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ON-SITE TESTING OF BENTGRASS AND BERMUDAGRASS CULTIVARS FOR GOLF COURSE PUTTING GREENS

INTRODUCTION

There is growing interest within the golfing industry to develop on-site testing of turfgrass cultivars. This concept is not new, but has not been a common practice in recent years. Therefore, the Golf Course Superintendents Association of America (GCSAA), United States Golf Association Green Section (USGA), and the National Turfgrass Evaluation Program (NTEP) have agreed to revitalize on-site testing of turfgrass cultivars on golf courses, particularly on putting greens. This project conducts evaluations of new bentgrass and bermudagrass cultivars on USGA specification putting greens constructed at golf courses across the country. This on-site testing program is designed to provide scientific information of a more applied nature about putting green turfgrass cultivar performance.

Information from this project is valuable to the golfing industry. These studies will determine the adaptation of grasses for golf course use. In addition, information obtained from on-site testing will be of particular value to plant breeders, researchers, extension educators, USGA agronomists, golf course architects, and superintendents, who need to select the best adapted putting green cultivars for a particular regional climate.

A five-person committee composed of Dr. Jeff Nus, GCSAA Research Director; Dr. Mike Kenna, USGA Research Director; Mr. James Moore, USGA Construction Education Coordinator, Mr. Kevin Morris, NTEP Executive Director; and Dr. Bob Shearman, NTEP Special Projects Coordinator determined the trial site locations and the trial specifics. Input from golf course superintendents, USGA agronomists and turfgrass researchers assisted the committee members' decision making process.

Location & Number of Trial Sites

These cultivar evaluation trials are jointly sponsored and supported by the GCSAA, USGA-Green Section, and NTEP. The USGA funded the construction of USGA specification greens for the trials. Trial sites are located on golf courses near a land grant university with a turfgrass research program or in a major metropolitan area which is readily accessible to a university turfgrass scientist. Sixteen (16) regional evaluation trial sites have been established. Trials are located in: a) northern locations for bentgrasses, b) southern locations for bermudagrass, and c) transition zone locations for both species. Trials are located where golfers practice putting and/or chipping. Host clubs provide daily maintenance of the putting green site at their own expense.

Trial Specifics

The NTEP functions as the coordinating agent for the cultivar trials. These trials are five years in duration. Trials are conducted under mutually agreed upon guidelines, procedures, and funding outlined in a research agreement agreed to and signed by the appropriate representatives of GCSAA, USGA, and NTEP and each research cooperator (i.e. university turfgrass researcher). Trials are conducted at each location under the leadership of the assigned research cooperator. These persons are responsible for establishing and conducting the trial, and collecting and transferring the data to NTEP according to the research agreement.

Trials are maintained by the golf course superintendent at each location using management procedures common to their golf course, the geographical area and in consultation with the research cooperator. No special management practices are prescribed as these trials are intended to receive real-world golf course conditions and stresses.

ON-SITE TESTING (continued)

These trials are conducted principally with commercially available, named cultivars. Experimental lines that will be commercially available in the near future (i.e. before the end of the test cycle) were also included in these trials at the sponsoring company's discretion.

The NTEP administers the program and its funding, sets the advisory committee and gathers their input and recommendations for each species trial. The NTEP organizes and distributes the seed and vegetative materials which constitute the entries for each trial location. The NTEP provides the maintenance and data collection protocols to each site; collects, analyzes and disseminates the performance data in annual and final reports; and conducts an annual site visit for each trial.

For more information or additional copies of reports, please contact:

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National Turfgrass Evaluation Program
Beltsville Agricultural Research Center-West
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Beltsville, Maryland 20705 USA

NTEP reports can also be found on the World Wide Web at <http://www.ntep.org>.

ON-SITE PUTTING GREEN TEST LOCATIONS

Golf Course	Location	Superintendent	Research Cooperator
<i>Bentgrass only</i>			
Crystal Springs Golf Course	Burlingame, California	Ray Davies	Dr. Ali Harivandi, California Cooperative Extension
Fox Hollow at Lakewood	Lakewood, Colorado	Bruce Nelson	Dr. Tony Koski, Colorado State University
Lassing Pointe Golf Course	Florence, Kentucky	Jerry Coldiron	Dr. A. J. Powell, University of Kentucky
North Shore Country Club	Glenview, Illinois	Dan Dinelli	Dr. Tom Voigt, University of Illinois
Purdue University Kampen Course	West Lafayette, Indiana	Jim Scott	Dr. Clark Throssell, Purdue University
Snoqualmie Ridge C. C.	Snoqualmie, Washington	Tom Wolff	Dr. Gwen Stahnke, Washington State University
Westchester Country Club	Rye, New York	Joe Alonzi	Dr. James Murphy, Rutgers University
Westwood Golf Course	Vienna, Virginia	Walter Montross	Dr. David Chalmers, Virginia Tech University
<i>Bentgrass and Bermudagrass</i>			
Bent Tree Country Club	Dallas, Texas	Keith Ihms	Dr. Milt Engelke, Texas A&M University
Country Club of Birmingham	Birmingham, Alabama	Lee McLemore	Dr. Elizabeth Guertal, Auburn University
Country Club of Green Valley	Green Valley, Arizona	Mike Bates	Dr. David Kopec, University of Arizona
The Missouri Bluffs	St. Charles, Missouri	Mike Vogt	Dr. John Dum, University of Missouri
SCGA Members Club	Murrieta, California	John Martinez	Dr. Robert Green, University of California-Riverside
<i>Bermudagrass only</i>			
Country Club of Mobile	Mobile, Alabama	Ron Wright	Dr. Bryan Unruh, University of Florida
Jupiter Island Club	Hobe Sound, Florida	Rob Kloska	Dr. John Cisar, University of Florida
Lakeside Country Club	Houston, Texas	Mike Sandburg	Dr. Richard White, Texas A&M University

USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST

Entries and Sponsors

Entry No.	Name	Sponsor
1	L-93	AgriBioTech, Inc.
2	Putter	Simplot Turf & Horticulture
3	Cato	Pickseed West, Inc.
4	Crenshaw	AgriBioTech, Inc.
5	Grand Prix (LCB-103)	LESCO, Inc.
6	Penncross	Standard entry
7	Backspin	Turf Merchants, Inc.
8	Trueline	Turf Merchants, Inc.
9	Providence	Seed Research of Oregon
10	SR 1020	Seed Research of Oregon
11	SR 1119	Seed Research of Oregon
12	Viper	Cebeco International Seeds, Inc.
13	Century	AgriBioTech, Inc.
14	Imperial	AgriBioTech, Inc.
15	Penn A-1	Tee-2-Green Corp.
16	Penn A-4	Tee-2-Green Corp.
17	Penn G-6	Tee-2-Green Corp.
18	Penn G-1	Tee-2-Green Corp.

TABLE 1A. 1999 MANAGEMENT - ON-SITE BENTGRASS TEST AT BIRMINGHAM, AL (COUNTRY CLUB OF BIRMINGHAM)

ESTABLISHMENT		FERTILIZATION			HERBICIDES		
Seeding date	16-Sep-97	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M) (1000 sq.ft.)
Problems during	None						
		Foliar appl. weekly, Feb. - Nov	20-5-20 ProSol	1/8-1/32 lb N/1000 sq.ft (4 lbs N/year)	March, May, late July, and Sept.	Pre-San	2 lbs. product
FACTORS OF PLAY		Granular application - Feb.	26-0-22 (Nutralene + KNO3)	0.5 lb. N			
		Granular application - March	26-0-22 (Nutralene + KNO3)	0.5 lb. N			
Date opened for play	Dec. 1997	Granular application - April	HHI natural organic + nutralene	0.7 lb. N			
Date closed for play		Granular application - Sept.	26-0-22 (Nutralene + KNO3)	0.5 lb. N			
Type of spikes allowed	softspikes	Granular application - April	HHI natural organic + nutralene	0.6 lb. N			
Uses of green	chipping						
MOWING		FUNGICIDES			INSECTICIDES		
Initial height	0.25"				Date(s)	Product	Rate (oz./M)
Current height	0.135 -0.155"						
Frequency	6-7 days/week	Date(s)	Product	Rate (oz./M) (1000 sq.ft.)	as needed for cutworms early May	Talstar Nemacur	1 lb./100 sq.ft. 2.3 lbs./1000 sq.ft.
Type of mower	walking						
Rollers used	As needed (2-4x/week)						
Groomers used	6-7x/week Oct-June	Fungicides applications are made from Feb. to early Dec. depending on weather conditions. Big problem with pythium so Alliette, Banol, Subdue, and Heritage are rotated and sprayed on a two weeks schedule in May-Nov.	Alliette Banol Subdue Maxx Dithane Daconil Ultrex Heritage Consyst Terrazole	4 2 1 4 4-8 oz. 0.4 4 6			
CULTIVATION					OTHER PRODUCTS		
					Date(s)	Product	Rate (oz./M)
Aerification - dates	5/8" hollow - Mar. & Sept., 1/2" hollow - May, 1/4" quad hollow - July & Aug				weekly as needed weekly as needed 6-May-98 10-Jun-98	Astron Perkup Primo Primo	1 3 8 oz./Acre 8 oz./Acre
Aerification - type	Hydroject - bi-weekly From Feb. to Nov.						
Verticutting		Heavy=1.25" deep w/ graden - April. Light verticut per month from Feb. to May.			NOTES/COMMENTS		
					This green gets pounded with ballmarks.		
Dates of topdressing	Heavy to fill holes after aerifications - Mar. May & Sep. Very Lightly bi-weekly Feb-Nov.						
Other cultural practices		Rolled heavy after aerifications					

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TABLE 1B.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS IN THE
 1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
 AT BIRMINGHAM, AL (COUNTRY CLUB OF BIRMINGHAM) 1/
 1999 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
 TURFGRASS STIMPMETER READINGS MEASURED IN INCHES

NAME	GENETIC	COLOR	COLOR	COLOR	COLOR	STIMPMETER	QUALITY RATINGS												
	COLOR	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	READINGS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
PENN A-1	6.0	6.7	5.7	7.3	6.7	103.7	6.7	8.3	8.0	7.0	7.7	7.0	7.0	6.3	6.3	6.0	7.0	7.3	7.1
PENN A-4	5.7	6.3	7.0	8.0	6.3	107.3	6.3	8.0	8.0	6.3	6.3	7.0	7.0	6.3	7.0	7.0	7.3	7.7	7.0
GRAND PRIX (LCB-103)	4.7	6.0	6.3	7.7	6.0	104.7	7.7	8.0	8.0	7.3	7.0	6.7	6.3	5.3	6.0	6.0	7.0	6.0	6.8
PENN G-1	5.7	6.3	7.0	7.0	6.7	104.0	5.7	7.7	7.7	7.0	6.7	7.0	6.0	6.0	6.7	6.7	7.0	6.7	6.7
IMPERIAL	5.3	4.3	5.3	7.0	6.3	104.0	7.3	8.0	7.3	7.3	6.3	6.7	6.3	5.7	5.3	5.3	7.0	6.3	6.6
CRENSHAW	7.3	5.7	6.3	7.3	8.0	105.7	5.7	8.0	7.7	6.0	7.0	6.0	6.0	5.7	6.3	6.3	7.0	6.7	6.5
SR 1020	5.7	6.3	6.0	7.0	6.7	103.0	6.0	7.7	8.0	6.3	6.3	6.0	6.3	5.7	6.3	6.0	7.0	6.7	6.5
BACKSPIN	5.0	4.3	5.3	6.7	6.0	102.3	6.3	7.3	6.7	6.3	6.0	6.3	6.0	6.0	5.3	5.0	7.0	6.7	6.3
CENTURY	4.7	5.0	5.3	6.7	6.0	103.7	5.3	8.0	7.3	5.7	5.7	6.7	6.7	5.0	5.7	6.0	7.0	6.7	6.3
L-93	5.3	5.7	6.7	6.7	7.0	104.0	5.7	7.3	7.3	5.7	5.7	5.7	6.0	6.0	5.7	5.7	7.0	6.0	6.1
PENN G-6	6.3	5.3	6.3	7.0	6.7	104.0	4.7	7.3	7.3	5.7	6.0	6.0	6.0	5.0	6.0	6.0	7.3	6.0	6.1
PROVIDENCE	6.0	5.7	6.3	7.0	7.0	101.0	5.3	7.0	7.7	5.7	6.3	6.0	5.7	5.0	5.7	5.7	7.0	6.0	6.1
SR 1119	7.0	6.3	6.7	7.0	8.0	105.7	5.3	7.3	7.3	5.7	6.3	6.7	5.3	5.0	5.3	5.3	7.0	6.0	6.1
PUTTER	5.3	5.3	6.0	6.3	6.3	103.0	5.7	7.3	7.7	6.0	5.7	5.0	5.7	4.7	5.3	5.3	6.7	6.3	5.9
TRUELINE	6.3	5.7	5.7	6.3	6.3	98.7	4.7	7.0	7.3	5.3	6.0	6.0	5.3	4.7	6.0	5.7	7.0	6.0	5.9
VIPER	7.0	6.0	6.3	6.7	7.0	102.7	5.3	7.0	7.3	5.7	6.0	5.7	6.0	4.3	5.7	5.3	6.7	6.0	5.9
PENNCROSS	5.0	3.7	5.3	6.0	5.3	103.3	4.7	7.3	7.0	5.5	4.7	4.7	4.0	3.0	5.0	4.0	7.0	5.3	5.2
CATO	6.3	5.3	6.3	6.3	7.3	102.3	2.7	6.3	6.7	4.0	4.3	4.7	4.7	3.0	5.3	5.0	6.7	5.7	4.9
LSD VALUE	1.9	1.0	1.3	0.9	1.2	-	1.5	0.9	1.3	1.5	1.3	0.7	0.9	0.8	1.5	1.7	0.9	1.3	0.5
C.V. (%)	15.7	10.5	10.2	7.1	9.9	4.5	15.5	6.4	7.3	13.3	12.1	7.6	8.9	10.2	11.6	14.0	4.5	10.1	4.8

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. 1999 MANAGEMENT - ON-SITE BENTGRASS TEST AT GREEN VALLEY, AZ (COUNTRY CLUB OF GREEN VALLEY)

ESTABLISHMENT		FERTILIZATION			HERBICIDES		
Seeding date	October 1997	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during	one plot washed out-replanted	March	16-4-8	0.65 lbs. N			
		April	15-15-15	0.5 lbs. N			
FACTORS OF PLAY		May	21-7-14	1.5 lbs.			
		May	14-0-8	0.25 lbs.			
Date opened for play	Open all year	September	34-0-0	0.25 lbs.			
Date closed for play		October	15-5-8	0.90 lbs.			
Type of spikes allowed	softspikes						
Uses of green	Practice putting						
MOWING					INSECTICIDES		
Initial height	5/32"				Date(s)	Product	Rate (oz./M)
Current height	5/32"						
Frequency	6X/week				March	Dursban	
Type of mower	22" walker						
Rollers used	Wheilie rollers						
Groomers used							
CULTIVATION					OTHER PRODUCTS		
Aerification - dates	Apr., May, Oct., Nov.	FUNGICIDES					
Aerification - type	solid tines				Date(s)	Product	Rate (oz./M)
Verticutting	Mar., May, Jun., Nov.	Date(s)	Product	Rate (oz./M)			
Dates of topdressing	Apr., May, Oct., Nov. (following aerification), plus, light topdressing after each verticutting	March	Heritage	1x label rate	6-8 times/year	Panasea	1x label rate
		April	Heritage	1x label rate			
					NOTES/COMMENTS		
Other cultural practices	rolled to promote smoothness after May topdressing.						

