FF	4.7	0	95.0	94.7	98.7	5.0	5.7	7.0
GLADIATOR	FF	5.0	0	96.0	96.0	98.7	5.7	6.0	6.7
LSD VALUE		0.6	0	14.3	3.5	2.0	1.1	1.0	0.8
C.V. (%)		6.1	.	6.8	1.7	0.9	9.7	7.6	5.3

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 3B.
(CONT'D)

TURFGRASS QUALITY AND OTHER RATINGS OF FINELEAF FESCUE CULTIVARS WITH 65% OF ETo
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT FORT COLLINS, CO 1/
2023 DATA

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

QUALITY RATINGS DURING DROUGHT (AUGUST-SEPTEMBER) AND RECOVERY PERIODS (OCTOBER-NOVEMBER)

NAME		DROUGHT								RECOVERY		MEAN			
		8/21	8/24	8/31	9/5	9/8	9/12	9/14	9/25	10/2	10/9		10/18	10/27	11/4
NAVIGATOR II	FF	7.0	7.0	6.3	6.3	6.0	5.7	6.0	5.3	5.7	6.0	5.7	5.7	5.3	6.0
COMPASS II	FF	6.7	7.0	5.3	5.7	6.0	5.3	5.3	5.0	5.3	5.7	5.7	5.7	5.7	5.8
PPG FRC 127	FF	7.0	7.0	5.7	6.3	5.7	5.7	5.7	5.3	5.7	5.3	5.7	5.7	5.0	5.8
GLADIATOR	FF	7.0	6.3	5.0	5.0	5.3	5.0	5.0	5.0	5.0	4.7	5.0	5.0	4.3	5.4
LSD VALUE		0.7	0.6	1.0	0.8	1.3	1.3	1.0	0.8	0.8	1.0	0.6	0.6	0.8	0.3
C.V. (%)		4.2	4.2	8.4	6.4	9.6	10.2	8.6	6.5	6.9	8.7	5.2	5.2	7.3	2.6

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 3C.

TURFGRASS QUALITY AND OTHER RATINGS OF FINELEAF FESCUE CULTIVARS WITH 80% OF ETo
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT FORT COLLINS, CO 1/
2023 DATA

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

NAME		SPRING	PERCENT POA		PERCENT PRE-DROUGHT	COVERAGE	PRE-DROUGHT		QUALITY RATINGS
		GREENUP	ANNUA	INVASION			6/30	7/27	
		4/26	9/12	6/30	7/12	7/27	6/30	7/27	8/14
COMPASS II	FF	3.0	0.0	90.3	97.0	98.7	4.7	5.3	6.7
PPG FRC 127	FF	3.3	0.0	90.7	96.0	98.7	5.3	6.0	7.3
NAVIGATOR II	FF	3.7	3.3	81.7	91.0	98.7	4.3	5.7	7.0
GLADIATOR	FF	3.7	0.0	88.0	90.3	94.0	5.0	5.3	6.0
LSD VALUE		0.8	6.6	21.1	22.0	9.2	1.6	1.3	1.2
C.V. (%)		10.9	346.4	10.4	10.1	4.1	14.2	9.9	8.2

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 3C.
(CONT'D)

TURFGRASS QUALITY AND OTHER RATINGS OF FINELEAF FESCUE CULTIVARS WITH 80% OF ETo
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT FORT COLLINS, CO 1/
2023 DATA

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

QUALITY RATINGS DURING DROUGHT (AUGUST-SEPTEMBER) AND RECOVERY PERIODS (OCTOBER-NOVEMBER)

NAME		DROUGHT								RECOVERY		MEAN			
		8/21	8/24	8/31	9/5	9/8	9/12	9/14	9/25	10/2	10/9		10/18	10/27	11/4
COMPASS II	FF	7.0	6.3	7.0	6.3	6.7	5.3	5.7	6.0	6.7	6.3	5.7	5.7	5.7	6.1
PPG FRC 127	FF	7.0	6.7	6.3	6.7	6.7	6.0	5.3	5.7	6.3	6.3	5.3	5.3	6.0	6.1
NAVIGATOR II	FF	6.3	6.3	6.0	6.3	6.3	5.3	5.7	5.7	6.3	6.7	6.0	6.0	5.7	6.0
GLADIATOR	FF	6.0	6.3	5.7	6.0	6.0	5.3	5.3	5.0	5.3	5.3	5.3	5.0	4.7	5.5
LSD VALUE		1.4	1.8	2.4	1.1	0.8	1.3	0.8	1.0	1.1	0.6	0.8	1.0	1.7	0.4
C.V. (%)		9.8	11.9	17.1	7.4	5.8	10.5	6.1	7.9	8.1	4.7	6.7	8.6	13.9	3.0

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 4A.

TURFGRASS QUALITY AND OTHER RATINGS OF PERENNIAL RYEGRASS CULTIVARS WITH 50% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT FORT COLLINS, CO 1/
2023 DATA

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

NAME		SPRING	PERCENT POA		PRE-DROUGHT COVERAGE		PRE-DROUGHT QUALITY RATINGS		
		GREENUP 4/26	ANNUA 9/12	INVASION 6/30	PERCENT 7/12	7/27	6/30	7/27	8/14
HELIOS	PR	2.7	0.0	67.0	87.3	97.7	4.0	5.3	6.0
SR 4650	PR	3.0	5.3	54.7	83.3	95.0	3.7	5.0	4.0
LSD VALUE		0.8	6.6	21.1	22.0	9.2	1.6	1.3	1.2
C.V. (%)		14.4	122.5	43.1	8.4	2.6	10.6	7.9	49.0

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 4A.
(CONT'D)

TURFGRASS QUALITY AND OTHER RATINGS OF PERENNIAL RYEGRASS CULTIVARS WITH 50% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT FORT COLLINS, CO 1/
2023 DATA

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

QUALITY RATINGS DURING DROUGHT (AUGUST-SEPTEMBER) AND RECOVERY PERIODS (OCTOBER-NOVEMBER)

NAME		DROUGHT								RECOVERY					MEAN
		8/21	8/24	8/31	9/5	9/8	9/12	9/14	9/25	10/2	10/9	10/18	10/27	11/4	
NAME		D_QUAL01	D_QUAL02	D_QUAL03	D_QUAL04	D_QUAL05	D_QUAL06	D_QUAL07	D_QUAL08	R_QUAL01	R_QUAL02	R_QUAL03	R_QUAL04	R_QUAL05	MEAN
HELIOS	PR	6.7	5.3	5.3	5.3	5.3	4.7	5.0	5.0	5.7	6.0	5.7	6.0	5.3	5.4
SR 4650	PR	5.3	5.0	4.7	4.3	4.3	4.3	4.3	4.7	5.3	6.0	5.7	5.7	5.3	4.9
LSD VALUE		1.4	1.8	2.4	1.1	0.8	1.3	0.8	1.0	1.1	0.6	0.8	1.0	1.7	0.4
C.V. (%)		27.2	7.9	29.4	25.3	25.3	9.1	17.5	22.3	19.6	11.8	0.0	7.0	13.3	17.3

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 4B.

TURFGRASS QUALITY AND OTHER RATINGS OF PERENNIAL RYEGRASS CULTIVARS WITH 65% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT FORT COLLINS, CO 1/
2023 DATA

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

NAME		SPRING	PERCENT POA	PERCENT	PRE-DROUGHT	COVERAGE	PRE-DROUGHT	QUALITY RATINGS	
		GREENUP	ANNUA		INVASION		6/30	7/12	
SR 4650	PR	2.3	2.7	77.3	90.0	97.3	3.3	5.0	5.7
HELIOS	PR	2.3	0.0	78.3	86.0	97.3	2.7	5.0	5.7
LSD VALUE		0.8	6.6	21.1	22.0	9.2	1.6	1.3	1.2
C.V. (%)		0.0	244.9	6.3	2.1	0.0	13.6	0.0	0.0

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 4B.
(CONT'D)

TURFGRASS QUALITY AND OTHER RATINGS OF PERENNIAL RYEGRASS CULTIVARS WITH 65% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT FORT COLLINS, CO 1/
2023 DATA

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

QUALITY RATINGS DURING DROUGHT (AUGUST-SEPTEMBER) AND RECOVERY PERIODS (OCTOBER-NOVEMBER)

NAME		DROUGHT							RECOVERY			MEAN			
		8/21	8/24	8/31	9/5	9/8	9/12	9/14	9/25	10/2	10/9		10/18	10/27	11/4
SR 4650	PR	6.7	5.7	5.0	5.0	5.0	5.0	5.7	5.0	6.7	7.0	6.7	7	6.3	5.7
HELIOS	PR	6.7	5.7	5.0	4.7	4.7	4.7	5.3	5.0	7.0	7.0	6.3	7	6.3	5.5
LSD VALUE		1.4	1.8	2.4	1.1	0.8	1.3	0.8	1.0	1.1	0.6	0.8	1	1.7	0.4
C.V. (%)		0.0	12.5	14.1	8.4	8.4	8.4	7.4	14.1	6.0	0.0	6.3	0	0.0	3.2

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 4C.

TURFGRASS QUALITY AND OTHER RATINGS OF PERENNIAL RYEGRASS CULTIVARS WITH 80% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT FORT COLLINS, CO 1/
2023 DATA

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

NAME		SPRING	PERCENT POA		PRE-DROUGHT COVERAGE		PRE-DROUGHT QUALITY RATINGS		8/14
		GREENUP 4/26	ANNUA 9/12	INVASION 6/30	PERCENT 7/12	7/27	6/30	7/27	
HELIOS	PR	2.3	1.7	71.7	80.0	97.7	4.7	5.0	5.7
SR 4650	PR	2.0	1.7	62.7	72.3	97.7	3.7	4.7	5.3
LSD VALUE		0.8	6.6	21.1	22.0	9.2	1.6	1.3	1.2
C.V. (%)		18.8	0.0	5.6	11.9	1.3	0.0	8.4	7.4

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 4C.
(CONT'D)

TURFGRASS QUALITY AND OTHER RATINGS OF PERENNIAL RYEGRASS CULTIVARS WITH 80% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT FORT COLLINS, CO 1/
2023 DATA

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

QUALITY RATINGS DURING DROUGHT (AUGUST-SEPTEMBER) AND RECOVERY PERIODS (OCTOBER-NOVEMBER)

NAME		DROUGHT							RECOVERY				MEAN		
		8/21	8/24	8/31	9/5	9/8	9/12	9/14	9/25	10/2	10/9	10/18		10/27	11/4
HELIOS	PR	5.7	5.7	5.3	4.7	5.0	5.0	5.0	6	6.3	7.7	7.0	7.0	7.0	5.8
SR 4650	PR	5.7	5.3	5.7	4.7	5.3	5.0	5.0	6	6.3	7.0	7.0	6.7	6.7	5.6
LSD VALUE		1.4	1.8	2.4	1.1	0.8	1.3	0.8	1	1.1	0.6	0.8	1.0	1.7	0.4
C.V. (%)		0.0	7.4	7.4	0.0	7.9	0.0	0.0	0	0.0	11.1	0.0	6.0	6.0	1.6

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 5A.

