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News from the UCR Turfgrass Program

USGA, GCSAA, and NTEP On-site Testing of Grasses for Overseeding Bermudagrass Fairways, 2004-2006: Final Two Overseed Season Results of the Southern California Location

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Please see the August 2006 "News" available on the UCR Turf website (http://ucrturf.ucr.edu) under "Publications" for additional information, including: complete data set; additional information about cultivar and species composition and sponsor of the overseed turfgrass treatments and the 12 locations and cooperators involved in this national study; plot plan of the southern California location and additional turfgrass management information; selected results from the 1999-2001 USGA, GCSAA, and NTEP on-site testing of grasses for overseeding bermudagrass fairways; and link to the complete data set from all 12 locations at the NTEP website (www.ntep.org).

Objectives: To evaluate 31 experimental and commercially available cultivars and blends of perennial and intermediate ryegrasses and cultivars of *Poa trivialis* (Table 1) used in overseeding bermudagrass fairways under actual golf course conditions during two consecutive fall-to-summer overseed seasons. This is a national study, involving 12 locations, so an additional objective was to evaluate the performance of the same collection of overseed turfgrass treatments for both local and regional adaptation and for a broader adaptation across the southern United States.

Materials and Methods: The California location was at Indian Wells Country Club, Classic Golf Course in Indian Wells. For the first overseed season (2004 to 2005), the study was seeded in Fairway No. 8 on 16 Oct. 2004 and included three 5.0- x 20.0-ft replicate plots for each of the 31 overseed turfgrass treatments. All ryegrasses were seeded at 600 lb/acre and *Poa trivialis* was seeded at 200 lb/acre. For the second overseed season (2005 to 2006), all treatments and replicates were overseeded onto the same plots on 13 Oct. 2005. The area used for the study was maintained in the same manner as all other fairways on the golf course. The same type of visual ratings was taken during both overseed seasons and included (number of ratings/season): for the overseed turfgrass, percent establishment (1-2), genetic color (1), density (1), and leaf texture (1); turfgrass quality (including bermudagrass and overseed turfgrass) (7-8); percent coverage of bermudagrass and overseed turfgrass during the fall (2) and spring (4) transitions; and other ratings.

Findings: Two-season average ratings for five variables are shown in Table 1. These data show that differences among overseed turfgrass treatments may or may not be significantly different (see LSD value). *Poa trivialis* generally had a relatively slow establishment rate, a low genetic color and visual turfgrass quality, and was most persistent during the spring transition.

Table 1. Two-season average ratings for percent coverage of overseed turfgrass during establishment, fall and spring transitions, genetic color of overseed turfgrass, and visual turfgrass quality for a bermudagrass fairway overseeded with 31 treatments consisting of cultivars and blends of perennial and intermediate ryegrasses, and cultivars of *Poa trivialis*, in Indian Wells, Calif., over the 2004-2005 and 2005-2006 overseed seasons.

		Two-season average				
		Percent coverage of overseed turfgrass			Genetic color of	
Treatment	Species[z]	Estab. (Nov.)[y]	Fall transition (Dec.)[x]	Spring transition (May)[w]	overseed turfgrass[v,u]	Visual turfgrass quality[t,s]
Charger	PR	73	77	22	6.0	6.1
Winterplay	*PT*	60	76	35	4.4	5.3
ProSelect	PRb	74	78	20	6.6	6.1
Marvelgreen Supreme	PRb	67	81	25	6.5	5.8
ALS2	PR	72	80	20	6.8	5.9
PRS2	PR	68	78	25	6.6	6.1
Overseeding Eagle Blend	PRb	77	80	23	6.8	6.1
Futura 2500	PRb/IR	63	75	28	6.8	6.1
Pick SD	PR	56	72	27	6.4	5.5
Playmate	PRb	63	78	25	6.8	6.1
BMX 020383	PR	63	76	28	7.3	6.3
RAD-OS3	IR	73	80	20	6.0	6.1
RAM-100	*PT*	59	82	41	4.8	5.5
IS-OS	PR	80	84	18	6.6	6.2
Top Hat	PR	75	81	23	6.2	6.3
IS-IR3	IR	72	87	18	6.3	6.3
Champion GQ	PRb	78	82	22	6.1	5.8
Magnum Gold	PRb	69	85	30	6.7	5.9
Flash II	PR	80	90	20	6.8	6.5
MTV-124	PR	62	78	23	6.4	5.8
OS	PR	70	83	32	7.0	6.5
STP	PR	69	79	22	6.9	6.1
PR 17	PR	75	73	20	6.5	6.0
Starlite	*PT*	47	68	34	4.8	5.4
CRR	PR	74	83	22	7.0	6.3
League Master	PRb	69	78	20	6.8	6.0
OSC110	PR	73	84	20	6.6	6.1
OSC108	PR	68	84	25	7.0	6.2
Covet	PR	77	81	25	6.5	6.1
OSC116	PR	68	82	33	6.7	6.1
Colt	*PT*	39	43	23	4.0	4.5
LSD, $P = 0.05$[r]		13	12	10	0.6	0.4
Mean		68	79	25	6.4	6.0

[z] PR = perennial ryegrass, PRb = perennial ryegrass blend, IR = intermediate ryegrass, *PT* = *Poa trivialis*.