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TABLE 2B.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS IN THE
1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
AT GREEN VALLEY, AZ (COUNTRY CLUB OF GREEN VALLEY) 1/
1999 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
TURFGRASS STIMPMETER READINGS MEASURED IN INCHES

N A M E	G	G	T	D	D	<u>PERCENT LIVING</u>			<u>STIMPMETER READINGS</u>				<u>QUALITY RATINGS</u>								
	E	R	E	ES	ES	<u>GROUND COVER</u>															
	NC	E	X	NP	NU	SPR	SUM	FALL	JAN	MAR	MAY	AUG	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	MEAN
PENN A-4	6.0	6.0	8.3	8.0	8.3	99	99	81.7	73.0	78.3	82.3	90.3	7.0	7.7	8.0	7.0	6.0	8.3	6.0	4.3	6.8
IMPERIAL	5.0	6.0	7.7	7.7	7.7	99	99	92.3	75.7	78.7	80.0	84.0	7.0	7.3	7.0	6.0	5.0	7.7	5.7	4.0	6.2
PENN A-1	6.0	6.0	7.3	7.0	7.3	99	99	68.3	71.3	75.3	81.7	91.0	6.3	6.7	6.7	5.7	5.3	7.7	6.3	4.3	6.1
CENTURY	4.7	5.0	8.3	7.0	8.0	99	99	58.3	81.3	81.7	85.7	92.0	8.0	6.0	6.7	5.7	5.0	7.3	5.7	4.0	6.0
GRAND PRIX (LCB-103)	5.3	5.3	7.0	7.3	7.3	99	99	93.0	71.3	73.3	79.3	88.7	7.3	6.7	6.7	5.7	4.7	7.0	5.3	3.7	5.9
L-93	6.7	7.0	6.7	7.3	7.0	99	99	76.7	77.0	76.0	82.3	88.3	7.3	6.3	6.7	5.7	4.7	7.0	5.3	4.0	5.9
PENN G-1	6.0	6.0	7.0	7.0	7.7	99	99	91.7	72.7	73.7	80.3	87.7	6.7	6.0	6.3	5.3	5.0	7.3	6.3	4.3	5.9
BACKSPIN	5.7	6.0	7.3	7.0	7.3	99	99	80.0	69.0	75.0	78.7	81.0	6.7	6.0	6.7	5.7	5.0	7.3	5.0	3.7	5.8
PENN G-6	6.0	6.0	6.7	7.0	7.3	99	99	75.0	74.7	80.7	89.3	91.0	6.3	6.7	6.7	5.3	4.7	6.7	5.7	4.0	5.8
PROVIDENCE	6.0	6.0	6.0	7.3	7.0	99	99	85.0	70.3	76.3	82.7	83.0	7.0	6.0	6.7	5.3	4.7	6.7	5.7	4.0	5.8
SR 1119	6.7	7.0	7.7	7.0	7.0	99	99	74.7	71.0	74.0	80.3	78.0	5.7	6.0	7.0	6.0	5.3	7.7	5.0	4.0	5.8
SR 1020	6.0	6.0	7.7	7.7	7.3	99	99	73.3	79.3	83.3	86.7	91.3	7.7	7.0	7.0	5.3	4.3	6.3	4.0	3.0	5.6
CRENSHAW	7.0	7.0	6.7	6.0	6.7	99	99	87.3	70.3	75.3	83.0	84.0	5.3	6.0	6.0	5.0	4.3	6.3	5.7	4.0	5.3
TRUELINE	6.7	6.0	6.3	6.3	6.3	99	99	96.3	70.7	77.3	81.7	87.0	5.7	6.0	6.3	5.0	4.3	6.7	4.7	3.7	5.3
CATO	6.0	6.0	7.0	6.3	6.3	99	99	86.7	76.3	82.3	92.7	94.0	5.3	6.0	6.0	4.7	4.3	6.3	5.0	4.0	5.2
VIPER	7.3	6.7	6.7	6.3	6.3	99	99	88.0	72.0	80.3	81.3	87.0	5.7	6.0	6.7	5.3	4.3	6.3	4.0	3.0	5.2
PENNCROSS	4.7	5.7	5.3	7.0	5.3	99	99	96.7	63.7	67.3	78.3	81.7	7.3	5.7	5.0	4.0	3.3	5.3	3.3	2.7	4.6
PUTTER	5.3	5.7	6.0	6.3	5.7	99	99	84.7	67.3	66.3	85.7	80.7	6.0	5.0	5.3	4.0	3.3	5.0	4.3	3.0	4.5
LSD VALUE	0.6	0.4	0.9	1.4	0.7	-	-	41.7	11.1	10.4	20.5	17.7	2.0	1.1	1.0	1.0	0.9	1.6	1.7	1.2	0.5
C.V. (%)	6.9	4.5	7.9	9.3	6.6	0	0	19.0	7.1	6.8	8.2	7.9	14.4	9.6	8.8	10.6	11.0	12.4	17.1	15.6	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 3A. 1999 MANAGEMENT - ON-SITE BENTGRASS TEST AT BURLINGAME, CA (CRYSTAL SPRINGS GOLF COURSE)

ESTABLISHMENT		FERTILIZATION			HERBICIDES		
Seeding date	25-Sep-97	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during	None						
		20-Feb-99	Seasource 16-4-8	4.8	23-Dec-99	Riverdale	0.66 fl.oz./M
		12-Mar-99	Floratine NOW 18-0-3	6 fl. oz.		Triplet	
FACTORS OF PLAY		30-Mar-99	Floratine NOW 18-0-3	6 fl. oz.		/2,4-D,	
		10-May-99	Milorganite 6-2-0	7.5		MCPP,	
Date opened for play	Open all year	28-Jun-99	Seasource 16-4-8	4.8		Dicamba	
Date closed for play		12-Aug-99	Milorganite 6-2-0	7.0			
Type of spikes allowed	Softspikes encouraged	6-Sep-99	Milorganite 6-2-0	7.5			
Uses of green	putting, chipping (77,700 rounds/year)	19-Oct-99	Milorganite 6-2-0	8.4	INSECTICIDES		
		9-Nov-99	Seasource 16-4-8	5.5			
		29-Nov-99	Milorganite 6-2-0	6.5	Date(s)	Product	Rate (oz./M)
		23-Dec-99	Floratine NOW 18-0-3	4 fl. oz.			
MOWING					None		
Initial height	1/4"				OTHER PRODUCTS		
Current height	5/32"						
Frequency	3 times/week						
Type of mower	walking	FUNGICIDES			Date(s)	Product	Rate (oz./M)
Rollers used							
Groomers used		Date(s)	Product	Rate (oz./M)	None		
		11-Sep-99	Heritage/Azoxystrobin	0.4			
CULTIVATION		18-Oct-99	Heritage/Azoxystrobin	0.4			
		11/9/1999 0:00			NOTES/COMMENTS		
Aerification - dates	Oct.15,20,25, Dec.20,30,						
		29-Nov-99	Cleary's 3336G /Tiophanate Methyl	3 lbs./1000sq.ft.			
Aerification - type	Toro Spiker 1/4" hollow tines-Nov.		Scotts Fungi. X/Iprodione	4.1 lbs./1000sq.ft.			
Verticutting	None						
Dates of topdressing	Nov.11 - Sand						
Other cultural practices	None						

Product and company names mentioned herein may be trademarks and/or registered trademarks of their respective owners

TABLE 3B.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS IN THE
1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
AT BURLINGAME, CA (CRYSTAL SPRINGS G.C.) 1/
1999 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
TURFGRASS STIMPMETER READINGS MEASURED IN INCHES

NAME	GENETIC COLOR	LEAF TEXTURE	STIMPMETER READINGS		QUALITY RATINGS												MEAN
			AUGUST	NOVEMBER	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
GRAND PRIX (LCB-103)	6.0	8.0	98.7	106.0	7.3	7.3	8.0	7.7	6.3	8.0	7.7	7.3	7.7	8.0	7.7	6.7	7.5
PENN A-4	5.3	7.7	104.0	105.3	7.3	8.3	8.3	8.0	6.3	8.7	7.7	6.7	7.3	7.0	7.3	6.7	7.5
L-93	6.3	8.0	89.3	96.0	7.3	7.0	7.3	7.3	6.7	8.7	8.0	7.0	7.3	8.0	7.0	7.0	7.4
PENN A-1	6.3	7.3	100.7	108.0	7.3	7.0	8.0	7.3	6.7	8.3	7.7	7.0	7.0	6.3	6.7	7.3	7.2
PENN G-1	5.7	7.3	94.7	106.7	7.7	7.0	7.7	7.0	6.3	8.0	8.3	7.0	7.0	6.3	6.3	6.3	7.1
PENN G-6	5.7	7.7	97.3	112.0	7.3	7.0	7.3	7.0	6.7	8.0	7.0	7.0	7.7	7.0	7.0	6.7	7.1
BACKSPIN	5.0	8.0	95.3	98.7	7.0	7.0	8.0	7.3	6.7	7.7	6.7	6.7	7.0	7.0	7.0	6.3	7.0
CRENSHAW	5.3	7.3	95.3	115.7	7.0	7.0	6.7	7.3	6.3	8.7	6.7	7.3	7.3	6.7	7.0	6.3	7.0
SR 1020	6.3	7.7	97.3	101.3	7.3	7.0	7.3	7.7	6.3	8.0	7.0	6.7	7.0	6.3	7.0	6.7	7.0
IMPERIAL	5.7	7.7	96.7	99.3	7.3	7.3	7.7	8.0	6.0	7.3	6.3	6.0	5.0	6.7	8.3	7.0	6.9
SR 1119	5.3	7.7	96.7	111.3	7.0	7.0	7.0	7.3	6.3	8.0	7.7	6.7	7.0	5.7	6.7	6.0	6.9
PROVIDENCE	6.7	8.0	100.0	109.3	7.3	7.0	7.3	7.3	6.3	7.0	7.3	5.3	6.3	5.7	6.3	6.7	6.7
VIPER	5.3	7.7	103.3	102.0	7.0	7.0	7.7	7.3	5.7	7.7	7.0	6.3	6.7	5.7	6.7	6.0	6.7
CENTURY	5.0	7.7	101.3	104.7	7.0	7.0	7.0	6.7	6.3	7.0	6.3	6.0	5.7	6.3	6.3	7.0	6.6
PUTTER	5.7	8.0	99.3	103.3	7.0	7.0	8.0	7.3	5.7	6.3	6.3	5.3	6.3	5.7	6.7	6.7	6.5
TRUELINE	5.7	8.3	94.0	109.3	7.0	6.7	8.0	7.0	6.0	7.0	6.0	6.3	6.0	5.3	6.7	6.0	6.5
CATO	6.0	8.0	98.7	106.0	6.0	6.0	7.3	7.0	6.3	7.0	6.7	6.3	5.0	5.0	5.7	6.3	6.2
PENNCROSS	4.3	6.3	98.7	108.0	5.3	5.0	6.7	6.0	6.7	5.7	5.7	5.3	5.0	5.3	6.0	5.5	5.7
LSD VALUE	-	1.0	17.9	16.1	1.3	1.4	2.2	1.1	-	1.7	1.4	2.2	1.8	1.7	2.2	-	0.8
C.V. (%)	19.6	6.3	6.2	6.4	9.0	10.2	10.6	7.2	9.3	11.4	10.5	13.8	14.3	13.6	13.3	12.7	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 4A. 1999 MANAGEMENT - ON-SITE BENTGRASS TEST AT MURRIETA, CA (SCGA MEMBERS CLUB)