PERCENT GREEN COVER AND OTHER RATINGS OF ALL CULTIVARS
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT WEST LAFAYETTE, IN 1/
2023 DATA

NAME		SEEDLING VIGOR	TOTAL WATER APPLIED WITH MM 2/										
			PRE- DROUGHT 5/24	6/2	6/10	QUALITY RATINGS DURING THE DROUGHT PERIOD (JUNE-SEPTEMBER)							9/10
					6/19	7/3	7/10	7/20	8/1	8/11	8/31		
PIRANHA	BT	7.3	6.7	6.7	7.0	7.0	5.7	5.0	4.7	5.7	5.0	6.0	5.7
SR 4650	PR	7.3	6.3	7.0	6.7	6.7	6.0	5.7	6.0	6.0	6.0	5.3	6.7
MUSKET	BT	6.7	6.7	6.7	7.0	6.7	5.0	5.0	4.7	5.0	5.7	5.0	5.7
777	BT	7.3	7.0	8.0	8.0	7.7	6.0	4.3	5.7	5.7	5.3	5.0	5.0
AU VICTORY	BT	6.3	6.0	6.3	7.0	6.7	5.3	5.3	6.0	5.7	5.0	5.0	5.3
OAKLEY	BT	7.3	7.0	7.3	7.0	7.0	5.3	4.3	5.3	5.3	6.0	5.7	5.3
T-1	BT	7.0	5.7	6.0	6.3	6.0	5.0	5.0	5.0	5.7	5.3	5.7	5.7
DLF-AP-3084	BT	7.0	6.7	7.0	7.0	7.3	5.7	5.7	5.3	5.0	5.7	5.0	5.0
HELIOS	PR	7.7	6.7	6.7	6.7	6.7	6.3	5.3	5.7	5.7	6.7	5.3	6.0
PIPER	BT	7.0	7.0	7.3	7.0	7.0	5.7	5.0	4.7	5.0	4.3	5.0	5.0
007XL	BT	6.7	7.3	7.3	7.3	7.7	6.3	4.7	5.0	4.3	4.0	4.7	4.7
PENNCROSS	BT	7.3	5.3	5.7	6.0	6.0	5.7	5.0	5.0	5.0	4.7	5.3	6.3
KINGDOM	BT	7.0	7.3	7.3	7.3	7.7	6.3	4.7	5.3	5.0	4.3	4.7	5.3
MACDONALD	BT	7.3	6.7	7.3	7.0	7.3	5.7	4.7	5.3	5.0	4.7	5.0	5.3
GLADIATOR	FF	6.3	6.0	6.3	6.3	5.7	5.3	5.3	5.0	4.7	5.0	5.0	5.0
PPG FRC 127	FF	6.3	7.0	7.7	7.7	7.3	5.3	5.3	5.0	4.3	5.3	5.3	5.3
COMPASS II	FF	6.3	6.0	7.0	6.7	6.3	5.0	5.0	4.7	4.7	4.7	5.0	5.0
NAVIGATOR II	FF	5.7	5.0	5.0	5.0	5.0	5.7	5.3	4.7	5.3	5.0	5.0	4.7
LSD VALUE		1.1	0.6	0.7	0.6	0.8	1.4	2.2	1.8	2.0	2.3	2.3	1.7
C.V. (%)		8.3	6.2	6.7	5.7	7.1	10.4	14.4	13.3	14.5	18.3	13.8	13.2

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 5A.
(CONT'D)

PERCENT GREEN COVER AND OTHER RATINGS OF ALL CULTIVARS
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT WEST LAFAYETTE, IN 1/
2023 DATA

		TOTAL WATER APPLIED WITH MM 2/				
		QUALITY RATINGS DURING THE RECOVERY PERIOD				
NAME		9/19	10/16	11/8	12/15	MEAN
PIRANHA	BT	7.7	7.7	7.7	7.3	6.4
SR 4650	PR	6.7	7.0	6.0	6.3	6.3
MUSKET	BT	7.0	6.0	6.3	6.7	5.9
777	BT	7.3	7.3	6.7	6.7	6.4
AU VICTORY	BT	7.0	7.7	7.7	6.7	6.2
OAKLEY	BT	7.7	7.3	7.3	7.0	6.3
T-1	BT	7.0	7.7	7.0	6.3	6.0
DLF-AP-3084	BT	7.3	7.7	7.7	6.3	6.3
HELIOS	PR	6.0	7.0	6.0	6.3	6.2
PIPER	BT	7.0	7.3	7.3	6.7	6.1
007XL	BT	7.0	7.7	6.7	7.0	6.1
PENNCROSS	BT	6.3	7.0	5.7	5.0	5.6
KINGDOM	BT	7.7	7.7	7.3	7.0	6.3
MACDONALD	BT	7.0	7.7	7.3	6.7	6.2
GLADIATOR	FF	6.0	7.0	7.3	7.0	5.8
PPG FRC 127	FF	7.0	8.0	7.7	7.7	6.4
COMPASS II	FF	5.7	7.0	7.3	7.0	5.8
NAVIGATOR II	FF	5.0	6.3	5.7	6.0	5.2
LSD VALUE		0.9	1.0	0.9	1.3	0.4
C.V. (%)		8.1	7.0	8.0	9.8	3.9

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 5A.
(CONT'D)

PERCENT GREEN COVER AND OTHER RATINGS OF ALL CULTIVARS
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT WEST LAFAYETTE, IN 1/
2023 DATA

TOTAL WATER APPLIED WITH MM 2/

NAME		PERCENT GREEN COVER DURING THE DROUGHT PERIOD (JUNE-SEPTEMBER)									
		6/2	6/5	6/9	6/12	6/15	6/20	6/24	6/27	6/30	7/3
PIRANHA	BT	98.3	98.3	99.0	98.3	99.0	97.7	92.7	85.0	77.7	73.3
SR 4650	PR	88.3	87.3	89.3	90.0	90.0	88.3	77.3	76.0	74.7	78.0
MUSKET	BT	97.0	97.0	96.3	96.0	96.7	94.3	88.7	79.0	72.7	77.3
777	BT	99.0	99.0	99.0	99.0	99.0	99.0	98.0	93.0	90.0	80.0
AU VICTORY	BT	97.0	97.3	97.3	97.0	97.7	96.3	90.3	81.3	73.7	65.7
OAKLEY	BT	99.0	99.0	99.0	98.7	98.7	98.3	93.0	83.0	79.7	70.3
T-1	BT	95.3	96.0	96.0	96.0	96.7	94.7	89.7	84.0	79.7	73.0
DLF-AP-3084	BT	99.0	99.0	99.0	99.0	99.0	98.3	95.3	86.7	82.0	75.7
HELIOS	PR	86.3	85.3	87.7	88.0	88.7	87.3	84.0	81.3	68.7	78.7
PIPER	BT	99.0	99.0	99.0	99.0	99.0	98.7	95.7	89.0	84.0	70.3
007XL	BT	99.0	99.0	99.0	99.0	99.0	99.0	98.3	95.0	92.7	85.3
PENNCROSS	BT	91.3	92.3	92.7	92.7	93.3	90.3	87.0	78.3	73.0	75.7
KINGDOM	BT	99.0	99.0	99.0	99.0	99.0	99.0	97.7	94.0	91.3	79.0
MACDONALD	BT	98.7	98.7	98.7	99.0	99.0	98.7	94.3	86.7	82.7	73.7
GLADIATOR	FF	90.7	89.7	89.7	88.0	87.7	79.3	60.3	63.3	66.0	70.3
PPG FRC 127	FF	96.3	96.3	95.3	95.7	95.3	93.0	76.0	64.0	65.0	76.3
COMPASS II	FF	92.7	92.7	91.0	91.7	92.0	88.3	66.7	63.7	58.3	66.0
NAVIGATOR II	FF	74.3	75.0	74.0	72.7	70.7	62.0	60.3	62.7	64.7	65.7
LSD VALUE		3.3	3.3	3.3	3.2	3.6	4.9	14.3	11.3	13.4	29.8
C.V. (%)		2.3	2.4	2.3	2.3	2.5	3.5	10.2	8.7	10.3	13.3

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 5A.
(CONT'D)

PERCENT GREEN COVER AND OTHER RATINGS OF ALL CULTIVARS
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT WEST LAFAYETTE, IN 1/
2023 DATA

TOTAL WATER APPLIED WITH MM 2/

NAME		PERCENT GREEN COVER DURING THE DROUGHT PERIOD (JUNE-SEPTEMBER)									
		7/6	7/10	7/14	7/17	7/20	7/24	7/27	7/31	8/3	8/7
PIRANHA	BT	53.7	54.0	58.0	68.7	68.7	70.3	89.0	71.3	84.0	87.7
SR 4650	PR	74.0	73.3	53.3	71.0	78.7	79.3	71.7	71.3	77.0	77.0
MUSKET	BT	63.3	66.3	72.3	74.0	76.3	83.3	82.0	80.3	70.7	84.7
777	BT	58.0	44.0	54.0	68.3	85.3	85.7	83.7	75.3	72.0	78.3
AU VICTORY	BT	58.0	64.3	76.3	70.0	89.3	67.3	82.7	73.7	68.0	84.3
OAKLEY	BT	45.7	57.0	45.0	72.3	83.0	85.0	67.7	58.0	70.0	85.7
T-1	BT	55.7	62.3	60.7	76.0	79.7	69.3	81.3	76.3	71.0	84.3
DLF-AP-3084	BT	64.3	68.7	66.7	60.7	73.7	62.0	67.3	61.7	66.3	75.0
HELIOS	PR	76.7	80.0	54.0	68.0	76.0	78.3	78.3	59.3	72.0	72.7
PIPER	BT	63.0	64.7	60.0	60.7	72.3	74.7	66.3	68.7	73.3	84.7
007XL	BT	66.7	55.7	42.0	50.0	69.7	69.7	80.0	62.7	68.3	68.3
PENNCROSS	BT	63.0	67.0	65.7	72.7	72.7	58.7	72.0	70.0	63.0	85.7
KINGDOM	BT	51.7	51.3	44.0	50.7	66.7	81.3	73.0	54.3	55.3	70.0
MACDONALD	BT	58.3	59.3	50.0	64.0	84.3	63.3	61.0	54.0	55.3	66.0
GLADIATOR	FF	68.7	71.7	72.0	74.0	70.7	78.3	73.0	59.7	67.3	69.7
PPG FRC 127	FF	67.7	72.3	59.0	72.0	71.3	78.0	69.0	63.0	62.0	71.7
COMPASS II	FF	66.3	67.3	67.7	74.7	64.0	71.7	68.0	61.3	64.3	65.0
NAVIGATOR II	FF	66.3	65.7	71.0	75.3	66.7	67.0	60.3	66.7	69.3	61.0
LSD VALUE		24.0	31.1	33.8	27.9	25.3	37.3	36.9	49.9	46.0	24.3
C.V. (%)		16.6	19.7	23.8	16.5	13.6	18.2	18.0	23.7	20.8	14.2

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 5A.
(CONT'D)

PERCENT GREEN COVER AND OTHER RATINGS OF ALL CULTIVARS
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT WEST LAFAYETTE, IN 1/
2023 DATA

NAME		TOTAL WATER APPLIED WITH MM 2/										TOTAL WATER APPLIED (mm)
		8/11	8/14	PERCENT GREEN COVER DURING THE DROUGHT PERIOD (JUNE-SEPTEMBER)						9/7	9/10	
				8/17	8/21	8/24	8/27	8/31	9/4			
PIRANHA	BT	77.0	79.3	80.7	88.3	83.3	81.3	59.3	59.7	60.0	76.3	135.3
SR 4650	PR	84.7	81.0	59.3	69.7	77.3	71.0	71.3	72.0	70.3	77.3	148.3
MUSKET	BT	93.7	89.7	73.3	76.7	80.0	72.3	49.3	57.7	65.0	75.0	152.3
777	BT	83.7	87.7	84.0	82.3	79.7	79.0	56.0	47.3	50.3	73.3	152.7
AU VICTORY	BT	75.7	84.3	81.3	85.0	71.0	69.3	48.3	52.7	60.3	72.7	156.7
OAKLEY	BT	88.3	91.0	74.3	79.0	82.7	78.7	55.3	53.7	64.7	75.0	156.7
T-1	BT	85.7	84.3	85.3	61.0	69.7	72.3	66.0	59.7	62.3	80.0	161.0
DLF-AP-3084	BT	88.0	89.7	75.3	67.3	78.0	67.7	46.0	63.7	65.0	88.0	165.0
HELIOS	PR	82.3	80.0	69.3	71.3	68.3	70.7	69.0	68.0	70.7	74.3	173.7
PIPER	BT	76.3	73.3	69.7	80.0	86.7	77.0	47.3	41.3	58.3	80.0	173.7
007XL	BT	64.0	70.7	55.3	72.0	79.0	72.3	59.7	51.3	58.3	76.3	182.3
PENNCROSS	BT	73.3	81.0	79.7	73.0	69.3	70.7	64.7	60.0	61.3	78.3	186.3
KINGDOM	BT	71.0	83.3	69.0	79.0	54.3	61.0	46.7	40.3	52.0	81.0	186.7
MACDONALD	BT	75.0	86.7	72.0	59.3	72.3	73.3	54.3	34.0	47.0	73.0	195.0
GLADIATOR	FF	73.7	80.3	75.7	63.7	71.0	77.7	71.0	69.3	73.3	78.7	199.0
PPG FRC 127	FF	71.3	77.0	62.7	66.3	71.3	70.3	67.3	57.0	60.0	74.3	232.7
COMPASS II	FF	74.0	69.0	66.7	66.0	72.3	69.3	69.0	52.3	58.3	65.3	254.0
NAVIGATOR II	FF	66.3	66.0	55.7	53.0	56.7	50.3	51.7	44.3	44.3	52.3	305.0
LSD VALUE		32.6	20.5	37.5	33.6	39.2	32.6	39.1	35.0	39.8	29.5	59.4
C.V. (%)		15.8	11.4	19.7	18.9	19.0	16.4	24.6	26.5	22.8	14.9	18.9

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 5B.