[y] Average of two ratings taken on 18 Nov. 2004 and 22 Nov. 2005.

[x] Average of two ratings taken on 16 Dec. 2004 and 20 Dec. 2005.

[w] Average of two ratings taken on 4 May 2005 and 10 May 2006.

[v] Scale: 1 to 9, 1 = brown, 6.5 = minimally acceptable, 9 = darkest green.

[u] Average of two ratings taken on 4 Mar. 2005 and 8 Mar. 2006.

[t] Scale: 1 to 9, 1 = worst, 6.5 = minimally acceptable, 9 = best quality.

[s] Average of 15 ratings taken between 2 Dec. 2004 and 9 June 2005 (8 ratings) and 1 Dec. 2005 and 10 May 2006 (7 ratings).

[r] Mean separation by Fisher's protected LSD test (two treatments are significantly different when the difference between their means is greater than or equal to the LSD value.

Note: The study was seeded on 16 Oct. 2004 for the first overseed season and 13 Oct. 2005 for the second overseed season.

Note: All ryegrasses were seeded at 600 lb/acre and *Poa trivialis* was seeded at 200 lb/acre.

USGA, GCSAA, and NTEP On-site Testing of Grasses for Overseeding Bermudagrass Fairways, 2004-2006

Additional Information about Cultivar and Species Composition of the Overseed Turfgrass Treatments and the 12 Locations and Cooperators Involved in the National Study

Table 1. Thirty-one entries for the 2004-2006 on-site testing of grasses for overseeding of bermudagrass fairways.

Entry name	Species or composition	Sponsor
Charger	Perennial ryegrass	Standard entry
Winterplay	*Poa trivialis*	Standard entry
ProSelect	40% Jet, 40% Sonata, 20% Integra perennial ryegrass blend	Pennington Seed Co.
Marvelgreen Supreme	40% Palmer IV, 40% Prelude IV, 40% Sunkissed perennial ryegrass blend	ProSeed Marketing, Inc.
ALS2	Perennial ryegrass	LESCO, Inc.
PRS2	Perennial ryegrass	LESCO, Inc.
Overseeding Eagle Blend	33% Greenville, 33% ProSport, 34% Pacesetter perennial ryegrass blend	LESCO, Inc.
Futura 2500	30% Blazer 4, 30% Sunshine II perennial ryegrasses and 40% Pick Lh A-00 intermediate ryegrass	Pickseed West, Inc.
Pick SD	Perennial ryegrass	Pickseed West, Inc.
Playmate	50% Headstart 2, 50% Pick HS-01-09 perennial ryegrass blend	TurfOne
BMX 020383	Perennial ryegrass	Lewis Seed
RAD-OS3	Intermediate ryegrass	Lewis Seed
RAM-100	*Poa trivialis*	Lewis Seed
IS-OS	Perennial ryegrass	DLF International Seeds
Top Hat	Perennial ryegrass	Standard entry
IS-IR3	Intermediate ryegrass	DLF International Seeds
Champion GQ	34% SR 4550, 33% SR 4420, 33% SR 4220 perennial ryegrass blend	Seed Research of Oregon
Magnum Gold	34% Peregrine, 33% Hawkeye, 33% Penguin perennial ryegrass blend	Seed Research of Oregon
Flash II	Perennial ryegrass	Mountain View Seed Ltd.
MTV-124	Perennial ryegrass	Mountain View Seed Ltd.
OS	Perennial ryegrass	Mountain View Seed Ltd.
STP	Perennial ryegrass	Mountain View Seed Ltd.
PR 17	Perennial ryegrass	Mountain View Seed Ltd.
Starlite	*Poa trivialis*	Mountain View Seed Ltd.
CRR	Perennial ryegrass	Novel AG
League Master	40% Ringer, 20% Omega, 20% 04-BRE, 20% 04-BEN perennial ryegrass blend	Oregro Seeds
OSC110	Perennial ryegrass	Olsen Seed Co.
OSC108	Perennial ryegrass	Olsen Seed Co.
Covet	Perennial ryegrass	Olsen Seed Co.
OSC116	Perennial ryegrass	Olsen Seed Co.
Colt	*Poa trivialis*	Standard entry

Table 2. Twelve locations for the 2004-2006 on-site testing of grasses for overseeding bermudagrass fairways.