ESTABLISHMENT		FUNGICIDES			HERBICIDES		
Seeding date	Sept. 1997	Date(s)	Product	Rate (oz./M)	Date(s)	Product	Rate (oz./M)
Problems during	None	26-Jan	Chipco 26 (GT Flo)	8	None		
		2-Apr	Chipco 26 (GT Flo)	4			
FACTORS OF PLAY		21-Jun	Subdue (F)	2			
			Fore (WP)	8	INSECTICIDES		
Date opened for play	May 1998						
Date closed for play	not closed	5-Aug	Alliette	4	Date(s)	Product	Rate (oz./M)
Type of spikes allowed	metal,softspikes		Fore (WP)	8			
Uses of green	putting, chipping, bunker shots	7-Sep	Daconil 2787	5	12-Jul	Merit (75 WSP)	0.19
MOWING		14-Sep	Alliette	4	OTHER PRODUCTS		
			Fore (WP)	8			
Initial height	1/4"				Date(s)	Product	Rate (oz./M)
Current height	3/25"						
Frequency	7 days/week				None		
Type of mower	triplex						
Rollers used	Jacobsen Greensking V -						
Groomers used	triplex attachments for groomers and rollers						
CULTIVATION		NOTES/COMMENTS					
		Very high traffic practice green!					
Aerification - dates	3/15 - 1/4" hollow tine,						
Aerification - type	9/16 - 5/8" hollow tine, followed by topdressing (USGA spec.)	-Continued difficulty controlling Poa annua invasion due to the fact that existing golf course greens and fairways are predominantly Poa annua. Due to budget constraints, we were unable have a separate dedicated mower for the trial, however we made our best effort to rinse reels before mowing the trial green.					
Verticutting	monthly on Mar., Apr., May, Jun., Sept., Oct.	-We also hand picked Poa annua and made a one time spot application of "Round-up" with a tube spot applicator.					
Dates of topdressing	light to moderate - monthly on Apr., May, Jun., Jul., Sept., Oct., Nov.	-Penn A-4 is very resistant to Poa annua invasion so far.					
Other cultural practices	rolled and brushed for tournament dates	-Green is irrigated to prevent stress -Green is flushed monthly w/ 6" of water due to high sodium levels					

Product and company names mentioned herein may be trademarks and/or registered trademarks of their respective owners

TABLE 4A. (CONT'D) 1999 MANAGEMENT - ON-SITE BENTGRASS TEST AT MURRIETA, CA (SCGA MEMBERS CLUB)

FERTILIZATION			FERTILIZATION			FERTILIZATION		
Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (lbs./M)
11-Jan	Turf Partners 7-0-0	0.02 lbs. N	8-Apr	Turf Partners 1-0-0-8Ca		7-Sep	Turf Partners 1-0-23	0.07 lbs. K
	Turf Partners 1-0-23	0.07 lbs. K		Turf Partners 1-0-23	0.07 lbs. K		K-Power 13.75-0-46	0.13 lbs. K
	Turf Partners - Eco-Mag			Nutriculture 28-8-18	0.08 lbs. N		Sequestar - 13% Fe	
	Turf Partners 7-32-6	0.10 lbs. P		Nutriculture 24-0-0	0.07 lbs. N	14-Sep	Turf Partners 1-0-0-8Ca	
	Crown Tech. (FeSO4)		12-Apr	Best 18-3-18 (Polyon)	0.50 lbs. N		Turf Partners 1-0-23	0.07 lbs. K
16-Jan	Nutriculture 28-8-18	0.08 lbs. N	23-Apr	Nutriculture 28-8-18	0.08 lbs. N		Nutriculture 24-0-0	0.07 lbs. N
	Turf Partners 1-0-23	0.07 lbs. K		Turf Partners - Eco-Mag		20-Sep	Best 10-4-16	0.35 lbs. N
	Turf Partners 7-0-0	0.02 lbs. N		Crown Tech. (FeSO4)		4-Oct	Best 10-4-16	0.26 lbs. N
	Crown Tech. (FeSO4)			Turf Partners (Gypsum)		25-Oct	Turf Partners 1-0-23	0.10 lbs. K
	Turf Partners 7-32-6	0.10 lbs. P	28-Apr	Nutriculture 28-8-18	0.08 lbs. N		Nutriculture 28-8-18	0.08 lbs. N
26-Jan	Turf Partners 1-0-23	0.07 lbs. K		Turf Partners 1-0-23	0.07 lbs. K	9-Nov	K-Power 13.75-0-46	0.13 lbs. K
	Turf Partners 7-32-6	0.10 lbs. P		Turf Partners - Eco-Mag			Turf Partners 1-0-0-8Ca	
	Turf Partners 7-0-0	0.02 lbs. N		promot			Turf Partners 1-0-23	0.07 lbs. K
2-Feb	Best 10-4-16	1.02 lbs. N		Crown Tech. (FeSO4)			Crown Tech. (FeSO4)	
9-Feb	True Green 12-0-1	0.04 lbs. N	3-May	Nutriculture 24-0-0	0.07 lbs. N	11-Nov	Turf Partners 1-0-0-8Ca	
	Turf Partners 7-0-0	0.02 lbs. N		Crown Tech. (FeSO4)			Turf Partners 1-0-23	0.14 lbs. K
	Turf Partners - Eco-Mag		4-May	Best 18-3-18 (Polyon)	0.53 lbs. N		K-Power 13.75-0-46	0.13 lbs. K
	Crown Tech. (FeSO4)		10-May	Nutriculture 28-8-18	0.08 lbs. N		Nutriculture 20-20-20	0.06 lbs. N
17-Feb	Best 10-4-16	0.50 lbs. N		Crown Tech. (FeSO4)			Crown Tech. (FeSO4)	
22-Feb	Best 10-4-16	0.43 lbs. N		Turf Partners 1-0-23	0.04 lbs. K	29-Nov	Turf Partners 1-0-23	0.07 lbs. K
1-Mar	Nutriculture 28-8-18	0.08 lbs. N		Turf Partners - Eco-Mag			Turf Partners 1-0-0-8Ca	
	Turf Partners 1-0-23	0.07 lbs. K	21-May	Nutriculture 20-20-20	0.06 lbs. N		Nutriculture 28-8-18	0.08 lbs. N
	Turf Partners 1-0-0-8Ca			Turf Partners 1-0-23	0.04 lbs. K	2-Dec	Lebenon S.G. 20-0-20	0.46 lbs. N
	Turf Partners 7-32-6	0.10 lbs. P		Crown Tech. (FeSO4)		7-Dec	K-Power 13.75-0-46	0.13 lbs. K
	Turf Partners - Eco-Mag		27-May	Nutriculture 28-8-18	0.08 lbs. N		Turf Partners 1-0-23	0.07 lbs. K
	Crown Tech. (FeSO4)			Crown Tech. (FeSO4)			Turf Partners 1-0-0-8Ca	
4-Mar	Nutriculture 13-0-44	0.13 lbs. K	31-May	Nutriculture 28-8-18	0.08 lbs. N	8-Dec	Lebenon S.G. 20-0-20	0.63 lbs. N
	Nutriculture 20-20-20	0.06 lbs. N		Nutriculture 24-0-0	0.07 lbs. N	9-Dec	Turf Partners 1-0-0-8Ca	
	Turf Partners 1-0-0-8Ca		10-Jun	Nutriculture 24-0-0	0.07 lbs. N		Bio-Flora 8-0-0-8Ca	0.02 lbs. N
	Crown Tech. (FeSO4)			Turf Partners 1-0-23	0.14 lbs. K		Nutriculture 28-8-18	0.08 lbs. N
12-Mar	Turf Partners 1-0-23	0.07 lbs. K		Turf Partners 8% chelated Fe		14-Dec	Best 10-4-16	0.46 lbs. N
	Turf Partners 7-32-6	0.10 lbs. P	21-Jun	Turf Partners 1-0-23	0.07 lbs. K	20-Dec	Nutriculture 28-8-18	0.08 lbs. N
	Turf Partners 7-0-0	0.02 lbs. N		Nutriculture 24-0-0	0.07 lbs. N		Turf Partners 1-0-0-8Ca	
19-Mar	Nutriculture 20-20-20	0.06 lbs. N	22-Jun	Pursell 0-0-46	2.6 lbs. K		Turf Partners 1-0-23	0.07 lbs. K
	Nutriculture 13-0-44	0.13 lbs. K	25-Jun	Turf Partners (Gypsum)			Crown Tech. (FeSO4)	
	Turf Partners - Eco-Mag		6-Jul	Turf Partners 1-0-23	0.07 lbs. K	28-Dec	Turf Partners 1-0-23	0.07 lbs. K
	Crown Tech. (FeSO4)			Nutriculture 24-0-0	0.07 lbs. N		Turf Partners 1-0-0-8Ca	
29-Mar	Nutriculture 28-8-18	0.08 lbs. N	21-Jul	Pac. Ag. & Turf 0-0-25	0.08 lbs. K		Nutriculture 28-8-18	0.08 lbs. N
	Turf Partners 1-0-23	0.07 lbs. K		Nutriculture 24-0-0	0.10 lbs. N		Crown Tech. (FeSO4)	
	Turf Partners 7-32-6	0.10 lbs. P	16-Aug	Pac. Ag. & Turf 0-0-25	0.08 lbs. K			
	Crown Tech. (FeSO4)			Nutriculture 24-0-0	0.07 lbs. N			
2-Apr	Nutriculture 20-20-20	0.06 lbs. N	19-Aug	Turf Partners 1-0-23	0.07 lbs. K		TOTAL - 1999	8.34 lbs. N
	Nutriculture 24-0-0	0.07 lbs. N		Nutriculture 28-8-18	0.08 lbs. N			2.84 lbs. P
5-Apr	Best 10-4-16	0.50 lbs. N		Sequestar - 13% Fe				14.18 lbs. K

Product and company names mentioned herein may be trademarks and/or registered trademarks of their respective owners

TABLE 4B.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS IN THE
 1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
 AT MURRIETA, CA (SCGA MEMBERS CLUB) 1/
 1999 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
 TURFGRASS STIMPMETER READINGS MEASURED IN INCHES

NAME	GENETIC COLOR	LEAF TEXTURE	STIMPMETER READINGS			QUALITY RATINGS							MEAN	
			SEPTEMBER	OCTOBER	DECEMBER	FEB	MAR	APR	JUN	JUL	OCT	NOV		DEC
PENN A-4	7.7	8.0	107.0	106.7	112.0	7.3	7.7	8.0	7.7	8.0	7.3	8.0	8.0	7.8
PENN A-1	7.7	7.7	108.0	105.7	112.7	7.0	7.0	7.3	7.0	7.0	7.0	7.7	7.7	7.2
CENTURY	6.3	7.0	107.3	106.3	108.7	7.0	7.0	7.7	7.0	7.3	7.0	7.0	7.0	7.1
GRAND PRIX (ICB-103)	7.0	7.0	100.7	102.0	110.0	7.0	6.7	7.0	7.0	7.0	6.7	7.0	7.3	7.0
PENN G-1	7.3	7.0	108.7	108.0	112.3	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
PENN G-6	7.3	7.0	102.7	103.7	115.0	7.0	7.0	7.0	7.0	7.3	7.0	7.0	7.0	7.0
IMPERIAL	7.0	6.3	105.3	106.3	116.3	7.0	7.0	6.7	7.0	7.0	6.3	7.0	7.0	6.9
L-93	6.7	6.3	108.0	108.7	117.7	7.0	7.0	7.0	7.0	7.0	6.7	6.7	7.0	6.9
BACKSPIN	7.0	6.3	103.7	102.0	116.0	6.7	7.0	7.0	7.0	7.0	6.3	6.7	7.0	6.8
SR 1119	7.0	6.3	105.3	107.3	116.7	7.0	6.7	7.0	7.0	7.0	6.3	6.3	7.0	6.8
CRENSHAW	7.0	6.3	111.3	111.7	119.7	6.3	6.7	6.7	6.7	7.0	6.0	7.0	7.0	6.7
CATO	6.0	6.7	111.0	112.0	123.3	6.3	7.0	6.7	7.0	6.7	6.0	6.3	7.0	6.6
PROVIDENCE	7.0	6.0	110.3	108.3	114.7	6.3	7.0	6.7	6.7	7.0	6.0	6.0	7.0	6.6
SR 1020	6.0	7.0	109.3	108.7	118.0	6.7	6.7	7.0	6.3	6.7	6.0	6.3	7.0	6.6
TRUELINE	7.0	6.0	107.3	109.0	114.0	6.7	6.7	6.3	6.3	7.0	6.0	7.0	7.0	6.6
VIPER	6.3	6.0	109.3	108.0	123.0	6.7	6.7	6.0	6.3	6.3	6.0	6.0	7.0	6.4
PUTTER	6.0	6.0	105.3	105.7	114.0	6.3	6.3	6.0	6.0	6.3	6.0	6.0	7.0	6.3
PENNCROSS	6.0	6.0	103.3	106.0	114.7	6.0	6.3	6.0	6.0	6.0	6.0	5.7	6.0	6.0
LSD VALUE	0.7	0.6	-	-	16.8	0.8	0.8	0.6	0.5	0.5	0.6	0.6	0.3	0.2
C.V. (%)	6.3	5.4	7.0	6.4	5.3	5.7	5.3	5.2	4.8	4.6	5.2	5.2	2.7	2.1

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 5A. 1999 MANAGEMENT - ON-SITE BENTGRASS TEST AT LAKEWOOD, CO (FOX HOLLOW AT LAKEWOOD)