PERCENT GREEN COVER AND OTHER RATINGS OF FINELEAF FESCUE CULTIVARS
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT WEST LAFAYETTE, IN 1/
2023 DATA

TOTAL WATER APPLIED WITH MM 2/

NAME		SEEDLING VIGOR	PRE- DROUGHT 5/24	6/2	6/10	QUALITY RATINGS DURING THE DROUGHT PERIOD (JUNE-SEPTEMBER)							
						6/19	7/3	7/10	7/20	8/1	8/11	8/31	9/10
GLADIATOR	FF	6.3	6	6.3	6.3	5.7	5.3	5.3	5.0	4.7	5.0	5.0	5.0
PPG FRC 127	FF	6.3	7	7.7	7.7	7.3	5.3	5.3	5.0	4.3	5.3	5.3	5.3
COMPASS II	FF	6.3	6	7.0	6.7	6.3	5.0	5.0	4.7	4.7	4.7	5.0	5.0
NAVIGATOR II	FF	5.7	5	5.0	5.0	5.0	5.7	5.3	4.7	5.3	5.0	5.0	4.7
LSD VALUE		0.6	0	0.7	0.7	1.1	1.3	1.4	1.0	1.3	1.3	2.0	1.1
C.V. (%)		4.7	0	5.7	5.8	9.1	10.4	11.0	9.1	12.7	11.1	17.0	9.4

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 5B.
(CONT'D)

PERCENT GREEN COVER AND OTHER RATINGS OF FINELEAF FESCUE CULTIVARS
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT WEST LAFAYETTE, IN 1/
2023 DATA

TOTAL WATER APPLIED WITH MM 2/

NAME		QUALITY RATINGS DURING THE RECOVERY PERIOD				
		9/19	10/16	11/8	12/15	MEAN
GLADIATOR	FF	6.0	7.0	7.3	7.0	5.8
PPG FRC 127	FF	7.0	8.0	7.7	7.7	6.4
COMPASS II	FF	5.7	7.0	7.3	7.0	5.8
NAVIGATOR II	FF	5.0	6.3	5.7	6.0	5.2
LSD VALUE		0.6	0.6	1.4	1.4	0.4
C.V. (%)		4.9	4.1	9.5	9.3	3.6

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 5B. PERCENT GREEN COVER AND OTHER RATINGS OF FINELEAF FESCUE CULTIVARS
(CONT'D) IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT WEST LAFAYETTE, IN 1/
2023 DATA

		TOTAL WATER APPLIED WITH MM 2/									
		PERCENT GREEN COVER DURING THE DROUGHT PERIOD (JUNE-SEPTEMBER)									
NAME		6/2	6/5	6/9	6/12	6/15	6/20	6/24	6/27	6/30	7/3
GLADIATOR	FF	90.7	89.7	89.7	88.0	87.7	79.3	60.3	63.3	66.0	70.3
PPG FRC 127	FF	96.3	96.3	95.3	95.7	95.3	93.0	76.0	64.0	65.0	76.3
COMPASS II	FF	92.7	92.7	91.0	91.7	92.0	88.3	66.7	63.7	58.3	66.0
NAVIGATOR II	FF	74.3	75.0	74.0	72.7	70.7	62.0	60.3	62.7	64.7	65.7
LSD VALUE		3.8	5.4	5.9	6.7	7.6	12.8	35.4	21.6	19.3	15.5
C.V. (%)		2.2	3.2	3.4	3.9	4.5	7.9	23.4	14.3	13.2	10.0

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 5B. PERCENT GREEN COVER AND OTHER RATINGS OF FINELEAF FESCUE CULTIVARS
(CONT'D) IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT WEST LAFAYETTE, IN 1/
2023 DATA

		TOTAL WATER APPLIED WITH MM 2/									
		PERCENT GREEN COVER DURING THE DROUGHT PERIOD (JUNE-SEPTEMBER)									
NAME		7/6	7/10	7/14	7/17	7/20	7/24	7/27	7/31	8/3	8/7
GLADIATOR	FF	68.7	71.7	72.0	74.0	70.7	78.3	73.0	59.7	67.3	69.7
PPG FRC 127	FF	67.7	72.3	59.0	72.0	71.3	78.0	69.0	63.0	62.0	71.7
COMPASS II	FF	66.3	67.3	67.7	74.7	64.0	71.7	68.0	61.3	64.3	65.0
NAVIGATOR II	FF	66.3	65.7	71.0	75.3	66.7	67.0	60.3	66.7	69.3	61.0
LSD VALUE		15.6	11.8	15.4	16.8	15.6	13.9	20.2	19.2	21.3	20.3
C.V. (%)		9.8	7.5	10.4	9.6	10.0	8.6	13.2	13.2	13.9	13.3

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 5B.
(CONT'D)

PERCENT GREEN COVER AND OTHER RATINGS OF FINELEAF FESCUE CULTIVARS
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT WEST LAFAYETTE, IN 1/
2023 DATA

NAME		TOTAL WATER APPLIED WITH MM 2/										TOTAL WATER APPLIED (mm)
		8/11	8/14	PERCENT GREEN COVER DURING THE DROUGHT PERIOD (JUNE-SEPTEMBER)								
				8/17	8/21	8/24	8/27	8/31	9/4	9/7		
GLADIATOR	FF	73.7	80.3	75.7	63.7	71.0	77.7	71.0	69.3	73.3	78.7	199.0
PPG FRC 127	FF	71.3	77.0	62.7	66.3	71.3	70.3	67.3	57.0	60.0	74.3	232.7
COMPASS II	FF	74.0	69.0	66.7	66.0	72.3	69.3	69.0	52.3	58.3	65.3	254.0
NAVIGATOR II	FF	66.3	66.0	55.7	53.0	56.7	50.3	51.7	44.3	44.3	52.3	305.0
LSD VALUE		14.7	11.7	20.6	23.5	21.4	11.7	17.4	10.3	5.3	5.1	58.7
C.V. (%)		9.0	7.5	14.4	16.6	14.2	8.7	12.5	9.2	4.7	3.9	11.5

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 5C.

PERCENT GREEN COVER AND OTHER RATINGS OF PERENNIAL RYEGRASS CULTIVARS
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT WEST LAFAYETTE, IN 1/
2023 DATA

NAME		SEEDLING VIGOR	PRE- DROUGHT 5/24	TOTAL WATER APPLIED WITH MM 2/									
				6/2	6/10	QUALITY RATINGS DURING THE DROUGHT PERIOD (JUNE-SEPTEMBER)							
					6/19	7/3	7/10	7/20	8/1	8/11			
SR 4650	PR	7.3	6.3	7.0	6.7	6.7	6.0	5.7	6.0	6.0	6.0	5.3	6.7
HELIOS	PR	7.7	6.7	6.7	6.7	6.7	6.3	5.3	5.7	5.7	6.7	5.3	6.0
LSD VALUE		0.6	0.0	0.7	0.7	1.1	1.3	1.4	1.0	1.3	1.3	2.0	1.1
C.V. (%)		5.4	6.3	6.0	10.6	10.6	6.6	19.6	14.0	7.0	12.9	13.3	6.4

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 5C.
(CONT'D)

PERCENT GREEN COVER AND OTHER RATINGS OF PERENNIAL RYEGRASS CULTIVARS
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT WEST LAFAYETTE, IN 1/
2023 DATA

NAME		TOTAL WATER APPLIED WITH MM 2/					MEAN
		QUALITY RATINGS DURING THE RECOVERY PERIOD					
		9/19	10/16	11/8	12/15		
SR 4650	PR	6.7	7.0	6.0	6.3	6.3	
HELIOS	PR	6.0	7.0	6.0	6.3	6.2	
LSD VALUE		0.6	0.6	1.4	1.4	0.4	
C.V. (%)		6.4	0.0	11.8	11.2	3.7	

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 5C. PERCENT GREEN COVER AND OTHER RATINGS OF PERENNIAL RYEGRASS CULTIVARS
(CONT'D) IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT WEST LAFAYETTE, IN 1/
2023 DATA

		TOTAL WATER APPLIED WITH MM 2/									
		PERCENT GREEN COVER DURING THE DROUGHT PERIOD (JUNE-SEPTEMBER)									
NAME		6/2	6/5	6/9	6/12	6/15	6/20	6/24	6/27	6/30	7/3
SR 4650	PR	88.3	87.3	89.3	90.0	90.0	88.3	77.3	76.0	74.7	78.0
HELIOS	PR	86.3	85.3	87.7	88.0	88.7	87.3	84.0	81.3	68.7	78.7
LSD VALUE		3.8	5.4	5.9	6.7	7.6	12.8	35.4	21.6	19.3	15.5
C.V. (%)		0.0	0.8	1.2	0.8	1.2	2.9	11.6	4.1	9.4	1.9

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 5C. PERCENT GREEN COVER AND OTHER RATINGS OF PERENNIAL RYEGRASS CULTIVARS
(CONT'D) IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT WEST LAFAYETTE, IN 1/
2023 DATA

		TOTAL WATER APPLIED WITH MM 2/									
		PERCENT GREEN COVER DURING THE DROUGHT PERIOD (JUNE-SEPTEMBER)									
NAME		7/6	7/10	7/14	7/17	7/20	7/24	7/27	7/31	8/3	8/7
SR 4650	PR	74.0	73.3	53.3	71.0	78.7	79.3	71.7	71.3	77.0	77.0
HELIOS	PR	76.7	80.0	54.0	68.0	76.0	78.3	78.3	59.3	72.0	72.7
LSD VALUE		15.6	11.8	15.4	16.8	15.6	13.9	20.2	19.2	21.3	20.3
C.V. (%)		1.1	6.1	31.6	9.3	1.9	0.9	12.4	12.2	5.3	6.0

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 5C.
(CONT'D)

PERCENT GREEN COVER AND OTHER RATINGS OF PERENNIAL RYEGRASS CULTIVARS
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT WEST LAFAYETTE, IN 1/
2023 DATA

NAME		TOTAL WATER APPLIED WITH MM 2/										TOTAL WATER APPLIED (mm)
		8/11	8/14	PERCENT GREEN COVER DURING THE DROUGHT PERIOD (JUNE-SEPTEMBER)								
				8/17	8/21	8/24	8/27	8/31	9/4	9/7	9/10	
SR 4650	PR	84.7	81.0	59.3	69.7	77.3	71.0	71.3	72.0	70.3	77.3	148.3
HELIOS	PR	82.3	80.0	69.3	71.3	68.3	70.7	69.0	68.0	70.7	74.3	173.7
LSD VALUE		14.7	11.7	20.6	23.5	21.4	11.7	17.4	10.3	5.3	5.1	58.7
C.V. (%)		5.6	2.6	20.5	8.0	4.4	8.3	5.9	1.7	7.5	4.9	0.3

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 5D.

PERCENT GREEN COVER AND OTHER RATINGS OF BENTGRASS CULTIVARS
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT WEST LAFAYETTE, IN 1/
2023 DATA

NAME		SEEDLING VIGOR	TOTAL WATER APPLIED WITH MM 2/										
			PRE- DROUGHT 5/24	6/2	6/10	QUALITY RATINGS DURING THE DROUGHT PERIOD (JUNE-SEPTEMBER)							
					6/19	7/3	7/10	7/20	8/1	8/11	8/31	9/10	
PIRANHA	BT	7.3	6.7	6.7	7.0	7.0	5.7	5.0	4.7	5.7	5.0	6.0	5.7
MUSKET	BT	6.7	6.7	6.7	7.0	6.7	5.0	5.0	4.7	5.0	5.7	5.0	5.7
777	BT	7.3	7.0	8.0	8.0	7.7	6.0	4.3	5.7	5.7	5.3	5.0	5.0
AU VICTORY	BT	6.3	6.0	6.3	7.0	6.7	5.3	5.3	6.0	5.7	5.0	5.0	5.3
OAKLEY	BT	7.3	7.0	7.3	7.0	7.0	5.3	4.3	5.3	5.3	6.0	5.7	5.3
T-1	BT	7.0	5.7	6.0	6.3	6.0	5.0	5.0	5.0	5.7	5.3	5.7	5.7
DLF-AP-3084	BT	7.0	6.7	7.0	7.0	7.3	5.7	5.7	5.3	5.0	5.7	5.0	5.0
PIPER	BT	7.0	7.0	7.3	7.0	7.0	5.7	5.0	4.7	5.0	4.3	5.0	5.0
007XL	BT	6.7	7.3	7.3	7.3	7.7	6.3	4.7	5.0	4.3	4.0	4.7	4.7
PENNCROSS	BT	7.3	5.3	5.7	6.0	6.0	5.7	5.0	5.0	5.0	4.7	5.3	6.3
KINGDOM	BT	7.0	7.3	7.3	7.3	7.7	6.3	4.7	5.3	5.0	4.3	4.7	5.3
MACDONALD	BT	7.3	6.7	7.3	7.0	7.3	5.7	4.7	5.3	5.0	4.7	5.0	5.3
LSD VALUE		1.2	0.6	0.8	0.4	0.8	1.6	2.1	1.9	2.0	2.3	1.8	2.1
C.V. (%)		7.0	5.8	6.8	3.7	6.5	11.3	15.4	13.8	14.2	18.5	13.2	14.3

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 5D. PERCENT GREEN COVER AND OTHER RATINGS OF BENTGRASS CULTIVARS
 (CONT'D) IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT WEST LAFAYETTE, IN 1/
 2023 DATA