ESTABLISHMENT	FERTILIZATION			FERTILIZATION			
	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (lbs./M)	
Seeding date	4-Sep-97						
Problems during	None						
FACTORS OF PLAY	16-Mar	Scotts Contec 17-3-17	0.560 lb.N	Sept. 29	Perk Up, Potassium Nitrate, Tiger Turf,	0.36 lb.N, 0.04 lb.P,	
	21-Apr	Scotts Contec 17-3-17	0.440 lb. N		Equalize, Astron,	0.93 lb.K,	
	12-May	Scotts Contec 17-3-17	0.520 lb. N		Renaissance, and Ca,		
	Aug. 26	Scotts Contec 17-3-17	0.380 lb. N		Calphlex, Maxi-Plex,	Mg, S, Fe	
Date opened for play	1-Jul-98	Oct. 20	Scotts Contec 17-3-17	0.750 lb. N			
Date closed for play	not closed except for snow covered periods	7-Apr	Ammonium Sulfate, Tiger Turf, Turf Starter, Astron, Calpphlex, Phlexmag, Phlexman	0.20 lb.N, 0.004 lb.P, 0.015 lb.K, S, Fe, Mn, Ca, Mg, Mn		Total: 7.329 lbs. N, 2.914 lbs. P, and 8.125 lbs. K	
Type of spikes allowed	softspikes	3-May	NH4+, Turf Starter, Ferromec, Turf Colorant	0.25 lb.N, 0.06 lb.P, 0.01 lb.K	FUNGICIDES		
Uses of green	putting, chipping,	May 17-19	Nature Safe, Nitroform, Gypsum, Poly-K, MAP	1.94 lb.N, 1.23 lb.P, 1.88 lb.K, Ca, S	Date(s)	Product	Rate (oz./M)
		7-Jun	NH4+, Turf Starter, Tiger Turf, Primer(H2O Agent), Astron, Calpphlex, Phlexmag, Phlexman, Heritage, Turf Colorant	0.102 lb.N, 0.040 lb.P, 0.020 lb.K, and Ca, Mg, S, Fe, Mn	7-Jun 29-Sep	Heritage Heritage	0.4 lbs./M 0.4 lbs./M
					HERBICIDES		
MOWING							
Initial height	0.190"				Date(s)	Product	Rate (oz./M)
Current height	0.155"	Jul. 1-2	Tournament Pride, Tiger Turf, Equalize, Astron, Renaissance, Perk Up, Phlexmag, Phlexman	0.107 lb.N, 0.020 lb.P, 0.250 lb.K, and Ca, Mg, S, Fe, Mn	None		
Frequency	7 days/week						
Type of mower	walking						
Rollers used	None				INSECTICIDES		
Groomers used	1-2X/week	Jul. 20-21	Tournament Pride, Tiger Turf, Equalize, Astron, Renaissance, Perk Up, Phlexmag, Phlexman, Ammonium Sulfate	0.160 lb.N, 0.020 lb.P, 0.250 lb.K, and Ca, Mg, S, Fe, Mn	Date(s)	Product	Rate (oz./M)
CULTIVATION					None		
Aerification - dates	5/19, 9/9						
Aerification - type	5/8" hollow tine	Aug. 9-10	Tournament Pride, Tiger Turf, Equalize, Astron, Renaissance, Perk Up, Phlexmag, Phlexman, Ammonium Sulfate	0.160 lb.N, 0.020 lb.P, 0.250 lb.K, and Ca, Mg, S, Fe, Mn	OTHER PRODUCTS		
Verticutting	None						
Dates of topdressing	light-2X/month after grooming				Date(s)	Product	Rate (oz./M)
Other cultural practices	Grooming only	Sept. 7-13	Nature Safe, Nitroform, Gypsum, Poly-K, ProMag, Dominant Bent Seed, MAP	1.920 lb.N, 1.01 lb.P, 1.88 lb.K, Ca, S	None		
						NOTES/COMMENTS	

Product and company names mentioned herein may be trademarks and/or registered trademarks of their respective owners

TABLE 5B.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS IN THE
1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
AT LAKEWOOD, CO (FOX HOLLOW AT LAKEWOOD) 1/
1999 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
TURFGRASS STIMPMETER READINGS MEASURED IN INCHES

NAME	GENETIC COLOR	SPRING GREENUP	LEAF TEXTURE	DENSITY	CORE		QUALITY RATINGS							MEAN
					CULTIVATION RECOVERY	STIMPMETER READINGS	APR	MAY	JUN	JUL	AUG	SEP	OCT	
PENN A-1	7.3	6.3	8.3	9.0	4.0	127.3	7.7	8.0	8.7	8.7	9.0	8.3	8.0	8.3
PENN A-4	8.0	6.3	9.0	9.0	3.7	129.0	8.0	8.0	8.7	8.3	8.7	8.3	7.7	8.2
CENTURY	6.0	7.0	8.0	8.0	6.0	139.3	7.7	8.0	8.3	8.3	8.3	8.0	7.7	8.0
L-93	8.0	7.0	8.0	8.0	6.0	127.0	7.0	8.0	8.0	8.3	8.3	8.0	7.7	7.9
IMPERIAL	6.3	6.3	8.0	8.0	6.0	142.0	7.7	7.7	8.0	8.0	8.0	8.0	7.3	7.8
SR 1119	7.3	7.0	7.7	8.0	5.0	116.0	7.3	7.0	7.7	7.7	7.7	7.7	7.7	7.5
BACKSPIN	5.7	6.7	7.3	8.0	4.0	113.7	7.0	7.7	7.7	7.3	7.3	7.3	7.3	7.4
CRENSHAW	7.3	5.3	7.3	7.7	6.0	129.3	7.0	7.7	7.7	8.0	7.3	7.0	7.0	7.4
GRAND PRIX (LCB-103)	6.0	6.0	8.0	8.0	5.0	118.3	7.0	8.0	7.7	7.3	7.3	7.3	7.0	7.4
PENN G-1	7.0	6.0	8.0	8.0	5.0	112.7	7.3	7.3	7.3	8.0	7.7	7.3	7.0	7.4
PENN G-6	7.3	6.0	8.0	8.0	4.0	122.3	7.3	7.3	7.3	8.0	7.3	7.3	7.0	7.4
PROVIDENCE	5.7	7.0	7.0	7.3	5.7	113.3	7.3	7.3	7.7	7.3	7.0	7.0	7.3	7.3
CATO	7.7	6.0	7.0	7.7	4.3	116.0	7.0	7.3	7.3	7.3	7.0	7.3	7.0	7.2
VIPER	8.3	6.0	7.0	7.7	6.3	117.7	7.0	7.0	7.3	7.3	7.3	7.0	7.0	7.1
SR 1020	6.3	5.3	7.0	7.0	3.7	115.0	6.7	7.0	7.3	7.3	7.0	6.7	6.0	6.9
TRUELINE	7.0	6.0	5.7	7.0	3.7	126.0	7.0	7.0	7.0	6.7	6.3	6.0	6.0	6.6
PUTTER	6.0	6.0	4.7	5.7	4.3	121.7	6.0	5.7	5.7	5.0	5.0	5.3	5.3	5.4
PENNCROSS	4.7	6.0	4.0	4.7	7.0	127.0	5.3	4.7	5.3	4.7	4.0	4.0	4.7	4.7
LSD VALUE	0.7	0.5	0.6	0.4	1.9	38.3	0.7	0.6	0.9	0.7	0.7	0.6	0.6	0.2
C.V. (%)	7.2	5.1	5.7	3.8	20.9	11.3	5.8	5.8	7.2	6.4	6.3	6.0	5.9	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 6A. 1999 MANAGEMENT - ON-SITE BENTGRASS TEST AT GLENVIEW, IL (NORTH SHORE COUNTRY CLUB)

ESTABLISHMENT		FERTILIZATION			INSECTICIDES		
		Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Seeding date	28-Aug-97						
Problems during	slow to fill, overseeded at 1/2 rate in mid-Sept.	2-Mar	Green-Pro 12-3-8	0.75 lb. N	29-May	Mach 2	1.5
		8-Apr	Biocomposte Forte 7-5-0	0.26 lb. N	4-Jun	Mach 2	1.75
		27-Apr	Agriplex 0-4-4	1 lb. Prod./7993 sq.ft.	18-Aug	Mach 2	1.88
		3-May	Mycor Turf Saver 4-1-2	0.75 lb. N	23-Sep	Mavrik	0.24
FACTORS OF PLAY		13-May	Agriplex 0-4-4	0.5 lb. Prod./7993 sq.ft.	27-Sep	Mavrik	0.25
		21-May	Refresh 1-0-0	2 lb. Prod./7993 sq.ft.			
Date opened for play	April 1	29-May	Bent Special 28-8-18	0.14 lb. N			
Date closed for play	Nov.15	4-Jun	Agriplex 0-4-4	0.88 lb. Prod./7993 sq.ft.	FUNGICIDES		
Type of spikes allowed	softspikes		Nutraculture 28-8-18	0.07 lb. N			
Uses of green	putting, chipping, target	11-Jun	Macrosorb Follar 2-0-0	0.88 lb. Prod./7993 sq.ft.	Date(s)	Product	Rate (oz./M)
		14-Jun	Nutraculture 10-20-30	0.10 lb. N	11-Jun	3336	2
MOWING		27-Jun	1-0-14	1 lb. Prod./7993 sq.ft.	12-Jun	Daconil	4.5
		28-Jun	Dried Blood 12-0-0	0.24 lb. N	27-Jun	Touche	0.25
Initial height			0-2-30	1.00 lb. K	12-Jul	Prostar	6
Current height		30-Jun	Peters Professional 9-45-15	0.01 lb. N	12-Jul	Daconil	3.2
Frequency	7 days/week	11-Aug	Nature Safe 8-3-5	0.22 lb. N	12-Jul	Heritage	0.4
Type of mower	walking	18-Aug	Peters Professional 9-45-15	0.08 lb. N	22-Jul	Banol	1.5
Rollers used	None	30-Aug	Milorganite 6-2-0	0.39 lb. N			
Groomers used	Shallow - 1-2X/week	8-Sep	Peters Professional 15-20-25	0.20 lb. N			
		17-Sep	Nature Safe 8-3-5	0.45 lb. N	HERBICIDES		
CULTIVATION			White Gold 0-0-25	0.67 lb. K			
		4-Oct	Milorganite 6-2-0	0.51 lb. N	Date(s)	Product	Rate (oz./M)
Aerification - dates	Aug. 8, 1999		White Gold 0-0-25	1.09 lb. K			
Aerification - type	Hydroject water injection		Perk-Up (Fine) 0-0-0	21 lbs. Prod./7993 sq.ft.	None		
Verticutting	None	18-Nov	IBDU 10-18-22	0.34 lb. N			
		6-Dec	Milorganite 6-2-0	0.99 lb. N			
Dates of topdressing	3/29, 4/14, 4/26, 5/3, 5/17, 6/1, 6/14, 6/30, 7/12, 8/16, 9/17, 10/19, 10/21	Total (lbs./M): 5.60 lbs. N, 1.38 lbs. P, 5.29 lbs. K			NOTES/COMMENTS		
Other cultural practices	Brushed only for sand topdressing						

Product and company names mentioned herein may be trademarks and/or registered trademarks of their respective owners

OTHER PRODUCTS

Date(s)	Product	Rate (oz./M)
14-Apr	Turfshield	5 lbs/M
20-Apr	Perk-Up Micronutrient Mix	3.12 lbs./M
27-Apr	Greenreleaf Bio B+	0.16 gal./M
27-Apr	Greenreleaf Bio F+	0.16 gal./M
27-Apr	Greenreleaf Bio A+	0.16 gal./M
27-Apr	Organica PGA	0.13 lbs./M
1-May	Agri-energy Biotea	0.63 gal./M
3-May	Mycor Turf Saver	18.70 lbs./M
13-May	Agri-energy Biotea	0.63 gal./M
13-May	Azospirillum	0.06 gal./M
13-May	Bacillus	31.28 grams/M
13-May	Back-Pac	0.13 quarts/M
13-May	MPM (Agri-energy)	0.13 gal./M
13-May	Enzwell	0.88 pints/M
13-May	AgriPlex	0.88
13-May	Vigroot	0.13 lbs./M
14-May	Agri-energy Biotea	0.63 gal./M
14-May	Azospirillum	0.06 gal./M
14-May	Back-Pac	0.13 quarts/M
14-May	MPM (Agri-energy)	0.13 gal./M
14-May	Enzwell	0.88 pints/M
14-May	Vigroot	0.13 lbs./M
21-May	Enzwell	0.19 gal./M
21-May	MPM (Agri-energy)	0.25 gal./M
21-May	Agri-energy Biotea	1.13 gal./M
21-May	Refresh	3
29-May	Back-Pac	0.06 gal./M
29-May	Organica PGA	0.11 lbs./M

OTHER PRODUCTS

Date(s)	Product	Rate (oz./M)
4-Jun	Nutrobac	0.31 gal./M
4-Jun	D-2b Pseudomonas	0.13 gal./M
4-Jun	Az-1b Azospirillum brasilense	0.13 gal./M
4-Jun	Greenreleaf Bio A	0.19 gal./M
4-Jun	Greenreleaf Bio B+	0.13 gal./M
14-Jun	Biotea	1.25 gal./M
27-Jun	Pana Sea	1.25
27-Jun	Vitech Experimental Amino Acid	2
30-Jun	W/S-Envirogreen Fertility Product	0.5 lbs./M
30-Jun	CBG-Envirogreen Fertility Product	12
30-Jun	BP-Envirogreen Fertility Product	1 packet/7993 sq.ft.
30-Jun	MSE-Envirogreen Fertility Product	16
12-Jul	Sprint Iron	0.32
12-Jul	Break Thru	0.25
22-Jul	Break Thru	0.25
8-Sep	Vitech Experimental Amino Acid	0.8
8-Sep	CBG-Envirogreen Fertility Product	3.25
8-Sep	W/S-Envirogreen Fertility Product	0.4 lbs./M
8-Sep	Biotea	0.3 gal./M
8-Sep	Plant Growth Activator	1.63
8-Sep	Sprint 330 Iron	1.63
23-Sep	Dethatch	4
23-Sep	Sprint 330 Iron	2
23-Sep	Plant Growth Activator	2
23-Sep	Macro-sorb foliar	2
27-Sep	Calphex	12
4-Oct	Fine Perk	2.63 lbs./M

TABLE 6B.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS IN THE
 1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
 AT GLENVIEW, IL (NORTH SHORE COUNTRY CLUB) 1/
 1999 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
 TURFGRASS STIMPMETER READINGS MEASURED IN INCHES

NAME	GENETIC COLOR	SPRING GREENUP	LEAF TEXTURE	STIMPMETER READINGS			QUALITY RATINGS							MEAN
				JUNE	SEPTEMBER	OCTOBER	APR	MAY	JUN	JUL	AUG	SEP	OCT	
PENN A-1	5.7	5.0	8.3	124.7	149.0	141.3	8.3	8.7	8.0	7.3	7.3	6.0	7.3	7.6
PENN G-6	5.0	6.3	8.0	117.3	144.0	148.7	8.7	8.0	7.0	6.7	7.3	6.7	8.3	7.5
L-93	5.3	5.7	7.3	129.0	165.3	153.3	7.0	8.3	8.0	7.3	6.7	6.7	7.7	7.4
PENN A-4	5.0	6.7	8.7	126.0	148.3	149.7	7.7	8.3	7.0	7.7	7.3	6.0	7.3	7.3
PENN G-1	5.0	5.3	8.3	118.3	157.7	157.3	8.3	8.3	7.7	7.0	6.7	5.3	7.3	7.2
BACKSPIN	4.3	7.3	7.7	131.7	155.0	154.3	6.7	8.3	6.7	6.7	7.0	6.3	7.7	7.0
GRAND PRIX (LCB-103)	5.3	5.7	7.7	136.7	153.7	156.3	6.3	8.0	7.0	7.0	7.0	6.3	7.7	7.0
PROVIDENCE	6.0	6.7	7.7	124.0	158.3	147.0	8.0	7.7	7.3	6.3	6.0	6.0	7.3	7.0
PUTTER	5.0	5.3	7.0	125.0	154.3	151.3	7.7	7.7	6.7	6.7	6.0	7.0	7.3	7.0
SR 1020	5.7	4.7	7.0	124.3	152.0	149.7	7.7	7.7	6.7	6.0	6.0	7.0	7.7	7.0
SR 1119	5.7	6.0	7.7	120.3	144.0	150.3	7.0	7.7	7.0	6.3	6.7	6.7	7.7	7.0
TRUELINE	5.3	5.7	7.3	126.0	150.3	148.7	7.3	7.3	7.0	6.3	7.0	6.0	7.7	7.0
IMPERIAL	5.3	7.3	7.3	119.7	142.0	138.0	7.0	7.3	6.7	7.0	7.0	6.0	7.3	6.9
CATO	5.7	5.3	7.3	132.0	157.3	161.0	6.3	6.7	7.0	6.7	6.0	7.0	7.7	6.8
CRENSHAW	5.7	7.0	7.3	133.3	158.3	157.0	5.7	7.0	5.7	6.3	6.7	7.0	7.7	6.6
VIPER	6.0	7.0	7.0	129.0	142.7	147.0	6.3	6.7	7.0	6.3	6.3	6.7	6.7	6.6
CENTURY	4.0	7.0	8.0	132.7	163.0	153.3	5.0	6.0	5.3	6.7	6.7	6.0	7.7	6.2
PENNCROSS	4.3	6.0	6.0	147.0	157.0	154.7	6.7	5.7	6.3	5.3	5.0	5.3	6.3	5.8
LSD VALUE	0.8	1.7	1.2	13.4	32.1	30.1	1.4	1.2	1.1	2.4	1.0	1.6	2.0	0.7
C.V. (%)	8.7	14.3	8.4	5.7	7.4	6.7	11.5	9.2	8.9	13.1	8.5	11.2	9.6	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 7A. 1999 MANAGEMENT - ON-SITE BENTGRASS TEST AT WEST LAFAYETTE, IN (PURDUE UNIVERSITY - KAMPEN GOLF COURSE)

ESTABLISHMENT		FERTILIZATION			HERBICIDES		
Seeding date	3-Oct-97	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during	None						
		5-Apr	16-28-10	1.0 lb. N	None		
		28-May	18-4-10	1.0 lb. N			
FACTORS OF PLAY		1-Jun	11-22-14	0.5 lb. N			
		10-Aug	18-4-10	0.5 lb. N			
Date opened for play	End of March	10-Sep	9-18-18	0.5 lb. N			
Date closed for play	End of Nov.	8-Oct	18-9-18	1.0 lbs. N			
Type of spikes allowed	softspikes only	18-Oct	18-9-18	0.5 lb. N	INSECTICIDES		
Uses of green	putting, chipping	3-Dec	11-22-14	0.5 lb. N			
					Date(s)	Product	Rate (oz./M)
MOWING							
Initial height	1/4"				13-May	Mach 2	1.5
Current height	5/32"				8-Jul	Mach 2	1.5
Frequency	7 days/week	Date(s)	Product	Rate (oz./M)	20-Aug	Dylox 80	2
Type of mower	Triplex/Walking	6-May	Chipco GT	3.2			
Rollers used		2-Jun	Chipco GT	4			
Groomers used	Spring and Fall	21-Jun	Daconil Ultrex	4	OTHER PRODUCTS		
		21-Jun	Alliette Signature	4			
CULTIVATION		7-Jul	Chipco GT	4	Date(s)	Product	Rate (oz./M)
		23-Jul	Heritage	0.4			
Aerification - dates	None	23-Jul	Chipco GT	4	6-May	Gary's Green	2
Aerification - type	None	27-Aug	Chipco GT	4	Tuff Turf	Tuff Turf	2
Verticutting	Spiked weekly (June-Sept.)	13-Dec	Chipco GT	4	14-Sep	Gary's Green	2
		13-Dec	Daconil Weatherstick	6	14-Sep	Tuff Turf	2
					23-Sep	Gary's Green	4
Dates of topdressing	4/5, 4/12, 4/26, 5/3, 5/17, 5/24, 6/13, 9/13, 9/20, 9/27, 10/18				23-Sep	Tuff Turf	2
					NOTES/COMMENTS		
Other cultural practices	None						

Product and company names mentioned herein may be trademarks and/or registered trademarks of their respective owners

TABLE 7B.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS IN THE
1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
AT WEST LAFAYETTE, IN (PURDUE UNIVERSITY - KAMPEN G.C.) 1/
1999 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
TURFGRASS STIMPMETER READINGS MEASURED IN INCHES

NAME	GENETIC COLOR	SPRING GREENUP	LEAF TEXTURE	STIMPMETER READINGS		QUALITY RATINGS								
				AVERAGE	FAST	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	MEAN
PENN A-1	7.0	4.0	8.0	124.0	131.3	6.7	7.0	8.0	7.3	6.7	6.7	6.7	6.0	6.9
PENN A-4	6.3	5.3	7.7	128.0	129.7	6.7	7.3	8.0	6.7	7.0	7.0	6.7	6.0	6.9
PENN G-1	7.3	4.7	7.7	118.3	121.7	6.7	6.7	8.0	6.7	7.0	7.0	7.3	6.0	6.9
IMPERIAL	6.0	5.0	7.3	125.3	128.7	6.7	6.3	7.7	6.7	6.7	7.0	7.0	5.3	6.7
PENN G-6	7.0	5.0	7.0	115.0	128.3	7.0	6.7	7.7	6.0	6.7	7.0	7.0	5.7	6.7
L-93	6.0	5.3	6.7	123.0	127.3	6.7	7.3	7.3	6.7	6.7	6.3	6.7	5.0	6.6
CENTURY	6.0	4.7	7.0	121.0	131.3	6.3	6.0	7.3	6.7	6.7	7.0	7.0	5.3	6.5
CATO	7.0	5.0	7.0	126.3	135.3	6.7	6.3	6.7	6.7	6.3	6.3	6.7	5.3	6.4
SR 1119	7.3	4.3	7.0	123.0	131.7	6.7	6.3	7.0	6.7	6.7	6.7	6.7	4.7	6.4
GRAND PRIX (ICB-103)	6.3	5.0	7.7	118.7	129.7	6.0	5.7	7.7	7.0	6.0	6.7	6.3	5.3	6.3
PROVIDENCE	7.0	4.3	7.0	124.3	130.3	6.3	6.3	7.0	7.0	6.0	5.7	6.3	5.7	6.3
BACKSPIN	6.7	4.7	7.3	124.7	135.7	5.7	6.0	6.3	6.3	6.0	7.0	7.0	5.0	6.2
CRENSHAW	7.3	3.0	6.3	125.3	133.7	6.3	6.3	6.7	6.7	6.3	6.3	6.7	4.0	6.2
SR 1020	7.0	3.7	6.7	123.7	138.3	6.3	6.0	6.3	6.0	6.0	6.7	6.7	5.0	6.1
TRUELINE	7.0	3.7	7.0	124.3	133.0	6.0	6.0	6.3	6.3	6.3	6.0	6.0	4.3	5.9
VIPER	7.0	3.7	6.7	122.0	129.0	6.0	5.7	6.3	6.3	6.3	6.0	6.0	4.7	5.9
PUTTER	6.3	4.0	7.0	124.0	137.3	5.7	5.7	6.3	6.0	6.3	5.7	6.0	5.0	5.8
PENNCROSS	6.3	4.7	6.3	124.0	131.0	5.3	5.3	6.0	5.3	6.0	5.7	6.0	4.7	5.5
LSD VALUE	1.4	1.5	0.8	13.9	17.4	1.0	0.8	1.0	1.6	-	0.9	1.1	1.0	0.4
C.V. (%)	9.0	16.3	6.1	4.1	4.8	8.0	7.3	8.1	9.8	10.1	7.6	7.6	10.7	3.8

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 8A. 1999 MANAGEMENT - ON-SITE BENTGRASS TEST AT FLORENCE, KY (LASSING POINTE GOLF COURSE)

ESTABLISHMENT		FERTILIZATION			HERBICIDES		
		Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Seeding date	15-Sep-98						
Problems during		5-Jan	2 lbs. 0-0-45 and 2lbs. Magnesium		10-Jun	Acclaim	3
		2-Apr	3/4 lb. 19-25-5 Scotts starter/STEP micros		25-Jun	Acclaim	3
FACTORS OF PLAY		30-Apr	19-3-19	3/4 lb.	19-Jul	Acclaim	3
		19-May	Milorganite		29-Jul	Acclaim	3
Date opened for play	early Spring	24-May	18-9-18 Fe Mn	3/4 lb.	16-Oct	Bent Trimec	44
Date closed for play	late Fall	11-Jun	Milorganite				
Type of spikes allowed	softspikes	30-Sep	19-3-19	3/4 lb.			
Uses of green	putting	18-Oct	Milorganite		INSECTICIDES		
Others	40,000 rounds	21-Nov	19-25-5	1 lb.			
		10-Dec	Scotts STEP micros package		Date(s)	Product	Rate (oz./M)
MOWING					5/12, 7/7, 8/24, 9/23,	Tempo	110 g./Acre
Initial height	3/16"	Date(s)	Product	Rate (oz./Acre)	OTHER PRODUCTS		
Current height	5/32"						
Frequency	7 days/week	1/19, 4/20	PMAS	22			
Type of mower	Toro Greens Master	12-May	Bayleton	88	Date(s)	Product	Rate (oz./M)
Rollers used	Wheilie	2-Jun	Bayleton	88			
Groomers used	None	10-Jun	Daconil	10 lbs./Acre	5/20, 5/27	Cascade (wetting agent)	2.75 gal./Acre
		25-Jun	Daconil Ultrex	10 lb./Acre	6/10, 7/19,	Primo	3 oz./Acre
CULTIVATION		7-Jul	Fore	8 lb./Acre	23-Jul-00	Primo	5.5 oz./Acre
		19-Jul	Daconil	10 lbs./Acre	7/29, 8/11, 8/24, 9/23,	Primo	3 oz./Acre
Aerification - dates	4/20, 6/7, 10/5	23-Jul	Heritage	4 lb./Acre	12-May	Greens Edge	2.5 gal./tank
Aerification - type		23-Jul	Aliette	11 lbs./Acre	12-May	Fertilizer	2.5 gal./tank
Verticutting	5/3, 5/31, 10/3, 11/8	29-Jul	Daconil	10 lbs./Acre			
Dates of topdressing	5/3, 5/31, 10/3, 11/8	8/11, 8/24	Daconil	10 lbs./Acre			
Other cultural practices	rolled with Toro triplex rollers on 5/4 and 5/12	8/24, 9/23,	Banner Maxx	22			
		16-Oct	Daconil	2.5 gal./Acre	NOTES/COMMENTS		
		18-Oct	PMAS	22			
		18-Oct	Daconil/Zn	2.5 ?/Acre			
					Liquid fertilizer (spoon-feeding) every couple weeks through season. Alternated treatments of 18-3-6 and 4-0-0 Mn/Mg and 9-0-32.		