TOTAL WATER APPLIED WITH MM 2/

NAME		QUALITY RATINGS DURING THE RECOVERY PERIOD				MEAN
		9/19	10/16	11/8	12/15	
PIRANHA	BT	7.7	7.7	7.7	7.3	6.4
MUSKET	BT	7.0	6.0	6.3	6.7	5.9
777	BT	7.3	7.3	6.7	6.7	6.4
AU VICTORY	BT	7.0	7.7	7.7	6.7	6.2
OAKLEY	BT	7.7	7.3	7.3	7.0	6.3
T-1	BT	7.0	7.7	7.0	6.3	6.0
DLF-AP-3084	BT	7.3	7.7	7.7	6.3	6.3
PIPER	BT	7.0	7.3	7.3	6.7	6.1
007XL	BT	7.0	7.7	6.7	7.0	6.1
PENNCROSS	BT	6.3	7.0	5.7	5.0	5.6
KINGDOM	BT	7.7	7.7	7.3	7.0	6.3
MACDONALD	BT	7.0	7.7	7.3	6.7	6.2
LSD VALUE		1.5	1.4	0.9	1.1	0.3
C.V. (%)		8.3	8.3	7.3	8.7	2.6

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 5D.
(CONT'D)

PERCENT GREEN COVER AND OTHER RATINGS OF BENTGRASS CULTIVARS
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT WEST LAFAYETTE, IN 1/
2023 DATA

TOTAL WATER APPLIED WITH MM 2/

NAME		PERCENT GREEN COVER DURING THE DROUGHT PERIOD (JUNE-SEPTEMBER)									
		6/2	6/5	6/9	6/12	6/15	6/20	6/24	6/27	6/30	7/3
PIRANHA	BT	98.3	98.3	99.0	98.3	99.0	97.7	92.7	85.0	77.7	73.3
MUSKET	BT	97.0	97.0	96.3	96.0	96.7	94.3	88.7	79.0	72.7	77.3
777	BT	99.0	99.0	99.0	99.0	99.0	99.0	98.0	93.0	90.0	80.0
AU VICTORY	BT	97.0	97.3	97.3	97.0	97.7	96.3	90.3	81.3	73.7	65.7
OAKLEY	BT	99.0	99.0	99.0	98.7	98.7	98.3	93.0	83.0	79.7	70.3
T-1	BT	95.3	96.0	96.0	96.0	96.7	94.7	89.7	84.0	79.7	73.0
DLF-AP-3084	BT	99.0	99.0	99.0	99.0	99.0	98.3	95.3	86.7	82.0	75.7
PIPER	BT	99.0	99.0	99.0	99.0	99.0	98.7	95.7	89.0	84.0	70.3
007XL	BT	99.0	99.0	99.0	99.0	99.0	99.0	98.3	95.0	92.7	85.3
PENNCROSS	BT	91.3	92.3	92.7	92.7	93.3	90.3	87.0	78.3	73.0	75.7
KINGDOM	BT	99.0	99.0	99.0	99.0	99.0	99.0	97.7	94.0	91.3	79.0
MACDONALD	BT	98.7	98.7	98.7	99.0	99.0	98.7	94.3	86.7	82.7	73.7
LSD VALUE		1.2	1.3	1.3	1.0	1.2	2.2	5.0	12.5	14.1	30.6
C.V. (%)		0.8	0.8	0.9	0.7	0.8	1.4	3.1	7.1	8.8	14.2

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 5D.
(CONT'D)

PERCENT GREEN COVER AND OTHER RATINGS OF BENTGRASS CULTIVARS
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT WEST LAFAYETTE, IN 1/
2023 DATA

		TOTAL WATER APPLIED WITH MM 2/									
		PERCENT GREEN COVER DURING THE DROUGHT PERIOD (JUNE-SEPTEMBER)									
NAME		7/6	7/10	7/14	7/17	7/20	7/24	7/27	7/31	8/3	8/7
PIRANHA	BT	53.7	54.0	58.0	68.7	68.7	70.3	89.0	71.3	84.0	87.7
MUSKET	BT	63.3	66.3	72.3	74.0	76.3	83.3	82.0	80.3	70.7	84.7
777	BT	58.0	44.0	54.0	68.3	85.3	85.7	83.7	75.3	72.0	78.3
AU VICTORY	BT	58.0	64.3	76.3	70.0	89.3	67.3	82.7	73.7	68.0	84.3
OAKLEY	BT	45.7	57.0	45.0	72.3	83.0	85.0	67.7	58.0	70.0	85.7
T-1	BT	55.7	62.3	60.7	76.0	79.7	69.3	81.3	76.3	71.0	84.3
DLF-AP-3084	BT	64.3	68.7	66.7	60.7	73.7	62.0	67.3	61.7	66.3	75.0
PIPER	BT	63.0	64.7	60.0	60.7	72.3	74.7	66.3	68.7	73.3	84.7
007XL	BT	66.7	55.7	42.0	50.0	69.7	69.7	80.0	62.7	68.3	68.3
PENNCROSS	BT	63.0	67.0	65.7	72.7	72.7	58.7	72.0	70.0	63.0	85.7
KINGDOM	BT	51.7	51.3	44.0	50.7	66.7	81.3	73.0	54.3	55.3	70.0
MACDONALD	BT	58.3	59.3	50.0	64.0	84.3	63.3	61.0	54.0	55.3	66.0
LSD VALUE		34.1	36.7	35.0	31.9	29.9	37.7	34.0	37.9	36.2	22.4
C.V. (%)		20.6	22.6	26.1	19.7	15.3	20.4	17.9	21.7	19.9	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 5D.
(CONT'D)

PERCENT GREEN COVER AND OTHER RATINGS OF BENTGRASS CULTIVARS
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT WEST LAFAYETTE, IN 1/
2023 DATA

NAME		TOTAL WATER APPLIED WITH MM 2/										TOTAL WATER APPLIED (mm)
		8/11	8/14	PERCENT GREEN COVER DURING THE DROUGHT PERIOD (JUNE-SEPTEMBER)								
				8/17	8/21	8/24	8/27	8/31	9/4	9/7	9/10	
PIRANHA	BT	77.0	79.3	80.7	88.3	83.3	81.3	59.3	59.7	60.0	76.3	135.3
MUSKET	BT	93.7	89.7	73.3	76.7	80.0	72.3	49.3	57.7	65.0	75.0	152.3
777	BT	83.7	87.7	84.0	82.3	79.7	79.0	56.0	47.3	50.3	73.3	152.7
AU VICTORY	BT	75.7	84.3	81.3	85.0	71.0	69.3	48.3	52.7	60.3	72.7	156.7
OAKLEY	BT	88.3	91.0	74.3	79.0	82.7	78.7	55.3	53.7	64.7	75.0	156.7
T-1	BT	85.7	84.3	85.3	61.0	69.7	72.3	66.0	59.7	62.3	80.0	161.0
DLF-AP-3084	BT	88.0	89.7	75.3	67.3	78.0	67.7	46.0	63.7	65.0	88.0	165.0
PIPER	BT	76.3	73.3	69.7	80.0	86.7	77.0	47.3	41.3	58.3	80.0	173.7
007XL	BT	64.0	70.7	55.3	72.0	79.0	72.3	59.7	51.3	58.3	76.3	182.3
PENNCROSS	BT	73.3	81.0	79.7	73.0	69.3	70.7	64.7	60.0	61.3	78.3	186.3
KINGDOM	BT	71.0	83.3	69.0	79.0	54.3	61.0	46.7	40.3	52.0	81.0	186.7
MACDONALD	BT	75.0	86.7	72.0	59.3	72.3	73.3	54.3	34.0	47.0	73.0	195.0
LSD VALUE		34.0	22.2	38.6	37.4	44.8	40.6	51.0	47.0	50.9	43.8	76.0
C.V. (%)		16.9	11.0	19.2	19.4	21.5	18.4	31.0	33.0	27.7	17.6	17.5

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 6A.

PERCENT GREEN COVER AND OTHER RATINGS OF ALL CULTIVARS WITH 50% OF ETo
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT ST. PAUL, MN 1/
2023 DATA

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

PERCENT GREEN COVER RATINGS DURING THE DROUGHT PERIOD (JULY-SEPTEMBER) AND RECOVERY PERIOD (SEPTEMBER-OCTOBER)

NAME		7/7	7/10	7/14	7/24	7/31	8/6	8/14	8/21	8/28	9/5	9/11	9/18	9/25	10/2	10/19
007XL	BT	99.0	99.0	99.0	99.0	99.0	96.7	98.0	97.7	97.7	97.3	97.3	97.3	97.3	98.7	99.0
MACDONALD	BT	99.0	99.0	99.0	99.0	99.0	96.0	97.7	97.7	97.7	96.7	97.3	97.3	97.7	98.3	99.0
DLF-AP-3084	BT	99.0	99.0	99.0	99.0	99.0	95.7	97.0	96.7	96.7	96.7	96.3	96.7	97.7	98.0	99.0
777	BT	99.0	99.0	99.0	99.0	99.0	96.3	97.7	97.7	97.7	97.3	97.0	97.7	97.7	98.7	99.0
OAKLEY	BT	99.0	99.0	99.0	99.0	99.0	96.3	97.0	97.0	96.7	97.0	97.0	96.7	97.0	98.0	99.0
PIPER	BT	99.0	99.0	99.0	99.0	99.0	96.3	97.7	97.3	97.3	97.3	97.3	97.3	98.3	98.7	99.0
KINGDOM	BT	99.0	99.0	99.0	99.0	99.0	97.0	98.0	98.0	98.0	97.3	97.3	97.7	98.3	98.7	99.0
PIRANHA	BT	99.0	99.0	99.0	99.0	99.0	95.7	97.3	96.7	97.3	96.3	96.0	96.3	96.7	98.0	99.0
MUSKET	BT	99.0	99.0	99.0	99.0	98.7	97.3	97.7	97.3	97.7	96.3	96.0	95.0	94.7	98.0	99.0
T-1	BT	99.0	99.0	98.7	98.7	98.7	95.7	97.7	96.3	97.3	95.3	96.0	96.0	97.0	97.3	99.0
PPG FRC 127	FF	99.0	98.7	98.3	98.3	97.7	96.7	98.3	97.7	97.7	94.7	96.0	96.7	97.7	97.7	99.0
AU VICTORY	BT	99.0	99.0	99.0	99.0	99.0	96.0	97.7	97.3	97.7	96.0	96.7	96.7	97.0	98.0	99.0
COMPASS II	FF	99.0	99.0	98.0	97.3	97.0	95.3	98.0	97.0	97.3	92.7	95.0	95.7	96.7	97.0	99.0
GLADIATOR	FF	98.3	98.0	96.7	96.0	96.3	93.0	96.7	94.3	94.7	87.7	88.7	91.3	94.0	94.3	98.3
HELIOS	PR	93.0	90.0	89.3	88.0	85.3	88.3	95.0	93.0	91.7	83.0	88.3	91.3	91.7	91.0	93.0
NAVIGATOR II	FF	95.3	93.0	93.0	92.3	92.3	92.7	97.3	95.3	95.0	89.7	91.3	91.7	93.0	94.0	98.0
PENNCROSS	BT	99.0	98.7	98.3	98.3	97.3	94.0	97.0	95.3	95.3	91.7	92.7	91.0	92.0	95.0	98.7
SR 4650	PR	90.7	86.0	85.3	84.7	80.3	85.7	93.7	92.3	89.7	78.0	84.3	89.3	90.7	90.0	92.7
LSD VALUE		1.2	1.4	1.8	2.3	2.1	1.6	1.1	1.2	1.4	4.2	3.7	2.3	2.0	1.2	0.9
C.V. (%)		0.8	0.9	1.2	1.6	1.5	1.1	0.7	0.8	0.9	2.9	2.5	1.5	1.3	0.8	0.6

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 6A.
(CONT'D)

PERCENT GREEN COVER AND OTHER RATINGS OF ALL CULTIVARS WITH 50% OF ETo
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT ST. PAUL, MN 1/
2023 DATA

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

QUALITY RATINGS DURING THE DROUGHT PERIOD (JULY-SEPTEMBER) AND RECOVERY PERIOD (SEPTEMBER-OCTOBER)