Product and company names mentioned herein may be trademarks and/or registered trademarks of their respective owners

TABLE 8B.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS IN THE
1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
AT FLORENCE, KY (LASSING POINTE GOLF COURSE) 1/
1999 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
TURFGRASS STIMPMETER READINGS MEASURED IN INCHES

NAME	GENETIC COLOR	LEAF TEXTURE	DENSITY SPRING	DENSITY SUMMER	DENSITY FALL	WINTER COLOR	PERCENT BROWN PATCH	STIMPMETER READINGS			QUALITY RATINGS									
								JULY	SEPTEMBER	OCTOBER	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	MEAN	
								PENN A-4	6.0	8.7	9.0	9.0	7.7	7.3	45.0	123.0	130.7	124.7	8.0	6.3
SR 1119	6.7	6.7	8.3	7.0	6.7	7.0	3.7	110.3	112.0	117.0	6.7	5.7	8.0	8.0	8.0	7.3	7.0	7.3	7.3	
PENN G-6	6.3	6.7	7.7	6.0	7.0	7.7	14.3	120.7	124.0	127.7	7.7	5.7	6.7	6.7	7.0	8.0	6.7	7.0	6.9	
CENTURY	4.7	8.0	9.0	8.7	7.7	7.0	45.0	120.0	122.0	119.0	7.7	6.0	5.0	6.0	7.0	8.7	5.7	8.0	6.8	
BACKSPIN	6.0	7.3	8.3	7.3	6.7	7.3	8.7	112.3	115.7	116.3	7.3	5.7	6.7	6.3	6.7	7.7	5.7	7.3	6.7	
CRENSHAW	6.3	7.0	7.0	6.3	6.0	6.3	13.7	123.0	121.0	124.3	6.0	4.7	7.3	7.0	7.0	8.3	5.7	7.3	6.7	
GRAND PRIX (LCB-103)	7.0	7.7	8.3	8.0	6.7	6.7	23.0	115.7	120.7	118.0	6.7	6.0	6.3	6.0	6.7	8.7	5.7	7.3	6.7	
L-93	6.3	6.7	8.0	6.3	6.7	6.3	5.3	119.7	122.0	121.0	7.3	5.3	7.0	6.7	6.7	7.3	6.3	6.7	6.7	
TRUELINE	5.3	5.7	7.0	6.3	5.3	7.3	2.0	108.3	102.0	107.0	7.0	5.3	8.0	6.7	6.7	7.0	6.0	7.0	6.7	
IMPERIAL	5.3	7.7	9.0	8.0	6.0	7.0	9.3	112.7	114.7	118.7	7.3	5.3	6.3	6.0	7.7	7.3	5.0	7.0	6.5	
SR 1020	6.7	7.3	7.3	7.3	6.0	6.3	2.7	128.3	128.3	128.0	7.0	4.7	7.7	6.7	7.0	7.3	5.3	6.3	6.5	
VIPER	5.0	6.3	7.3	6.7	5.7	7.0	3.0	113.7	114.7	120.3	5.7	4.7	7.7	6.7	7.0	7.0	6.0	7.0	6.5	
PENN G-1	6.3	7.7	9.0	7.3	6.3	7.3	18.3	133.7	129.0	129.3	7.0	5.3	6.7	5.7	6.3	7.3	6.0	7.0	6.4	
CATO	4.7	6.7	7.0	7.0	6.0	6.3	2.0	116.7	114.7	128.0	6.3	4.3	7.3	6.7	6.0	7.3	5.7	6.7	6.3	
PENN A-1	4.0	7.3	9.0	5.7	6.3	6.7	13.3	126.3	124.0	124.3	7.0	5.3	6.0	5.3	6.0	7.7	5.7	7.3	6.3	
PUTTER	5.3	5.7	6.7	5.7	6.3	6.7	1.7	115.3	111.3	113.3	6.3	5.0	6.7	5.7	6.0	7.3	5.7	7.7	6.3	
PENNCROSS	7.0	5.7	6.3	6.0	5.7	6.7	9.7	113.3	110.3	112.7	7.0	5.0	7.0	5.0	5.7	6.3	4.7	7.0	6.0	
PROVIDENCE	6.0	6.3	7.0	5.0	5.0	7.0	2.0	113.7	120.0	123.3	5.7	4.7	7.7	6.7	6.7	6.3	4.3	6.3	6.0	
LSD VALUE	3.1	1.1	1.3	1.6	1.3	-	18.4	20.9	26.0	32.4	1.7	2.0	1.4	2.2	2.3	1.5	1.9	2.5	1.2	
C.V. (%)	21.2	9.6	9.5	13.4	10.9	11.7	87.5	7.6	8.8	9.0	11.8	15.2	11.5	15.2	13.3	9.9	15.5	11.8	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 9A. 1999 MANAGEMENT - ON-SITE BENTGRASS TEST AT ST. CHARLES, MO (THE MISSOURI BLUFFS GOLF COURSE)

ESTABLISHMENT	FERTILIZATION				FUNGICIDES		
	Date(s)	Product	Rate (lbs. oz./M)	Date(s)	Product	Rate (oz./M)	
Seeding date	15-Sep-97						
Problems during	3/22, 10/8, 10/28	Isotek 18-3-16	1.0 lb. N	30-Apr	Daconil Ultrex	3	
	23-Jun	11-52-0	4.1 lbs. prod.		Heritage	0.4	
FACTORS OF PLAY				27-May	Daconil Ultrex	4	
	9-Jul	Gary's Green (18-3-4 +Fe)	2 oz.		Heritage	0.4	
Date opened for play	13-Jul	Gary's Green (18-3-4 +Fe)	12 oz.	25-Jun	Subdue Maxx	1.4	
Date closed for play	20-Jul	Gary's Green (18-3-4 +Fe)	3 oz.		Daconil Ultrex	2.7	
Type of spikes allowed	10-Aug	Gary's Green (18-3-4 +Fe)	4 oz.	6-Jul	Prostar 50WP	6	
Uses of green				9-Jul	Heritage	0.4	
	7-Sep	Kmag 0-0-22	5 lbs. prod.		Fore	12.8	
MOWING	9/7, 9/20	Country Club 18-4-10	0.5 lb. N	13-Jul	Daconil Ultrex	12	
	17-Sep	Growth Prod.18-4-10	0.1 oz./M		Compass	4g.	
Initial height	20-Sep	Step high Mag.(trace elem.)	0.9 lb. prod.		Alliette	7	
Current height	.145" (0.171"-Winter	4-Oct	White Gold 0-0-25	1.0 lb. K	20-Jul	Chipco 26019	2.9
Frequency	9-Nov	Ultra Cal	5 lbs. prod.		Banol	2	
Type of mower	15-Nov	Bio Basics Minors	3 oz.	26-Jul	Prostar	4.5	
Rollers used		Bio Basics K	6 oz.		Alliette	4	
Groomers used	every 6 days from April to June	Bio Basics Cal.	3 oz.		Consys	4	
		Bio Flora Root Builder	3 oz.	30-Jul	Daconil Ultrex	9	
CULTIVATION		13-Dec	Bio Basics Pro Gro	2.5 oz.	4-Aug	Subdue Maxx	1
			Sol-u-bor	1.9 oz.	6-Aug	Fore	12.8
Aerification - dates	July				Banner Maxx	3	
Aerification - type	Toro Hydroject	INSECTICIDES		Aug. 13, 20, 25	Fore	9.6	
Verticutting				1-Sep	Daconil Ultrex	7.5	
Dates of topdressing	every 7-10 days from 4/13 - 11/15	Date(s)	Product	Rate (oz./M)	8-Sep	Consys	6
		25-Jun	Delta Guard	0.7	6-Oct	Consys	5
Other cultural practices	None	13-Jul	Tempo	0.2	13-Dec	Daconil Ultrex	5
		8/6, 9/17, 10/6	Dursban 50 WSP	2 lbs./Acre		Chipco GT	3.5
					HERBICIDES		
		OTHER PRODUCTS			Date(s)	Product	Rate (oz./M)
		Date(s)	Product	Rate (oz./M)	None		
		30-Apr	Cascade wetting agent	10			
		5-Jul	Aquifer wetting agent	4.5			
		8-Jul	Aquifer wetting agent	2.2	NOTES/COMMENTS		
		30-Jul	Aquifer wetting agent	4			

Product and company names mentioned herein may be trademarks and/or registered trademarks of their respective owners

TABLE 9B.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS IN THE
1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
AT ST. CHARLES, MO (THE MISSOURI BLUFFS G.C.) 1/
1999 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
TURFGRASS STIMPMETER READINGS MEASURED IN INCHES

NAME	GENETIC COLOR	SPRING GREENUP	DOLLAR	STIMPMETER READINGS			QUALITY RATINGS								
			SPOT MAY	MAY	AUGUST	NOVEMBER	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	MEAN
PENN A-4	8.0	3.0	9.0	115.7	127.7	133.0	8.0	7.7	8.0	8.0	7.0	8.0	7.7	7.7	7.8
BACKSPIN	7.0	3.3	8.3	110.7	125.0	111.7	7.7	7.7	8.0	8.0	7.0	7.3	8.0	7.0	7.6
CENTURY	6.7	3.3	7.7	105.3	131.0	122.7	7.3	7.3	7.7	7.3	7.0	8.0	7.7	8.0	7.5
IMPERIAL	7.0	3.0	8.0	110.0	129.7	139.7	7.3	7.3	7.7	7.7	7.0	7.3	7.7	7.3	7.4
PENN G-6	7.3	4.7	8.3	114.0	139.0	142.3	7.7	7.0	7.0	7.3	7.0	7.7	7.7	7.7	7.4
PENN A-1	7.7	3.0	9.0	117.3	132.0	126.7	7.0	7.0	7.3	7.3	7.0	7.7	8.0	7.3	7.3
PENN G-1	6.7	3.3	8.7	110.0	127.0	121.0	7.7	6.7	7.3	7.0	7.0	7.7	7.7	7.3	7.3
GRAND PRIX (LCB-103)	6.7	3.3	9.0	110.0	128.3	132.3	6.7	7.3	7.0	6.7	7.0	7.3	7.7	8.0	7.2
L-93	7.0	4.7	9.0	111.7	133.0	123.3	7.3	6.7	7.0	7.3	7.0	7.7	7.3	7.3	7.2
SR 1119	7.0	4.0	9.0	120.0	145.0	140.3	7.0	6.7	7.3	7.7	7.0	7.7	7.0	7.0	7.2
CRENSHAW	7.0	2.7	8.3	102.7	142.3	133.3	6.7	6.3	7.0	7.3	7.0	7.7	7.3	7.3	7.1
VIPER	7.0	3.7	9.0	116.0	144.3	137.0	7.3	7.3	6.7	6.7	7.0	7.3	7.3	7.0	7.1
CATO	6.7	4.0	9.0	112.0	134.0	133.7	7.0	7.0	6.7	7.0	7.0	7.0	7.3	7.0	7.0
PROVIDENCE	6.3	4.0	8.7	114.0	126.7	131.7	7.0	7.0	6.7	6.7	7.0	6.7	7.3	7.0	6.9
PUTTER	6.7	4.0	9.0	116.3	134.3	125.3	7.0	7.0	6.3	6.3	7.0	7.3	7.0	7.0	6.9
SR 1020	7.0	3.7	8.7	112.0	139.0	136.3	6.7	6.7	7.0	6.7	7.0	7.0	7.3	7.0	6.9
TRUELINE	6.7	4.0	8.3	118.3	133.7	131.7	6.7	7.0	6.3	6.0	7.0	7.3	7.3	7.0	6.8
PENNCROSS	5.7	3.3	9.0	110.0	121.0	111.3	6.0	5.3	5.3	6.7	6.7	6.3	6.0	6.3	6.1
LSD VALUE	1.2	1.6	1.1	22.4	28.8	28.1	1.7	1.6	0.8	0.9	0.4	1.1	0.9	0.9	0.4
C.V. (%)	8.3	19.7	5.7	6.8	8.0	9.3	9.5	10.2	7.1	7.0	1.9	7.0	6.2	6.3	3.1

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 10A. 1999 MANAGEMENT - ON-SITE BENTGRASS TEST AT RYE, NY (WESTCHESTER COUNTRY CLUB)

ESTABLISHMENT	FERTILIZATION			HERBICIDES		
Seeding date	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during	16-Apr	19-26-5	0.5 lb. N	None		
	26-Jul	19-2-15	0.5 lb. N			
FACTORS OF PLAY	7/27,8/10, 8/23, 10/25	12-3-12	7.14 gal./Acre			
	7/27,8/10, 8/23, 10/25	Sugar Cal.	0.68 gal./Acre			
Date opened for play	7/27,8/10, 8/23, 10/25	Magnesium	1 gal./Acre			
Date closed for play	12-Oct	19-25-5	1 lb. N			
Type of spikes allowed						
Uses of green						
				INSECTICIDES		
MOWING				Date(s)	Product	Rate (oz./M)
Initial height	Date(s)	Product	Rate (oz./M)	13-Jun	Nemacur	2.5 lbs.
Current height						
Frequency	7-May	Terraclor	7			
Type of mower	5/7, 8/23	Echo 720	4			
Rollers used	5/24, 7/19	Primer	4			
Groomers used	17-Jun	Primer				
	5/28, 7/13	Chipco 26019 Flo	4	OTHER PRODUCTS		
CULTIVATION	28-May	Daconil weather stik	4			
	6/1, 7/12, 8/1,	Banner Maxx	4	Date(s)	Product	Rate (oz./M)
Aerification - dates	13-Jul	Chipco Aliette	4			
Aerification - type	27-Jul	Primo liquid	2	None		
Verticutting	7/27, 8/10	Daconil weather stik	2			
Dates of topdressing	7/27, 8/10	Banner Maxx	0.5			
Other cultural practices	8/10, 8/23,10/25	Primo WSB	4			
	23-Aug	Clearys 3336	4			
	6-Oct	Banner Maxx	1	NOTES/COMMENTS		
		Echo 720	2			
	20-Oct	Turfcide (PCNB)	6 lbs.			

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TABLE 10B.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS IN THE
1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
AT RYE, NY (WESTCHESTER COUNTRY CLUB) 1/
1999 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
TURFGRASS STIMPMETER READINGS MEASURED IN INCHES

NAME	GENETIC COLOR	SPRING GREENUP	LEAF TEXTURE	DENSITY SPRING	DENSITY SUMMER	DENSITY FALL	QUALITY RATINGS							MEAN
							APR	MAY	JUN	JUL	AUG	SEP	OCT	
CENTURY	3.7	6.3	8.7	8.0	8.7	8.7	6.3	7.7	9.0	6.3	8.3	8.0	7.0	7.5
PENN A-1	4.7	6.0	8.3	8.3	8.7	8.7	5.3	7.0	8.0	6.3	8.7	8.0	8.3	7.4
PENN A-4	4.3	5.3	9.0	8.3	9.0	8.7	5.3	8.0	8.3	6.3	8.7	7.3	8.0	7.4
PENN G-1	4.0	6.0	8.3	7.3	8.0	8.0	5.7	7.0	8.0	7.7	8.0	7.7	7.7	7.4
L-93	7.3	6.3	7.0	6.7	7.0	7.3	5.3	7.0	7.7	7.0	7.3	6.7	7.7	7.0
GRAND PRIX (LCB-103)	3.3	4.7	8.0	6.3	7.7	8.3	4.3	6.3	7.0	7.7	8.0	7.7	7.0	6.9
PENN G-6	6.0	4.7	7.7	6.7	7.3	7.7	4.3	5.7	7.0	6.7	7.7	7.3	6.3	6.4
SR 1119	8.7	5.3	6.3	7.0	7.0	6.3	4.3	6.7	6.3	7.3	7.3	6.7	6.3	6.4
IMPERIAL	3.3	4.0	8.0	6.7	7.7	6.7	3.7	6.3	5.3	5.7	8.3	6.3	6.3	6.0
BACKSPIN	3.3	4.3	7.3	6.0	7.7	6.3	4.7	6.0	6.0	5.7	7.3	6.3	5.0	5.9
SR 1020	4.3	4.3	5.3	5.7	7.3	7.0	3.7	5.3	5.0	5.7	7.3	6.3	7.7	5.9
CRENSHAW	5.7	4.0	6.0	5.7	6.3	5.7	4.7	5.7	5.7	6.3	6.7	6.0	5.3	5.8
CATO	5.0	4.7	6.0	5.0	5.7	6.3	4.0	5.7	5.3	6.0	5.3	5.3	6.3	5.4
PROVIDENCE	4.7	5.3	5.7	5.0	5.7	5.7	4.7	5.3	4.7	5.7	5.3	5.3	5.7	5.2
TRUELINE	5.3	4.3	4.3	4.0	5.3	4.3	4.0	4.3	4.0	4.7	5.3	5.0	4.0	4.5
VIPER	5.3	2.7	5.3	4.3	5.7	5.0	2.7	4.3	4.0	4.7	5.3	5.0	5.7	4.5
PUTTER	3.7	2.7	3.3	2.7	4.7	4.0	3.0	3.7	3.0	5.3	4.7	4.3	4.3	4.0
PENNCROSS	3.0	4.0	1.0	2.0	3.7	2.3	3.3	2.0	1.7	4.0	4.0	4.3	3.0	3.2
LSD VALUE	0.9	1.5	1.0	1.1	0.9	0.9	1.7	1.0	1.2	1.6	0.9	1.1	1.1	0.6
C.V. (%)	12.1	18.6	10.5	12.0	8.4	9.3	20.9	11.1	13.6	14.9	8.6	11.1	11.7	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 11A. 1999 MANAGEMENT - ON-SITE BENTGRASS TEST AT DALLAS, TX (BENT TREE COUNTRY CLUB)

ESTABLISHMENT	FERTILIZATION				FUNGICIDES		
Seeding date	10-Sep-97	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during	None						
Granular Fertilizer Applications							
FACTORS OF PLAY		26-Feb	Par Ex 16-0-24	0.5 lb. N			
		20-Mar	Par Ex 16-0-24	0.5 lb. N			
Date opened for play		1-May	Polyon 0-0-46	1 lb. K	HERBICIDES		
Date closed for play		21-Jun	Polyon 0-0-46	1 lb. K			
Type of spikes allowed		14-Jul	Polyon 0-0-46	1 lb. K	Date(s)	Product	Rate (oz./M)
Uses of green		2-Sep	Polyon 0-0-46	1 lb. K			
		20-Sep	Scotts 13-2-26	0.5 lb. N			
		25-Oct	Polyon 0-0-46	1 lb. K			
		15-Nov	Scotts 15-0-29	0.5 lb. N			
MOWING		18-Nov	Polyon 0-0-46	0.5 lb. K	INSECTICIDES		
Initial height		10-Dec	Scotts 15-0-29	0.5 lb. N			
Current height		21-Dec	Polyon 0-0-32	0.5 lb. K			
Frequency		Total - Granular app.	2.5 lbs. N, 0.10 lbs. P,	10.4 lbs. K	Date(s)	Product	Rate (oz./M)
Type of mower							
Rollers used		Liquid (Foliar) Fertilizer Applications					
Groomers used		Every two weeks throughout year (28 Apps)					
CULTIVATION		Each Floratine app. consisted of:		0.15 lb. N	OTHER PRODUCTS		
Aerification - dates				0.08 lb. P	Date(s)	Product	Rate (oz./M)
Aerification - type				0.15 lb. K			
Verticutting		Total - Foliar app.	3.6 lbs. N, 1.9 lbs. P,	3.6 lbs. K			
Dates of topdressing							
Other cultural practices		Total Fertilizer app.	6.1 lbs. N, 2.0 lbs. P,	14.0 lbs. K	NOTES/COMMENTS		

Product and company names mentioned herein may be trademarks and/or registered trademarks of their respective owners

TABLE 11B.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS IN THE
 1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
 AT DALLAS, TX (BENT TREE COUNTRY CLUB) 1/
 1999 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
 TURFGRASS STIMPMETER READINGS MEASURED IN INCHES

N A M E	G E NC EO TL IO CR	G R E E U U AR P	T E X LT EU	FALL COLOR RATINGS												QUALITY RATINGS													
				DENSITY RATINGS			RATINGS				COLOR RATINGS					DENSITY RATINGS			QUALITY RATINGS										
				SPR	SUM	FALL	SEP	OCT	NOV	DEC	JAN	FEB	APR	MAY	JUL	FEB	APR	MAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	OCT	NOV	MEAN
PENN A-1	7.7	7.0	2.0	7.7	8.7	8.3	6.7	6.0	7.0	7.3	7.0	7.3	6.3	6.7	6.7	6.0	5.7	7.7	7.0	6.7	8.0	6.0	8.7	7.7	7.0	8.0	6.0	7.7	7.3
PENN A-4	7.3	7.3	2.0	7.7	8.0	8.3	6.3	6.3	7.3	8.0	7.0	7.3	5.7	7.0	7.0	6.7	5.0	8.7	7.3	6.7	8.3	6.3	8.7	8.0	6.3	7.3	6.0	7.7	7.3
PENN G-1	7.0	6.0	2.0	8.7	7.7	8.0	7.0	7.0	7.3	7.7	6.3	6.7	5.3	6.7	7.0	6.3	5.7	8.0	6.7	7.7	8.3	6.7	7.7	6.7	6.7	8.3	7.3	7.0	7.3
GRAND PRIX (LCB-103)	6.0	5.3	2.0	8.3	8.0	8.0	5.7	5.7	5.7	5.7	6.0	6.3	5.7	6.0	6.7	7.3	6.0	8.0	6.7	7.7	7.7	6.0	7.3	7.7	6.0	8.0	6.3	6.3	7.0
SR 1119	7.7	8.0	2.0	7.0	7.3	6.7	6.3	7.0	7.0	6.7	7.3	6.7	7.0	7.7	6.7	6.7	5.3	6.7	6.0	6.3	7.0	7.3	6.7	7.7	7.3	8.7	6.3	6.7	7.0
CENTURY	5.7	5.3	2.0	7.3	7.7	8.0	6.3	6.3	6.3	6.0	5.0	6.0	6.0	5.7	6.7	6.3	5.3	6.7	7.0	5.7	8.0	5.0	8.0	7.0	6.7	7.7	7.3	6.7	6.9
CRENSHAW	7.7	7.7	2.3	8.0	7.7	6.7	6.7	6.7	8.0	7.0	6.0	7.3	6.7	7.7	7.0	6.3	5.7	7.0	7.7	6.7	7.7	6.0	6.0	7.0	6.0	8.7	6.0	7.3	6.9
PENN G-6	6.7	6.7	3.0	7.7	8.3	7.3	5.3	6.3	7.0	7.0	6.3	6.7	6.0	6.0	7.0	6.0	5.3	6.7	7.0	6.3	8.0	5.3	6.7	7.3	6.7	8.0	6.0	7.7	6.9
SR 1020	7.0	7.0	2.0	7.0	7.3	7.0	7.0	7.7	8.0	6.7	7.7	7.7	6.7	7.3	6.7	6.0	5.3	7.0	6.7	6.0	7.3	6.3	7.0	7.0	6.0	8.3	6.3	7.3	6.8
IMPERIAL	5.0	5.7	2.0	8.3	7.7	7.7	5.0	6.3	7.3	6.3	5.0	5.7	5.7	5.3	6.7	6.7	5.0	7.0	7.0	6.7	7.7	5.7	7.3	6.7	6.0	7.3	5.7	7.3	6.7
BACKSPIN	6.3	6.0	2.3	7.3	7.7	7.3	5.3	6.0	6.3	7.7	5.3	6.3	5.7	5.7	6.0	5.7	5.7	7.3	7.0	5.7	7.3	6.0	8.0	6.7	5.7	7.3	5.7	6.3	6.6
CATO	6.7	7.0	2.3	6.3	6.7	7.3	6.3	7.3	7.3	5.7	7.0	7.3	6.7	7.3	7.3	6.0	5.3	6.7	6.7	5.7	6.3	5.7	6.7	7.0	6.7	8.0	6.3	7.3	6.6
L-93	7.3	7.0	2.7	6.7	6.7	7.7	7.7	7.3	7.3	7.0	5.7	6.7	6.3	7.0	7.3	6.0	4.7	6.0	6.3	6.0	7.0	6.3	5.7	6.7	7.3	8.3	6.0	6.7	6.6
VIPER	7.7	8.0	2.7	6.0	6.3	6.3	5.0	7.3	7.3	5.0	6.0	7.7	7.7	7.3	7.3	5.3	5.7	6.3	6.3	5.0	6.0	6.0	6.3	6.7	6.3	8.3	5.7	6.7	6.3
TRUELINE	7.0	7.3	2.7	6.3	6.3	6.7	7.0	7.7	7.7	6.3	6.3	8.0	6.3	7.0	6.7	5.0	4.7	6.3	6.7	4.7	6.3	5.3	6.7	6.7	6.7	7.0	5.0	7.3	6.2
PUTTER	6.3	7.3	2.7	6.0	6.0	6.7	5.0	6.7	8.0	6.0	5.3	7.7	6.3	6.3	6.7	5.3	5.3	5.7	6.3	5.0	6.0	5.7	6.0	5.3	5.3	7.7	5.3	7.3	6.0
PROVIDENCE	7.3	6.7	2.7	6.3	6.7	6.7	6.3	6.7	8.0	6.7	6.3	7.3	7.3	6.7	6.3	5.3	5.0	6.3	5.7	5.3	6.0	5.0	6.0	6.0	5.3	7.7	5.0	6.7	5.9
PENNCROSS	6.7	5.3	3.0	6.0	4.3	4.7	5.3	6.7	4.3	5.3	5.0	6.0	5.7	4.7	5.3	4.7	5.3	4.7	4.7	4.0	5.0	6.0	6.7	4.7	4.3	7.7	4.0	5.0	5.2
LSD VALUE	1.2	1.1	0.8	1.3	1.5	1.2	3.1	1.2	1.1	1.7	2.0	1.1	1.8	0.9	1.8	1.7	-	1.2	1.1	2.2	1.2	3.2	1.6	2.2	2.1	2.5	1.7	2.2	0.6
C.V. (%)	10.1	9.9	16.8	10.3	12.0	10.0	19.6	9.0	9.7	13.2	15.4	8.9	12.8	8.9	10.5	13.4	22.9	10.3	9.4	18.0	10.1	17.9	12.4	15.0	15.0	10.6	14.3	13.1	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 12A. 1999 MANAGEMENT - ON-SITE BENTGRASS TEST AT VIENNA, VA (WESTWOOD GOLF COURSE)

ESTABLISHMENT		FERTILIZATION			HERBICIDES		
Seeding date	5-Sep-97	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during	None						
		15-Apr	5-4-5	0.25 N	5-Apr	Embark	4 oz./Acre
		17-May	5-4-5	0.25 N	21-Jun	Acclaim	3 oz./Acre
FACTORS OF PLAY		9-Aug	14-1-11	0.50 N	7/29, 8/12	Acclaim	8 oz./Tank
		2-Sep	Powder Blur, 50 lbs./tank (38-0-0)				
Date opened for play	20-Apr-98	15-Sep	14-1-11	0.50 N			
Date closed for play		29-Sep	24-3-12	0.50 N	INSECTICIDES		
Type of spikes allowed	softspikes	19-Oct	14-1-11	0.50 N			
Uses of green	putting, chipping	1-Nov	14-1-11	0.50 N	Date(s)	Product	Rate (oz./M)
		14-Nov	14-1-11	0.50 N			
MOWING		6-Dec	14-1-11	0.50 N	7-Jul	Talstar	0.4
			Total	4.0 lbs N/M	7/29, 8/19, 9/20	Sevin	3
Initial height	3/8"						
Current height	0.125"						
Frequency	7 days/week	FUNGICIDES			OTHER PRODUCTS		
Type of mower	walking						
Rollers used	Triplex - 12 times/season	Date(s)	Product	Rate (oz./M)			
Groomers used	None				Date(s)	Product	Rate (oz./M)
		5-Apr	Banner Maxx	1.25			
CULTIVATION		27-Apr	Banner 1oz. and Primo 0.25oz.		4/5, 4/27	Feromec	6
		12-May	Heritage 0.4oz., Daconil		12-May	Feromec	5
Aerification - dates	Twice per year (April-Sept.)	25-May	Banner 1.5oz. and Primo 0.5oz.		6/8, 7/7	Feromec	4
Aerification - type	Core tine 3/8"	8-Jun	Daconil 4oz., Primer 8oz.		7-Jul	Enhance	4
	Hydroject 2-3 times/season				7/19, 7/20	Feromec	6
Verticutting	None	21-Jun	Heritage 0.4oz., Banner 1.5oz., Fore 4oz., Primo 0.25oz.		29-Jul	Feromec	6
Dates of topdressing	3 times/year, 2 times					Enhance	6
	aerification - Egypt Farms 80-20 sterilized Mix	7-Jul	Chipco GT 3oz., Primer 4oz.		12-Aug	Enhance	4
					19-Aug	Feromec	4
Other cultural practices	None	19-Jul	Echo 8lbs., Fore 8oz., Subdue 1oz., Tuffgreen (BioPro) 6oz.		Total	Feromec	47
					Total	Enhance	14
		29-Jul	Heritage 0.4oz., Fore 8oz., Echo 4oz., BioPro 3oz.				
		12-Aug	Heritage 0.4oz., Fore6oz., Echo 3oz., Primo 0.25oz.		NOTES/COMMENTS		
		2-Sep	Echo 3oz., Primer 4oz.				
		9/20, 10/8	Echo	3			
		27-Oct	Curalan EG	1.25			
		8-Dec	PMAS 0.75oz., Echo 5oz.				