NAME		7/17	7/26	7/31	8/7	8/14	8/21	8/29	9/5	9/11	9/18	9/25	10/2	10/17	MEAN
007XL	BT	7.7	8.0	8.0	8.0	8.0	8.0	8.0	6.7	6.7	6.3	6.3	7.7	7.3	7.4
MACDONALD	BT	7.7	7.3	8.0	8.0	8.0	8.3	7.7	6.0	7.0	6.3	6.3	8.0	7.7	7.4
DLF-AP-3084	BT	7.7	8.0	8.0	7.3	8.0	8.0	7.7	6.3	6.7	6.7	6.3	7.0	7.0	7.3
777	BT	7.7	7.7	8.0	7.7	8.0	7.7	7.7	6.3	6.3	6.3	6.0	7.3	7.3	7.2
OAKLEY	BT	7.7	8.3	8.0	7.7	7.3	7.7	7.3	6.3	6.5	6.3	6.3	7.3	7.0	7.2
PIPER	BT	7.3	7.0	8.0	7.7	8.0	7.7	7.7	6.7	7.0	6.7	6.0	7.0	7.0	7.2
KINGDOM	BT	7.0	7.3	7.7	7.3	7.3	7.7	7.3	6.3	6.7	6.7	6.3	7.3	7.7	7.1
PIRANHA	BT	8.0	8.3	8.0	8.0	8.0	8.0	7.3	6.0	6.3	5.3	5.3	6.0	6.0	7.0
MUSKET	BT	8.0	7.7	8.3	7.7	8.0	8.0	8.0	4.7	4.7	4.0	4.0	5.3	5.7	6.5
T-1	BT	7.0	7.3	8.0	7.0	6.7	7.7	7.0	5.7	6.0	5.7	5.3	6.0	5.7	6.5
PPG FRC 127	FF	6.3	6.3	7.0	6.0	6.3	6.7	6.3	6.0	6.0	6.3	6.0	7.0	7.3	6.4
AU VICTORY	BT	7.3	7.3	7.7	7.0	7.0	7.0	7.0	5.0	6.0	5.3	4.7	5.7	5.7	6.3
COMPASS II	FF	5.7	5.7	6.7	5.3	5.7	6.0	5.7	5.3	5.7	5.7	5.3	6.0	6.3	5.8
GLADIATOR	FF	5.3	5.0	6.0	4.7	5.0	5.3	5.0	4.3	4.3	5.0	5.0	5.3	5.7	5.1
HELIOS	PR	5.3	5.0	5.7	5.0	5.0	5.0	5.0	4.0	4.7	4.7	5.0	5.0	5.0	4.9
NAVIGATOR II	FF	4.7	4.3	5.7	5.0	5.3	5.7	5.0	4.7	4.3	5.0	4.3	5.0	5.3	4.9
PENNCROSS	BT	6.0	6.0	6.3	5.0	5.3	5.7	5.0	3.7	4.3	3.7	4.0	4.7	4.0	4.9
SR 4650	PR	4.7	4.3	5.0	4.3	5.0	5.0	5.0	3.7	4.0	4.7	4.7	4.7	4.7	4.6
LSD VALUE		0.9	0.8	0.8	1.2	0.9	1.1	0.6	1.0	1.1	1.0	1.1	0.9	0.9	0.7
C.V. (%)		8.3	8.0	7.2	11.7	8.2	9.7	5.8	11.3	11.6	11.0	11.9	9.1	9.4	6.9

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 6B.

PERCENT GREEN COVER AND OTHER RATINGS OF ALL CULTIVARS WITH 65% OF ETo
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT ST. PAUL, MN 1/
2023 DATA

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

PERCENT GREEN COVER RATINGS DURING THE DROUGHT PERIOD (JULY-SEPTEMBER) AND RECOVERY PERIOD (SEPTEMBER-OCTOBER)

NAME		7/7	7/10	7/14	7/24	7/31	8/6	8/14	8/21	8/28	9/5	9/11	9/18	9/25	10/2	10/19
OAKLEY	BT	99.0	99.0	99.0	99.0	99.0	96.3	97.3	97.7	97.3	97.3	97.3	98.0	98.0	98.7	99.0
007XL	BT	99.0	99.0	99.0	99.0	99.0	96.3	97.3	97.7	97.7	97.7	97.0	98.0	98.0	98.7	98.3
777	BT	99.0	99.0	99.0	99.0	99.0	96.0	97.3	97.3	97.3	97.3	97.0	97.3	98.0	98.7	99.0
MACDONALD	BT	99.0	99.0	99.0	99.0	99.0	96.7	97.7	97.7	97.7	97.0	97.0	97.3	98.0	98.7	99.0
PIPER	BT	99.0	99.0	99.0	99.0	99.0	96.7	97.7	97.3	97.7	97.0	97.0	97.0	98.0	98.7	99.0
DLF-AP-3084	BT	99.0	99.0	99.0	99.0	99.0	95.7	97.0	97.0	97.3	96.7	96.7	96.7	97.7	98.3	99.0
KINGDOM	BT	99.0	99.0	99.0	99.0	99.0	96.3	97.3	97.7	98.0	97.0	97.3	97.3	98.0	98.3	99.0
T-1	BT	99.0	99.0	99.0	99.0	99.0	96.0	97.7	97.3	97.0	97.0	96.7	96.7	97.3	98.0	98.3
AU VICTORY	BT	99.0	99.0	99.0	99.0	99.0	96.3	97.3	97.7	97.7	96.3	96.7	97.0	97.3	98.0	99.0
MUSKET	BT	99.0	99.0	99.0	99.0	98.7	97.0	97.3	97.3	98.0	96.3	97.3	96.7	96.3	98.0	99.0
PIRANHA	BT	99.0	99.0	99.0	99.0	99.0	95.7	97.0	97.3	97.3	96.3	96.7	96.7	97.3	98.0	99.0
PPG FRC 127	FF	99.0	99.0	98.0	97.7	97.3	96.3	98.0	97.7	97.7	96.0	97.0	97.0	97.7	97.7	99.0
COMPASS II	FF	99.0	98.7	98.0	97.3	97.0	95.7	98.0	97.0	97.7	95.7	96.7	96.3	97.0	96.7	99.0
GLADIATOR	FF	98.7	98.3	97.7	97.0	97.0	93.7	97.0	95.0	95.3	93.0	94.3	95.0	96.3	96.0	99.0
NAVIGATOR II	FF	95.0	93.3	94.3	93.0	94.0	94.0	98.0	96.0	96.0	92.3	93.0	93.7	95.3	95.0	98.3
PENNCROSS	BT	99.0	98.3	98.3	98.0	97.7	94.3	96.7	96.0	95.7	93.3	94.0	92.7	93.7	95.3	99.0
HELIOS	PR	88.3	83.3	85.0	85.0	81.0	85.7	93.0	91.7	91.3	86.3	90.7	91.7	92.7	91.0	93.0
SR 4650	PR	88.7	84.0	84.7	83.7	80.7	85.3	93.3	92.3	91.3	86.3	91.0	92.7	94.0	92.3	94.3
LSD VALUE		2.9	3.2	3.3	2.4	3.6	2.6	1.6	1.5	1.5	1.7	1.3	1.1	1.1	1.7	2.0
C.V. (%)		1.9	2.2	2.2	1.7	2.4	1.8	1.0	1.0	1.0	1.2	0.9	0.8	0.8	1.1	1.2

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 6B.
(CONT'D)

PERCENT GREEN COVER AND OTHER RATINGS OF ALL CULTIVARS WITH 65% OF ETo
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT ST. PAUL, MN 1/
2023 DATA

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

QUALITY RATINGS DURING THE DROUGHT PERIOD (JULY-SEPTEMBER) AND RECOVERY PERIOD (SEPTEMBER-OCTOBER)

NAME		7/17	7/26	7/31	8/7	8/14	8/21	8/29	9/5	9/11	9/18	9/25	10/2	10/17	MEAN
OAKLEY	BT	7.7	8.0	8.3	8.0	7.7	7.7	7.7	7.0	7.0	7.0	7.7	7.7	8.3	7.7
007XL	BT	8.3	8.3	8.7	8.3	8.0	7.3	8.0	6.7	7.0	6.3	6.7	7.7	7.0	7.6
777	BT	8.0	7.7	7.7	7.7	8.0	8.3	7.7	6.3	6.7	6.7	6.7	7.5	7.3	7.4
MACDONALD	BT	7.3	7.7	8.0	7.7	7.7	8.3	8.0	6.7	7.0	6.3	6.3	7.3	8.0	7.4
PIPER	BT	7.3	7.7	7.7	8.0	8.0	8.0	8.3	6.7	7.3	6.7	6.7	7.0	7.3	7.4
DLF-AP-3084	BT	7.3	7.3	7.7	7.3	7.3	7.3	7.3	5.7	7.0	7.0	6.3	7.0	7.3	7.1
KINGDOM	BT	7.3	7.7	7.0	7.3	7.3	7.3	7.7	5.7	6.3	6.7	6.7	7.0	7.0	7.0
T-1	BT	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.0	5.3	6.0	6.3	6.3	6.3	6.9
AU VICTORY	BT	6.7	7.3	7.3	6.7	7.3	7.3	7.7	5.3	5.7	5.7	6.3	6.3	6.3	6.6
MUSKET	BT	7.7	7.3	7.3	7.3	8.0	8.0	7.7	5.0	5.0	4.7	4.7	5.7	6.0	6.5
PIRANHA	BT	7.0	7.0	6.7	6.7	7.0	7.0	7.3	5.7	6.0	6.0	5.3	6.0	6.3	6.5
PPG FRC 127	FF	6.0	5.7	6.3	6.0	6.3	6.7	6.3	5.7	6.3	6.0	6.0	7.0	7.0	6.3
COMPASS II	FF	5.3	5.0	6.0	5.0	5.7	6.3	5.7	5.3	6.0	5.7	5.3	6.0	6.0	5.6
GLADIATOR	FF	5.3	5.7	6.0	5.3	5.7	6.0	5.3	5.0	5.3	5.7	5.7	6.0	6.0	5.6
NAVIGATOR II	FF	5.0	5.0	6.0	5.0	5.7	6.0	6.0	4.7	5.0	5.0	4.3	5.3	5.7	5.3
PENNCROSS	BT	5.7	5.7	6.3	5.7	5.7	5.7	5.3	4.3	4.7	4.7	4.3	5.0	4.0	5.2
HELIOS	PR	4.7	4.3	5.0	5.0	4.7	4.7	4.7	4.7	5.0	4.7	5.0	4.7	5.3	4.8
SR 4650	PR	4.7	4.3	5.0	4.3	5.0	5.0	5.0	4.3	5.0	4.3	5.0	5.0	5.3	4.8
LSD VALUE		1.0	1.0	1.0	1.0	0.9	0.8	0.9	1.0	1.1	1.0	1.0	1.2	0.9	0.6
C.V. (%)		9.9	9.9	8.8	10.0	8.5	7.7	8.9	11.2	11.1	10.2	10.6	11.0	8.7	6.5

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 6C.

PERCENT GREEN COVER AND OTHER RATINGS OF ALL CULTIVARS WITH 80% OF E₀
 IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT ST. PAUL, MN 1/
 2023 DATA

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

PERCENT GREEN COVER RATINGS DURING THE DROUGHT PERIOD (JULY-SEPTEMBER) AND RECOVERY PERIOD (SEPTEMBER-OCTOBER)

NAME		7/7	7/10	7/14	7/24	7/31	8/6	8/14	8/21	8/28	9/5	9/11	9/18	9/25	10/2	10/19
MACDONALD	BT	99.0	99.0	99.0	99.0	99.0	96.3	97.7	97.7	97.7	97.7	96.7	97.7	98.0	98.7	99.0
PIRANHA	BT	99.0	99.0	99.0	99.0	99.0	96.0	97.3	97.7	97.7	97.0	96.3	97.0	97.3	97.7	99.0
007XL	BT	99.0	99.0	99.0	99.0	99.0	96.0	97.3	97.7	97.7	97.7	97.0	97.0	98.0	98.3	99.0
KINGDOM	BT	99.0	99.0	99.0	99.0	99.0	97.0	98.0	98.0	98.3	98.0	97.3	98.0	98.0	99.0	99.0
777	BT	99.0	99.0	99.0	99.0	99.0	96.7	97.7	97.7	98.0	97.3	97.0	98.0	98.0	98.3	99.0
OAKLEY	BT	99.0	99.0	99.0	98.7	98.7	96.0	97.3	97.0	97.0	96.7	96.3	97.0	97.3	98.3	99.0
PIPER	BT	99.0	99.0	99.0	99.0	99.0	96.0	97.0	97.7	97.7	97.3	97.0	97.3	98.0	98.7	99.0
T-1	BT	99.0	99.0	99.0	99.0	99.0	96.3	97.7	97.3	97.7	97.3	97.0	97.0	97.3	98.3	99.0
DLF-AP-3084	BT	99.0	99.0	99.0	99.0	99.0	95.7	97.3	97.3	97.0	97.3	96.7	97.3	98.3	98.3	99.0
MUSKET	BT	99.0	99.0	99.0	99.0	98.7	96.7	98.0	97.3	98.0	96.3	96.7	97.0	95.7	97.7	99.0
AU VICTORY	BT	99.0	98.7	98.7	98.7	98.7	96.3	97.3	97.0	97.3	96.7	96.7	96.3	97.7	97.7	99.0
COMPASS II	FF	99.0	98.3	98.3	97.7	97.3	96.3	98.0	97.3	97.3	96.3	97.0	97.0	97.7	98.0	99.0
PPG FRC 127	FF	98.7	98.7	98.3	97.7	97.3	96.7	98.7	97.3	97.7	96.7	97.7	97.3	98.0	98.3	99.0
GLADIATOR	FF	98.7	98.3	97.0	96.0	96.7	94.0	97.0	95.3	96.0	94.7	95.7	95.7	96.7	96.7	99.0
NAVIGATOR II	FF	95.3	94.3	95.0	95.7	95.3	95.0	98.0	96.7	96.7	94.7	95.7	95.7	97.0	96.0	99.0
PENNCROSS	BT	99.0	98.7	98.0	98.3	97.3	94.0	96.7	95.7	95.7	94.0	93.7	93.3	94.0	95.0	99.0
HELIOS	PR	91.7	87.3	87.0	86.0	82.3	86.7	93.7	93.3	92.3	89.7	92.7	93.0	93.7	92.0	94.0
SR 4650	PR	88.7	84.3	85.0	85.3	82.3	86.3	94.7	93.3	93.0	89.7	92.7	93.0	94.7	92.7	94.3
LSD VALUE		0.7	1.0	1.1	1.3	1.2	1.2	1.0	0.8	0.8	1.9	1.6	1.3	1.3	1.4	0.8
C.V. (%)		0.5	0.7	0.8	0.9	0.8	0.9	0.7	0.6	0.6	1.3	1.0	0.9	0.9	1.0	0.5

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 6C.
(CONT'D)

PERCENT GREEN COVER AND OTHER RATINGS OF ALL CULTIVARS WITH 80% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT ST. PAUL, MN 1/
2023 DATA

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

QUALITY RATINGS DURING THE DROUGHT PERIOD (JULY-SEPTEMBER) AND RECOVERY PERIOD (SEPTEMBER-OCTOBER)

NAME		7/17	7/26	7/31	8/7	8/14	8/21	8/29	9/5	9/11	9/18	9/25	10/2	10/17	MEAN
MACDONALD	BT	7.3	8.3	7.7	8.3	8.0	8.3	8.3	7.0	8.0	7.0	7.7	8.0	8.3	7.9
PIRANHA	BT	7.7	7.7	8.3	8.3	8.0	8.3	8.0	6.7	7.3	6.7	6.3	7.0	7.0	7.5
007XL	BT	7.7	7.3	8.0	7.7	7.7	7.7	8.0	6.3	7.0	7.3	6.7	7.7	7.7	7.4
KINGDOM	BT	7.3	7.7	7.7	7.7	8.0	8.0	7.7	6.7	7.0	6.3	6.7	6.7	7.0	7.3
777	BT	7.7	7.7	7.3	7.7	8.0	8.0	7.7	6.7	6.7	6.0	6.7	7.0	7.0	7.2
OAKLEY	BT	7.7	8.0	7.7	7.7	7.3	7.3	7.3	6.3	6.7	7.0	6.3	7.0	7.3	7.2
PIPER	BT	7.0	7.3	7.0	7.0	7.0	7.7	7.7	6.7	7.0	6.7	7.0	7.7	7.7	7.2
T-1	BT	7.3	8.0	7.3	7.7	7.3	7.7	7.7	6.0	6.7	7.7	6.0	7.0	6.7	7.2
DLF-AP-3084	BT	7.3	7.7	7.3	7.3	7.3	7.3	7.0	6.7	6.3	6.3	6.7	7.3	7.3	7.1
MUSKET	BT	8.0	8.0	8.3	8.0	8.0	8.0	8.0	5.0	5.3	5.7	5.7	5.7	5.7	6.9
AU VICTORY	BT	6.7	6.7	7.3	7.3	7.0	7.3	7.3	6.0	6.3	6.0	5.3	6.0	6.0	6.6
COMPASS II	FF	6.0	6.0	6.3	6.3	6.7	6.3	6.3	6.0	6.7	6.3	6.3	6.7	6.7	6.4
PPG FRC 127	FF	5.3	5.7	6.7	5.7	6.0	6.7	6.3	5.3	6.7	6.3	6.0	7.3	7.3	6.3
GLADIATOR	FF	5.3	5.7	6.7	5.7	6.0	6.0	6.0	5.3	6.0	6.0	6.7	6.0	6.3	6.0
NAVIGATOR II	FF	5.3	5.3	6.3	5.3	6.0	6.3	6.3	5.7	6.0	6.0	6.0	6.0	6.0	5.9
PENNCROSS	BT	6.0	6.0	5.7	6.0	6.3	5.7	5.3	4.7	5.0	5.3	4.7	4.3	4.0	5.3
HELIOS	PR	5.0	5.0	5.0	4.3	5.0	5.0	5.0	4.7	5.0	5.0	4.7	4.7	4.7	4.8
SR 4650	PR	4.3	4.3	4.7	4.0	5.0	5.0	4.7	4.7	5.0	5.0	5.0	4.7	4.7	4.7
LSD VALUE		1.1	1.1	1.0	1.0	1.1	1.0	1.1	1.4	1.0	2.1	1.5	1.2	1.3	0.8
C.V. (%)		10.7	10.2	8.9	9.7	9.6	9.4	9.6	13.0	9.9	14.8	13.1	11.3	11.9	7.9

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 7A.

PERCENT GREEN COVER AND OTHER RATINGS OF PERENNIAL RYEGRASS CULTIVARS WITH 50% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT ST. PAUL, MN 1/
2023 DATA

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

PERCENT GREEN COVER RATINGS DURING THE DROUGHT PERIOD (JULY-SEPTEMBER) AND RECOVERY PERIOD (SEPTEMBER-OCTOBER)

NAME		7/7	7/10	7/14	7/24	7/31	8/6	8/14	8/21	8/28	9/5	9/11	9/18	9/25	10/2	10/19
007XL	BT	99	99.0	99.0	99.0	99.0	96.7	98.0	97.7	97.7	97.3	97.3	97.3	97.3	98.7	99.0
MACDONALD	BT	99	99.0	99.0	99.0	99.0	96.0	97.7	97.7	97.7	96.7	97.3	97.3	97.7	98.3	99.0
DLF-AP-3084	BT	99	99.0	99.0	99.0	99.0	95.7	97.0	96.7	96.7	96.7	96.3	96.7	97.7	98.0	99.0
777	BT	99	99.0	99.0	99.0	99.0	96.3	97.7	97.7	97.7	97.3	97.0	97.7	97.7	98.7	99.0
OAKLEY	BT	99	99.0	99.0	99.0	99.0	96.3	97.0	97.0	96.7	97.0	97.0	96.7	97.0	98.0	99.0
PIPER	BT	99	99.0	99.0	99.0	99.0	96.3	97.7	97.3	97.3	97.3	97.3	97.3	98.3	98.7	99.0
KINGDOM	BT	99	99.0	99.0	99.0	99.0	97.0	98.0	98.0	98.0	97.3	97.3	97.7	98.3	98.7	99.0
PIRANHA	BT	99	99.0	99.0	99.0	99.0	95.7	97.3	96.7	97.3	96.3	96.0	96.3	96.7	98.0	99.0
MUSKET	BT	99	99.0	99.0	99.0	98.7	97.3	97.7	97.3	97.7	96.3	96.0	95.0	94.7	98.0	99.0
T-1	BT	99	99.0	98.7	98.7	98.7	95.7	97.7	96.3	97.3	95.3	96.0	96.0	97.0	97.3	99.0
AU VICTORY	BT	99	99.0	99.0	99.0	99.0	96.0	97.7	97.3	97.7	96.0	96.7	96.7	97.0	98.0	99.0
PENNCROSS	BT	99	98.7	98.3	98.3	97.3	94.0	97.0	95.3	95.3	91.7	92.7	91.0	92.0	95.0	98.7
LSD VALUE		0	0.4	0.5	0.5	0.4	0.8	1.3	1.4	1.3	1.4	1.4	1.6	2.1	0.8	0.4
C.V. (%)		0	0.2	0.2	0.2	0.3	0.5	0.6	0.8	0.7	0.9	0.9	1.0	1.3	0.5	0.2

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 7A.
(CONT'D)

PERCENT GREEN COVER AND OTHER RATINGS OF PERENNIAL RYEGRASS CULTIVARS WITH 50% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT ST. PAUL, MN 1/
2023 DATA

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

QUALITY RATINGS DURING THE DROUGHT PERIOD (JULY-SEPTEMBER) AND RECOVERY PERIOD (SEPTEMBER-OCTOBER)

NAME		7/17	7/26	7/31	8/7	8/14	8/21	8/29	9/5	9/11	9/18	9/25	10/2	10/17	MEAN
007XL	BT	7.7	8.0	8.0	8.0	8.0	8.0	8.0	6.7	6.7	6.3	6.3	7.7	7.3	7.4
MACDONALD	BT	7.7	7.3	8.0	8.0	8.0	8.3	7.7	6.0	7.0	6.3	6.3	8.0	7.7	7.4
DLF-AP-3084	BT	7.7	8.0	8.0	7.3	8.0	8.0	7.7	6.3	6.7	6.7	6.3	7.0	7.0	7.3
777	BT	7.7	7.7	8.0	7.7	8.0	7.7	7.7	6.3	6.3	6.3	6.0	7.3	7.3	7.2
OAKLEY	BT	7.7	8.3	8.0	7.7	7.3	7.7	7.3	6.3	6.5	6.3	6.3	7.3	7.0	7.2
PIPER	BT	7.3	7.0	8.0	7.7	8.0	7.7	7.7	6.7	7.0	6.7	6.0	7.0	7.0	7.2
KINGDOM	BT	7.0	7.3	7.7	7.3	7.3	7.7	7.3	6.3	6.7	6.7	6.3	7.3	7.7	7.1
PIRANHA	BT	8.0	8.3	8.0	8.0	8.0	8.0	7.3	6.0	6.3	5.3	5.3	6.0	6.0	7.0
MUSKET	BT	8.0	7.7	8.3	7.7	8.0	8.0	8.0	4.7	4.7	4.0	4.0	5.3	5.7	6.5
T-1	BT	7.0	7.3	8.0	7.0	6.7	7.7	7.0	5.7	6.0	5.7	5.3	6.0	5.7	6.5
AU VICTORY	BT	7.3	7.3	7.7	7.0	7.0	7.0	7.0	5.0	6.0	5.3	4.7	5.7	5.7	6.3
PENNCROSS	BT	6.0	6.0	6.3	5.0	5.3	5.7	5.0	3.7	4.3	3.7	4.0	4.7	4.0	4.9
LSD VALUE		1.0	1.1	1.2	1.5	0.9	1.2	0.7	1.1	1.2	1.1	0.9	0.9	1.0	0.7
C.V. (%)		7.3	7.6	7.5	10.6	7.2	8.4	5.6	11.2	11.1	11.1	9.5	8.6	9.6	6.3

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 7B.

PERCENT GREEN COVER AND OTHER RATINGS OF PERENNIAL RYEGRASS CULTIVARS WITH 65% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT ST. PAUL, MN 1/
2023 DATA

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

PERCENT GREEN COVER RATINGS DURING THE DROUGHT PERIOD (JULY-SEPTEMBER) AND RECOVERY PERIOD (SEPTEMBER-OCTOBER)

NAME		7/7	7/10	7/14	7/24	7/31	8/6	8/14	8/21	8/28	9/5	9/11	9/18	9/25	10/2	10/19
OAKLEY	BT	99	99.0	99.0	99.0	99.0	96.3	97.3	97.7	97.3	97.3	97.3	98.0	98.0	98.7	99.0
007XL	BT	99	99.0	99.0	99.0	99.0	96.3	97.3	97.7	97.7	97.7	97.0	98.0	98.0	98.7	98.3
777	BT	99	99.0	99.0	99.0	99.0	96.0	97.3	97.3	97.3	97.3	97.0	97.3	98.0	98.7	99.0
MACDONALD	BT	99	99.0	99.0	99.0	99.0	96.7	97.7	97.7	97.7	97.0	97.0	97.3	98.0	98.7	99.0
PIPER	BT	99	99.0	99.0	99.0	99.0	96.7	97.7	97.3	97.7	97.0	97.0	97.0	98.0	98.7	99.0
DLF-AP-3084	BT	99	99.0	99.0	99.0	99.0	95.7	97.0	97.0	97.3	96.7	96.7	96.7	97.7	98.3	99.0
KINGDOM	BT	99	99.0	99.0	99.0	99.0	96.3	97.3	97.7	98.0	97.0	97.3	97.3	98.0	98.3	99.0
T-1	BT	99	99.0	99.0	99.0	99.0	96.0	97.7	97.3	97.0	97.0	96.7	96.7	97.3	98.0	98.3
AU VICTORY	BT	99	99.0	99.0	99.0	99.0	96.3	97.3	97.7	97.7	96.3	96.7	97.0	97.3	98.0	99.0
MUSKET	BT	99	99.0	99.0	99.0	98.7	97.0	97.3	97.3	98.0	96.3	97.3	96.7	96.3	98.0	99.0
PIRANHA	BT	99	99.0	99.0	99.0	99.0	95.7	97.0	97.3	97.3	96.3	96.7	96.7	97.3	98.0	99.0
PENNCROSS	BT	99	98.3	98.3	98.0	97.7	94.3	96.7	96.0	95.7	93.3	94.0	92.7	93.7	95.3	99.0
LSD VALUE		0	0.9	0.3	0.6	0.4	1.1	0.9	0.8	0.9	1.2	0.5	1.0	0.6	0.7	1.2
C.V. (%)		0	0.3	0.2	0.3	0.2	0.6	0.4	0.4	0.5	0.7	0.4	0.6	0.4	0.4	0.5