Product and company names mentioned herein may be trademarks and/or registered trademarks of their respective owners

TABLE 12B.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS IN THE
1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
AT VIENNA, VA (WESTWOOD GOLF COURSE) 1/
1999 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
TURFGRASS STIMPMETER READINGS MEASURED IN INCHES

NAME	GENETIC COLOR	SPRING GREENUP	LEAF TEXTURE	DROUGHT TOLERANCE WILTING	STIMPMETER READINGS		QUALITY RATINGS							
					JULY	OCTOBER	MAR	APR	MAY	JUN	JUL	AUG	SEP	MEAN
PENN A-4	6.0	6.3	7.7	7.0	129.0	149.7	6.7	7.7	8.0	7.7	8.0	7.3	6.7	7.4
CENTURY	5.3	6.3	7.3	8.7	133.7	147.7	6.7	7.3	8.0	8.0	7.3	6.7	6.3	7.2
PENN G-1	7.0	6.0	7.7	7.7	130.3	141.7	6.3	7.3	7.7	7.3	8.0	7.7	6.0	7.2
GRAND PRIX (LCB-103)	6.0	6.3	7.3	7.3	124.0	130.0	6.7	7.0	7.7	7.3	7.0	7.0	6.3	7.0
CRENSHAW	6.7	5.7	7.0	7.0	131.0	141.7	6.0	7.0	7.3	7.0	7.7	6.7	5.7	6.8
IMPERIAL	5.0	6.0	7.0	8.7	126.7	135.7	6.0	7.0	7.7	7.3	7.0	6.7	6.0	6.8
PENN A-1	6.0	6.3	6.7	8.0	128.3	136.3	6.3	6.7	7.0	7.3	7.0	6.7	6.3	6.8
PENN G-6	5.7	6.3	7.0	8.7	129.7	135.0	6.3	7.0	7.7	7.0	6.7	6.7	6.0	6.8
SR 1020	5.7	5.3	6.3	7.7	131.0	145.7	6.0	6.7	7.0	7.0	7.0	6.7	6.0	6.6
L-93	6.7	6.0	6.3	7.7	123.3	136.3	6.0	6.7	7.3	6.7	7.0	6.0	6.0	6.5
CATO	5.3	5.7	5.7	8.3	132.3	141.7	6.0	7.0	7.0	6.3	6.3	5.7	6.0	6.3
PROVIDENCE	6.0	6.0	5.7	7.3	130.3	141.7	5.7	6.7	7.3	6.7	6.3	5.3	6.3	6.3
BACKSPIN	5.0	6.0	6.3	7.7	131.7	140.3	6.0	6.7	6.7	6.0	6.3	6.0	6.0	6.2
SR 1119	6.3	5.7	6.0	6.7	129.0	142.3	5.3	6.7	7.0	6.3	7.0	6.0	5.3	6.2
PUTTER	6.0	5.7	5.3	7.0	124.3	129.0	5.7	6.3	6.3	6.0	6.3	5.3	6.3	6.0
TRUELINE	5.7	5.0	6.0	6.7	133.7	145.7	5.3	6.3	6.3	6.0	6.0	5.7	5.3	5.9
VIPER	6.3	5.0	5.7	6.0	135.0	148.3	5.3	6.0	6.3	6.3	6.0	5.0	5.7	5.8
PENNCROSS	5.3	4.7	4.7	7.0	123.7	141.0	5.0	6.3	5.7	5.0	5.0	4.3	5.0	5.2
LSD VALUE	1.1	1.0	0.8	2.0	14.6	22.7	1.1	1.0	0.8	0.9	0.7	1.0	1.1	0.4
C.V. (%)	9.8	8.9	7.4	12.3	4.3	6.2	9.4	7.0	6.5	8.3	6.5	9.5	8.6	4.3

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 13A. 1999 MANAGEMENT - ON-SITE BENTGRASS TEST AT SNOQUALMIE, WA (TPC AT SNOQUALMIE RIDGE)

ESTABLISHMENT		FERTILIZATION			FUNGICIDES		
Seeding date	8-Jun-98	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during		23-Feb	12.5% PCNB (14-2-14)	6	26-Jan	Scotts Fungicide X	4.8 lbs.
		15-Mar	Himag Step	1.5	23-Feb	12.5%PCNB-Granular	6 lbs.
FACTORS OF PLAY		23-Mar	Scotts (19-25-19)	2.5	5/25,6/23,8/20,10/8	Heritage	0.4
		5-Apr	Turf Blend (0-0-50)	1.5	13-Dec	Pen-Star	12
Date opened for play		5-Apr	Scotts (18-9-18)	0.5			
Date closed for play		7-May	Agrium (21-0-0)	1.6			
Type of spikes allowed		18-May	Turf Blend (0-0-50)	2.14			
	Metal Spikes / Softspikes				HERBICIDES		
Uses of green		5/25, 6/14, 7/7, 8/2, 8/20, 9/24,	N-Sure (28-0-0) N-Sure (28-0-0) -6/23	13.25oz. 15.88oz.	Date(s)	Product	Rate (oz./M)
MOWING		5/25 and 6/23	KTS (0-0-25)	9.14 & 13.25oz.	None		
Initial height	0.145"	7/7, 8/2, 8/20, 9/24	KTS (0-0-25)	10.6oz.			
Current height	0.187"						
Frequency	1-7X/week	6/23, 7/7, 8/2, 8/20, 9/24, 10/8	DP	3 oz.			
Type of mower					INSECTICIDES		
Rollers used	Grooved type wheilie roller						
Groomers used	1X/Week	16-Jul	Turf Blend (0-0-50)	2	Date(s)	Product	Rate (oz./M)
		7/23, 8/12, 9/2	MAP (12-61-0)	1.78			
CULTIVATION		7/30, 9/14	Gypril Lime	5	None		
		25-Aug	Dolopril-MAG Lime	8			
Aerfication - dates	5/10, 9/13	31-Aug	Gypril Lime	8			
Aerfication - type	Hollow Tines	10-Sep	Aguum (21-0-0)	1.9			
Verticutting or other cultivation	5/13, 6/3, 6/15, 6/28, 7/21, 8/9, 8/23, 10/12	1-Oct	Wilgro (19-4-19)	0.5			
		5-Oct	Dolopril-Lime	7	OTHER PRODUCTS		
		8-Oct	MAP (10-34-0)	0.4 oz.			
Dates of topdressing or other type products	5/13, 6/3, 6/15, 6/28, 7/21, 8/9, 8/23, 10/12 (1/8")	18-Oct	K-Power(13-75-0-46)	2.94	Date(s)	Product	Rate (oz./M)
		22-Oct	Calpril	5			
		26-Oct	Turf Blend (0-0-50)	2.32	None		
		5-Nov	K-Power(13-75-0-46)	3			
Other cultural practices	Rolling - 6/30, 7/1, 8/13, 8/14	5-Nov	MAP (12-61-0)	1			
		5-Nov	MAP (10-34-0)	1			
		Total/year	6.69 lbs. N, 7.3 lbs. P, 6.55lbs. K				

NOTES/COMMENTS

Product and company names mentioned herein may be trademarks and/or registered trademarks of their respective owners

TABLE 13B.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS IN THE
1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
AT SNOQUALMIE, WA (TPC AT SNOQUALMIE RIDGE) 1/
1999 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
TURFGRASS STIMPMETER READINGS MEASURED IN INCHES

NAME	GENETIC COLOR	SPRING GREENUP	LEAF TEXTURE	DENSITY SPRING	DENSITY FALL	STIMPMETER READINGS			QUALITY RATINGS												
						JULY	AUGUST	DECEMBER	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
PENN A-4	7.0	6.7	7.3	9.0	9.0	115.7	157.0	115.3	6.0	6.0	5.7	6.3	6.3	8.0	7.0	8.0	7.7	8.0	8.0	7.0	7.0
CENTURY	5.7	5.7	7.3	8.7	8.7	108.7	149.3	123.0	5.3	5.7	6.0	6.0	7.3	8.3	7.0	8.0	7.0	7.7	7.7	6.7	6.9
PENN G-1	7.0	6.0	7.0	8.7	8.7	111.3	145.0	125.7	4.7	5.0	5.7	5.7	8.0	7.7	7.0	8.0	6.7	7.7	8.0	6.3	6.7
GRAND PRIX (LCB-103)	6.0	5.7	6.7	8.0	8.0	117.0	158.3	123.0	5.0	5.0	5.3	5.7	6.7	7.3	7.0	8.0	6.7	7.3	8.0	7.0	6.6
PENN A-1	7.0	6.7	7.0	9.0	9.0	116.3	158.3	121.3	4.3	4.3	5.7	5.7	7.0	7.3	7.0	7.7	7.7	8.0	8.0	6.7	6.6
IMPERIAL	5.7	5.7	7.0	8.0	8.0	111.7	157.7	121.7	4.7	4.7	5.7	5.3	7.3	7.3	7.0	7.7	7.0	8.0	7.3	6.3	6.5
SR 1020	6.7	6.0	7.0	8.3	8.3	114.7	162.7	116.3	5.0	5.0	5.3	6.0	6.0	7.0	6.3	7.0	8.0	8.0	7.3	7.0	6.5
CATO	7.0	5.7	7.0	8.3	8.3	117.7	144.3	119.3	4.3	5.0	5.7	5.3	6.3	7.3	6.7	8.0	8.0	8.0	7.0	5.3	6.4
L-93	7.0	6.7	7.0	8.7	8.7	115.0	153.0	125.3	4.0	4.7	5.7	5.7	6.3	7.0	6.7	8.0	8.0	8.0	7.7	5.7	6.4
SR 1119	7.0	6.7	7.0	8.7	8.7	108.7	147.3	119.0	4.0	4.0	5.0	5.0	7.3	7.7	7.0	7.7	7.7	8.0	7.0	5.7	6.3
BACKSPIN	6.0	5.3	6.7	8.0	8.0	117.0	149.7	124.7	4.3	4.3	5.3	4.3	6.7	7.3	7.0	7.7	7.0	7.7	7.3	5.7	6.2
PENN G-6	6.7	6.3	7.0	8.3	8.7	111.3	148.3	131.7	3.3	3.3	5.0	5.0	6.7	6.7	7.0	7.0	7.0	8.0	8.0	5.7	6.1
PROVIDENCE	6.7	5.7	6.7	8.0	8.0	114.0	154.7	124.7	3.7	4.3	5.0	5.0	6.7	7.0	6.3	6.7	7.7	8.0	7.7	5.3	6.1
TRUELINE	6.7	6.0	7.0	8.3	8.3	114.3	156.3	116.0	4.0	4.0	5.0	5.0	6.3	6.3	6.7	7.3	7.3	8.0	6.7	5.3	6.0
VIPER	6.7	6.7	7.0	8.3	8.3	111.3	153.7	133.0	3.7	4.0	5.0	5.3	6.7	6.7	6.0	7.0	8.0	8.0	6.7	5.0	6.0
PUTTER	6.0	5.0	6.0	7.0	7.0	118.3	153.0	123.0	4.3	5.0	5.7	5.0	5.7	7.0	5.7	6.0	7.3	7.0	7.0	5.7	5.9
CRENSHAW	7.0	5.0	7.0	8.7	8.7	125.7	160.0	121.0	3.0	3.0	4.0	4.7	6.7	6.7	6.0	7.0	7.3	8.0	7.0	4.7	5.7
PENNCROSS	5.7	4.0	6.3	6.3	6.3	121.7	163.7	119.0	3.0	4.0	4.3	4.0	4.7	5.3	5.0	5.0	6.0	6.3	6.0	4.3	4.8
LSD VALUE	0.6	0.7	0.6	0.7	0.6	16.0	29.0	18.2	0.7	0.5	0.8	0.7	1.3	0.8	0.5	0.5	0.9	0.5	0.6	0.9	0.2
C.V. (%)	6.0	7.7	4.8	5.1	4.9	5.5	6.4	5.8	10.2	7.7	8.8	8.1	10.6	7.1	4.9	4.5	7.1	3.9	5.4	9.6	2.5

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.