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 7B.
(CONT'D)

PERCENT GREEN COVER AND OTHER RATINGS OF PERENNIAL RYEGRASS CULTIVARS WITH 65% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT ST. PAUL, MN 1/
2023 DATA

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

QUALITY RATINGS DURING THE DROUGHT PERIOD (JULY-SEPTEMBER) AND RECOVERY PERIOD (SEPTEMBER-OCTOBER)

NAME		7/17	7/26	7/31	8/7	8/14	8/21	8/29	9/5	9/11	9/18	9/25	10/2	10/17	MEAN
OAKLEY	BT	7.7	8.0	8.3	8.0	7.7	7.7	7.7	7.0	7.0	7.0	7.7	7.7	8.3	7.7
007XL	BT	8.3	8.3	8.7	8.3	8.0	7.3	8.0	6.7	7.0	6.3	6.7	7.7	7.0	7.6
777	BT	8.0	7.7	7.7	7.7	8.0	8.3	7.7	6.3	6.7	6.7	6.7	7.5	7.3	7.4
MACDONALD	BT	7.3	7.7	8.0	7.7	7.7	8.3	8.0	6.7	7.0	6.3	6.3	7.3	8.0	7.4
PIPER	BT	7.3	7.7	7.7	8.0	8.0	8.0	8.3	6.7	7.3	6.7	6.7	7.0	7.3	7.4
DLF-AP-3084	BT	7.3	7.3	7.7	7.3	7.3	7.3	7.3	5.7	7.0	7.0	6.3	7.0	7.3	7.1
KINGDOM	BT	7.3	7.7	7.0	7.3	7.3	7.3	7.7	5.7	6.3	6.7	6.7	7.0	7.0	7.0
T-1	BT	7.7	7.7	7.7	7.7	7.7	7.7	7.0	5.3	6.0	6.3	6.3	6.3	6.3	6.9
AU VICTORY	BT	6.7	7.3	7.3	6.7	7.3	7.3	7.7	5.3	5.7	5.7	6.3	6.3	6.3	6.6
MUSKET	BT	7.7	7.3	7.3	7.3	8.0	8.0	7.7	5.0	5.0	4.7	4.7	5.7	6.0	6.5
PIRANHA	BT	7.0	7.0	6.7	6.7	7.0	7.0	7.3	5.7	6.0	6.0	5.3	6.0	6.3	6.5
PENNCROSS	BT	5.7	5.7	6.3	5.7	5.7	5.7	5.3	4.3	4.7	4.7	4.3	5.0	4.0	5.2
LSD VALUE		1.3	1.4	1.1	1.4	1.1	1.0	1.1	1.2	1.3	1.2	1.1	1.4	1.0	0.8
C.V. (%)		9.3	9.3	8.0	9.7	8.2	7.4	8.0	11.3	11.5	10.7	10.8	11.4	8.8	6.6

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 7C.

PERCENT GREEN COVER AND OTHER RATINGS OF PERENNIAL RYEGRASS CULTIVARS WITH 80% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT ST. PAUL, MN 1/
2023 DATA

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

PERCENT GREEN COVER RATINGS DURING THE DROUGHT PERIOD (JULY-SEPTEMBER) AND RECOVERY PERIOD (SEPTEMBER-OCTOBER)

NAME		7/7	7/10	7/14	7/24	7/31	8/6	8/14	8/21	8/28	9/5	9/11	9/18	9/25	10/2	10/19
MACDONALD	BT	99	99.0	99.0	99.0	99.0	96.3	97.7	97.7	97.7	97.7	96.7	97.7	98.0	98.7	99
PIRANHA	BT	99	99.0	99.0	99.0	99.0	96.0	97.3	97.7	97.7	97.0	96.3	97.0	97.3	97.7	99
007XL	BT	99	99.0	99.0	99.0	99.0	96.0	97.3	97.7	97.7	97.7	97.0	97.0	98.0	98.3	99
KINGDOM	BT	99	99.0	99.0	99.0	99.0	97.0	98.0	98.0	98.3	98.0	97.3	98.0	98.0	99.0	99
777	BT	99	99.0	99.0	99.0	99.0	96.7	97.7	97.7	98.0	97.3	97.0	98.0	98.0	98.3	99
OAKLEY	BT	99	99.0	99.0	98.7	98.7	96.0	97.3	97.0	97.0	96.7	96.3	97.0	97.3	98.3	99
PIPER	BT	99	99.0	99.0	99.0	99.0	96.0	97.0	97.7	97.7	97.3	97.0	97.3	98.0	98.7	99
T-1	BT	99	99.0	99.0	99.0	99.0	96.3	97.7	97.3	97.7	97.3	97.0	97.0	97.3	98.3	99
DLF-AP-3084	BT	99	99.0	99.0	99.0	99.0	95.7	97.3	97.3	97.0	97.3	96.7	97.3	98.3	98.3	99
MUSKET	BT	99	99.0	99.0	99.0	98.7	96.7	98.0	97.3	98.0	96.3	96.7	97.0	95.7	97.7	99
AU VICTORY	BT	99	98.7	98.7	98.7	98.7	96.3	97.3	97.0	97.3	96.7	96.7	96.3	97.7	97.7	99
PENNCROSS	BT	99	98.7	98.0	98.3	97.3	94.0	96.7	95.7	95.7	94.0	93.7	93.3	94.0	95.0	99
LSD VALUE		0	0.6	0.3	0.6	0.5	1.0	1.4	1.1	0.9	1.0	1.3	1.2	1.0	0.8	0
C.V. (%)		0	0.2	0.2	0.3	0.3	0.6	0.6	0.6	0.5	0.6	0.8	0.7	0.6	0.5	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 7C.
(CONT'D)

PERCENT GREEN COVER AND OTHER RATINGS OF PERENNIAL RYEGRASS CULTIVARS WITH 80% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT ST. PAUL, MN 1/
2023 DATA

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

QUALITY RATINGS DURING THE DROUGHT PERIOD (JULY-SEPTEMBER) AND RECOVERY PERIOD (SEPTEMBER-OCTOBER)

NAME		7/17	7/26	7/31	8/7	8/14	8/21	8/29	9/5	9/11	9/18	9/25	10/2	10/17	MEAN
MACDONALD	BT	7.3	8.3	7.7	8.3	8.0	8.3	8.3	7.0	8.0	7.0	7.7	8.0	8.3	7.9
PIRANHA	BT	7.7	7.7	8.3	8.3	8.0	8.3	8.0	6.7	7.3	6.7	6.3	7.0	7.0	7.5
007XL	BT	7.7	7.3	8.0	7.7	7.7	7.7	8.0	6.3	7.0	7.3	6.7	7.7	7.7	7.4
KINGDOM	BT	7.3	7.7	7.7	7.7	8.0	8.0	7.7	6.7	7.0	6.3	6.7	6.7	7.0	7.3
777	BT	7.7	7.7	7.3	7.7	8.0	8.0	7.7	6.7	6.7	6.0	6.7	7.0	7.0	7.2
OAKLEY	BT	7.7	8.0	7.7	7.7	7.3	7.3	7.3	6.3	6.7	7.0	6.3	7.0	7.3	7.2
PIPER	BT	7.0	7.3	7.0	7.0	7.0	7.7	7.7	6.7	7.0	6.7	7.0	7.7	7.7	7.2
T-1	BT	7.3	8.0	7.3	7.7	7.3	7.7	7.7	6.0	6.7	7.7	6.0	7.0	6.7	7.2
DLF-AP-3084	BT	7.3	7.7	7.3	7.3	7.3	7.3	7.0	6.7	6.3	6.3	6.7	7.3	7.3	7.1
MUSKET	BT	8.0	8.0	8.3	8.0	8.0	8.0	8.0	5.0	5.3	5.7	5.7	5.7	5.7	6.9
AU VICTORY	BT	6.7	6.7	7.3	7.3	7.0	7.3	7.3	6.0	6.3	6.0	5.3	6.0	6.0	6.6
PENNCROSS	BT	6.0	6.0	5.7	6.0	6.3	5.7	5.3	4.7	5.0	5.3	4.7	4.3	4.0	5.3
LSD VALUE		0.9	1.1	0.9	0.7	0.9	0.8	0.9	1.5	0.9	2.3	1.2	1.3	1.2	0.6
C.V. (%)		6.7	7.6	6.8	5.8	6.5	6.0	7.3	11.8	8.1	15.0	10.7	11.3	11.0	5.4

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 8A.

PERCENT GREEN COVER AND OTHER RATINGS OF FINELEAF FESCUE CULTIVARS WITH 50% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT ST. PAUL, MN 1/
2023 DATA

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

PERCENT GREEN COVER RATINGS DURING THE DROUGHT PERIOD (JULY-SEPTEMBER) AND RECOVERY PERIOD (SEPTEMBER-OCTOBER)

NAME		7/7	7/10	7/14	7/24	7/31	8/6	8/14	8/21	8/28	9/5	9/11	9/18	9/25	10/2	10/19
PPG FRC 127	FF	99.0	98.7	98.3	98.3	97.7	96.7	98.3	97.7	97.7	94.7	96.0	96.7	97.7	97.7	99.0
COMPASS II	FF	99.0	99.0	98.0	97.3	97.0	95.3	98.0	97.0	97.3	92.7	95.0	95.7	96.7	97.0	99.0
GLADIATOR	FF	98.3	98.0	96.7	96.0	96.3	93.0	96.7	94.3	94.7	87.7	88.7	91.3	94.0	94.3	98.3
NAVIGATOR II	FF	95.3	93.0	93.0	92.3	92.3	92.7	97.3	95.3	95.0	89.7	91.3	91.7	93.0	94.0	98.0
LSD VALUE		0.6	1.0	1.3	2.9	2.2	1.4	1.2	1.4	0.9	4.5	7.8	5.0	3.3	2.7	1.3
C.V. (%)		0.3	0.5	0.7	1.5	1.2	0.7	0.6	0.7	0.5	2.4	3.9	2.5	1.7	1.3	0.6

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 8A.
(CONT'D)

PERCENT GREEN COVER AND OTHER RATINGS OF FINELEAF FESCUE CULTIVARS WITH 50% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT ST. PAUL, MN 1/
2023 DATA

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

QUALITY RATINGS DURING THE DROUGHT PERIOD (JULY-SEPTEMBER) AND RECOVERY PERIOD (SEPTEMBER-OCTOBER)

NAME		7/17	7/26	7/31	8/7	8/14	8/21	8/29	9/5	9/11	9/18	9/25	10/2	10/17	MEAN
PPG FRC 127	FF	6.3	6.3	7.0	6.0	6.3	6.7	6.3	6.0	6.0	6.3	6.0	7.0	7.3	6.4
COMPASS II	FF	5.7	5.7	6.7	5.3	5.7	6.0	5.7	5.3	5.7	5.7	5.3	6.0	6.3	5.8
GLADIATOR	FF	5.3	5.0	6.0	4.7	5.0	5.3	5.0	4.3	4.3	5.0	5.0	5.3	5.7	5.1
NAVIGATOR II	FF	4.7	4.3	5.7	5.0	5.3	5.7	5.0	4.7	4.3	5.0	4.3	5.0	5.3	4.9
LSD VALUE		1.3	1.1	0.9	1.8	1.8	1.8	0.8	1.2	1.0	1.2	2.1	1.2	1.2	1.1
C.V. (%)		10.9	10.4	7.0	15.2	14.3	13.5	6.8	10.9	9.3	10.1	18.0	9.9	9.4	9.4

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 8B.

PERCENT GREEN COVER AND OTHER RATINGS OF FINELEAF FESCUE CULTIVARS WITH 65% OF ETo
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT ST. PAUL, MN 1/
2023 DATA

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

PERCENT GREEN COVER RATINGS DURING THE DROUGHT PERIOD (JULY-SEPTEMBER) AND RECOVERY PERIOD (SEPTEMBER-OCTOBER)

NAME		7/7	7/10	7/14	7/24	7/31	8/6	8/14	8/21	8/28	9/5	9/11	9/18	9/25	10/2	10/19
PPG FRC 127	FF	99.0	99.0	98.0	97.7	97.3	96.3	98.0	97.7	97.7	96.0	97.0	97.0	97.7	97.7	99.0
COMPASS II	FF	99.0	98.7	98.0	97.3	97.0	95.7	98.0	97.0	97.7	95.7	96.7	96.3	97.0	96.7	99.0
GLADIATOR	FF	98.7	98.3	97.7	97.0	97.0	93.7	97.0	95.0	95.3	93.0	94.3	95.0	96.3	96.0	99.0
NAVIGATOR II	FF	95.0	93.3	94.3	93.0	94.0	94.0	98.0	96.0	96.0	92.3	93.0	93.7	95.3	95.0	98.3
LSD VALUE		1.7	1.3	0.7	1.3	1.5	1.6	1.1	1.3	1.1	1.8	1.8	0.7	1.4	2.0	1.3
C.V. (%)		0.9	0.7	0.4	0.7	0.8	0.8	0.5	0.7	0.6	1.0	0.9	0.4	0.7	1.0	0.6

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 8B.
(CONT'D)

PERCENT GREEN COVER AND OTHER RATINGS OF FINELEAF FESCUE CULTIVARS WITH 65% OF ETo
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT ST. PAUL, MN 1/
2023 DATA

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

QUALITY RATINGS DURING THE DROUGHT PERIOD (JULY-SEPTEMBER) AND RECOVERY PERIOD (SEPTEMBER-OCTOBER)

NAME		7/17	7/26	7/31	8/7	8/14	8/21	8/29	9/5	9/11	9/18	9/25	10/2	10/17	MEAN
PPG FRC 127	FF	6.0	5.7	6.3	6.0	6.3	6.7	6.3	5.7	6.3	6.0	6.0	7.0	7.0	6.3
COMPASS II	FF	5.3	5.0	6.0	5.0	5.7	6.3	5.7	5.3	6.0	5.7	5.3	6.0	6.0	5.6
GLADIATOR	FF	5.3	5.7	6.0	5.3	5.7	6.0	5.3	5.0	5.3	5.7	5.7	6.0	6.0	5.6
NAVIGATOR II	FF	5.0	5.0	6.0	5.0	5.7	6.0	6.0	4.7	5.0	5.0	4.3	5.3	5.7	5.3
LSD VALUE		1.7	1.0	1.4	1.1	0.6	1.3	1.6	0.8	1.3	1.0	0.8	1.2	1.4	0.9
C.V. (%)		13.4	8.3	9.5	9.4	4.9	8.8	11.8	7.2	10.6	7.9	7.0	9.5	10.5	7.0

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 8C.

PERCENT GREEN COVER AND OTHER RATINGS OF FINELEAF FESCUE CULTIVARS WITH 80% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT ST. PAUL, MN 1/
2023 DATA

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

PERCENT GREEN COVER RATINGS DURING THE DROUGHT PERIOD (JULY-SEPTEMBER) AND RECOVERY PERIOD (SEPTEMBER-OCTOBER)

NAME		7/7	7/10	7/14	7/24	7/31	8/6	8/14	8/21	8/28	9/5	9/11	9/18	9/25	10/2	10/19
COMPASS II	FF	99.0	98.3	98.3	97.7	97.3	96.3	98.0	97.3	97.3	96.3	97.0	97.0	97.7	98.0	99
PPG FRC 127	FF	98.7	98.7	98.3	97.7	97.3	96.7	98.7	97.3	97.7	96.7	97.7	97.3	98.0	98.3	99
GLADIATOR	FF	98.7	98.3	97.0	96.0	96.7	94.0	97.0	95.3	96.0	94.7	95.7	95.7	96.7	96.7	99
NAVIGATOR II	FF	95.3	94.3	95.0	95.7	95.3	95.0	98.0	96.7	96.7	94.7	95.7	95.7	97.0	96.0	99
LSD VALUE		1.4	1.1	0.9	1.8	1.0	1.7	1.4	1.0	0.8	1.3	1.0	0.7	1.5	0.9	0
C.V. (%)		0.7	0.6	0.5	0.9	0.5	0.8	0.7	0.5	0.4	0.7	0.5	0.4	0.7	0.5	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 8C.
(CONT'D)

PERCENT GREEN COVER AND OTHER RATINGS OF FINELEAF FESCUE CULTIVARS WITH 80% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT ST. PAUL, MN 1/
2023 DATA

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

QUALITY RATINGS DURING THE DROUGHT PERIOD (JULY-SEPTEMBER) AND RECOVERY PERIOD (SEPTEMBER-OCTOBER)

NAME		7/17	7/26	7/31	8/7	8/14	8/21	8/29	9/5	9/11	9/18	9/25	10/2	10/17	MEAN
COMPASS II	FF	6.0	6.0	6.3	6.3	6.7	6.3	6.3	6.0	6.7	6.3	6.3	6.7	6.7	6.4
PPG FRC 127	FF	5.3	5.7	6.7	5.7	6.0	6.7	6.3	5.3	6.7	6.3	6.0	7.3	7.3	6.3
GLADIATOR	FF	5.3	5.7	6.7	5.7	6.0	6.0	6.0	5.3	6.0	6.0	6.7	6.0	6.3	6.0
NAVIGATOR II	FF	5.3	5.3	6.3	5.3	6.0	6.3	6.3	5.7	6.0	6.0	6.0	6.0	6.0	5.9
LSD VALUE		1.5	1.7	1.0	1.3	1.3	1.3	1.2	1.3	1.9	2.0	1.9	1.8	2.1	1.3
C.V. (%)		11.7	13.2	6.8	10.5	9.4	8.7	8.0	9.9	13.2	13.5	12.8	12.3	14.3	9.4

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 9A.

PERCENT GREEN COVER AND OTHER RATINGS OF PERENNIAL RYEGRASS CULTIVARS WITH 50% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT ST. PAUL, MN 1/
2023 DATA

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

PERCENT GREEN COVER RATINGS DURING THE DROUGHT PERIOD (JULY-SEPTEMBER) AND RECOVERY PERIOD (SEPTEMBER-OCTOBER)

NAME		7/7	7/10	7/14	7/24	7/31	8/6	8/14	8/21	8/28	9/5	9/11	9/18	9/25	10/2	10/19
HELIOS	PR	93.0	90.0	89.3	88.0	85.3	88.3	95.0	93.0	91.7	83.0	88.3	91.3	91.7	91.0	93.0
SR 4650	PR	90.7	86.0	85.3	84.7	80.3	85.7	93.7	92.3	89.7	78.0	84.3	89.3	90.7	90.0	92.7
LSD VALUE		1.4	1.1	0.9	1.8	1.0	1.7	1.4	1.0	0.8	1.3	1.0	0.7	1.5	0.9	0.0
C.V. (%)		2.9	2.8	4.3	4.8	5.2	3.8	1.7	0.9	2.1	4.4	3.0	1.6	1.6	1.6	1.8

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 9A.
(CONT'D)

PERCENT GREEN COVER AND OTHER RATINGS OF PERENNIAL RYEGRASS CULTIVARS WITH 50% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT ST. PAUL, MN 1/
2023 DATA

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

QUALITY RATINGS DURING THE DROUGHT PERIOD (JULY-SEPTEMBER) AND RECOVERY PERIOD (SEPTEMBER-OCTOBER)

NAME		7/17	7/26	7/31	8/7	8/14	8/21	8/29	9/5	9/11	9/18	9/25	10/2	10/17	MEAN
HELIOS	PR	5.3	5.0	5.7	5.0	5.0	5.0	5.0	4.0	4.7	4.7	5.0	5.0	5.0	4.9
SR 4650	PR	4.7	4.3	5.0	4.3	5.0	5.0	5.0	3.7	4.0	4.7	4.7	4.7	4.7	4.6
LSD VALUE		1.5	1.7	1.0	1.3	1.3	1.3	1.2	1.3	1.9	2.0	1.9	1.8	2.1	1.3
C.V. (%)		16.3	8.7	7.7	17.5	0.0	0.0	0.0	10.6	9.4	15.2	8.4	8.4	8.4	6.9

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 9B.

PERCENT GREEN COVER AND OTHER RATINGS OF PERENNIAL RYEGRASS CULTIVARS WITH 65% OF ETo
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT ST. PAUL, MN 1/
2023 DATA

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

PERCENT GREEN COVER RATINGS DURING THE DROUGHT PERIOD (JULY-SEPTEMBER) AND RECOVERY PERIOD (SEPTEMBER-OCTOBER)

NAME		7/7	7/10	7/14	7/24	7/31	8/6	8/14	8/21	8/28	9/5	9/11	9/18	9/25	10/2	10/19
HELIOS	PR	88.3	83.3	85.0	85.0	81.0	85.7	93.0	91.7	91.3	86.3	90.7	91.7	92.7	91.0	93.0
SR 4650	PR	88.7	84.0	84.7	83.7	80.7	85.3	93.3	92.3	91.3	86.3	91.0	92.7	94.0	92.3	94.3
LSD VALUE		1.4	1.1	0.9	1.8	1.0	1.7	1.4	1.0	0.8	1.3	1.0	0.7	1.5	0.9	0.0
C.V. (%)		4.7	4.3	3.2	1.3	1.8	1.0	0.4	0.9	0.8	2.5	1.2	0.8	1.2	1.2	1.2

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 9B.
(CONT'D)

PERCENT GREEN COVER AND OTHER RATINGS OF PERENNIAL RYEGRASS CULTIVARS WITH 65% OF ETo
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT ST. PAUL, MN 1/
2023 DATA

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

QUALITY RATINGS DURING THE DROUGHT PERIOD (JULY-SEPTEMBER) AND RECOVERY PERIOD (SEPTEMBER-OCTOBER)

NAME		7/17	7/26	7/31	8/7	8/14	8/21	8/29	9/5	9/11	9/18	9/25	10/2	10/17	MEAN
HELIOS	PR	4.7	4.3	5.0	5.0	4.7	4.7	4.7	4.7	5.0	4.7	5.0	4.7	5.3	4.8
SR 4650	PR	4.7	4.3	5.0	4.3	5.0	5.0	5.0	4.3	5.0	4.3	5.0	5.0	5.3	4.8
LSD VALUE		1.5	1.7	1.0	1.3	1.3	1.3	1.2	1.3	1.9	2.0	1.9	1.8	2.1	1.3
C.V. (%)		0.0	16.3	14.1	8.7	8.4	8.4	8.4	9.1	0.0	9.1	0.0	8.4	0.0	5.9

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 9C.

PERCENT GREEN COVER AND OTHER RATINGS OF PERENNIAL RYEGRASS CULTIVARS WITH 80% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT ST. PAUL, MN 1/
2023 DATA

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

PERCENT GREEN COVER RATINGS DURING THE DROUGHT PERIOD (JULY-SEPTEMBER) AND RECOVERY PERIOD (SEPTEMBER-OCTOBER)

NAME		7/7	7/10	7/14	7/24	7/31	8/6	8/14	8/21	8/28	9/5	9/11	9/18	9/25	10/2	10/19
HELIOS	PR	91.7	87.3	87.0	86.0	82.3	86.7	93.7	93.3	92.3	89.7	92.7	93.0	93.7	92.0	94.0
SR 4650	PR	88.7	84.3	85.0	85.3	82.3	86.3	94.7	93.3	93.0	89.7	92.7	93.0	94.7	92.7	94.3
LSD VALUE		1.4	1.1	0.9	1.8	1.0	1.7	1.4	1.0	0.8	1.3	1.0	0.7	1.5	0.9	0.0
C.V. (%)		0.8	0.8	2.2	1.9	2.3	2.1	0.8	0.0	0.9	1.4	1.3	0.8	0.8	1.2	0.9

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 9C.
(CONT'D)

PERCENT GREEN COVER AND OTHER RATINGS OF PERENNIAL RYEGRASS CULTIVARS WITH 80% OF ETO
IN THE 2022 NATIONAL COOL-SEASON WATER USE/DROUGHT TOLERANCE TEST AT ST. PAUL, MN 1/
2023 DATA

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

QUALITY RATINGS DURING THE DROUGHT PERIOD (JULY-SEPTEMBER) AND RECOVERY PERIOD (SEPTEMBER-OCTOBER)

NAME		7/17	7/26	7/31	8/7	8/14	8/21	8/29	9/5	9/11	9/18	9/25	10/2	10/17	MEAN
HELIOS	PR	5.0	5.0	5.0	4.3	5.0	5.0	5.0	4.7	5.0	5	4.7	4.7	4.7	4.8
SR 4650	PR	4.3	4.3	4.7	4.0	5.0	5.0	4.7	4.7	5.0	5	5.0	4.7	4.7	4.7
LSD VALUE		1.5	1.7	1.0	1.3	1.3	1.3	1.2	1.3	1.9	2	1.9	1.8	2.1	1.3
C.V. (%)		8.7	8.7	8.4	9.8	0.0	0.0	8.4	0.0	0.0	0	8.4	0.0	0.0	2.0

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.