Golf course	Location	Superintendent	Research cooperator
Pinehurst Resort & CC	Pinehurst, NC	Bob Farren	Art Bruneau, North Carolina State Univ.
The John E. Kirkpatrick Five-Hole Demonstration GC	Oklahoma City, OK	David Gerken	Dennis Martin & David Gerken, Oklahoma State Univ.
New Mexico State Univ. GC	Las Cruces, NM	Bruce Erhard	Bernd Leinauer, New Mexico State Univ.
Roanoke CC	Roanoke, VA	Dan Wheeler	Mike Goatley, Virginia Tech
Mississippi State Univ. GC	Starkville, MS	James Patrick Sneed	H. Wayne Philley, Mississippi State Univ.
The Palmer Course at Starrs Mill	Fayetteville, GA (Atlanta area)	Ryan Mattocks	Clint Waltz, Univ. of Georgia
University of Florida GC	Gainesville, FL	Todd Wilkinson	Grady L. Miller, Univ. of Florida, Gainesville
Osceola Golf Club	Pensacola, FL	Eddie Daigle	J. Bryan Unruh, Univ. of Florida, Milton
The Traditions Club at Texas A&M	Bryan, TX	Sean Hogan	David Chalmers, Texas A&M Univ.
Heritage Highlands Golf & CC	Marana, AZ (Tucson area)	David Herman, GCSA	David Kopec, Univ. of Arizona
Blackmoor GC	Myrtle Beach, SC	Bob Zuecher	Bruce Martin, Clemson Univ.
Indian Wells Country Club	Indian Wells, CA	David Hay	Sowyma Mitra, Cal-Poly Pomona Robert Green, Univ. of California, Riverside

USGA, GCSAA, and NTEP On-site Testing of Grasses for Overseeding Bermudagrass Fairways, 2004-2006

Plot Plan of the Southern California Location and Additional Turfgrass Management Information

NTEP On-Site Fairway Overseeding Trial: 2004-2006

Indian Wells Country Club, Classic Golf Course, Indian Wells, CA

Rev. 07/06

Fairway 8, Par 5 (N↑)

⇦ green tees ⇨

111 11	110 10	109 9	108 8	107 7	106 6	105 5	104 4	103 3	102 2	101 1
Rep I	121 21	120 20	119 19	118 18	117 17	116 16	115 15	114 14	113 13	112 12
	131 31	130 30	129 29	128 28	127 27	126 25	125 24	124 24	123 23	122 22

Cart Path

211 14	210 7	209 12	208 3	207 15	206 16	205 21	204 5	203 17	202 27	201 13
Rep II	221 28	220 25	219 11	218 23	217 19	216 18	215 4	214 9	213 6	212 22
	231 2	230 8	229 1	228 29	227 24	226 30	225 20	224 26	223 31	222 10

≈20 inches

311 6	310 13	309 10	308 21	307 8	306 24	305 4	304 28	303 31	302 16	301 25
Rep III	321 22	320 15	319 2	318 12	317 7	316 5	315 20	314 3	313 14	312 26
	331 19	330 9	329 11	328 30	327 17	326 27	325 18	324 29	323 23	322 1

Note: Plot size is 5 ft x 20 ft

TREATMENTS:

#	Name	Species
1	Charger	PR
2	Winterplay	*PT*
3	ProSelect	PRb
4	Marvelgreen Supreme	PRb
5	ALS2	PR
6	PRS2	PR
7	Overseeding Eagle Blend	PRb
8	Futura 2500	PRb/IR
9	Pick SD	PR
10	Playmate	PRb
11	BMX 020383	PR
12	RAD-OS3	IR
13	RAM-100	*PT*
14	IS-OS	PR
15	Top Hat	PR
16	IS-IR3	IR
17	Champion GQ	PRb
18	Magnum Gold	PRb
19	Flash II	PR
20	MTV-124	PR
21	OS	PR
22	STP	PR
23	PR 17	PR
24	Starlite	*PT*
25	CRR	PR
26	League Master	PRb
27	OSC110	PR
28	OSC108	PR
29	Covet	PR
30	OSC116	PR
31	Colt	*PT*

PR=perennial ryegrass; PRb=perennial ryegrass blend; IR=intermediate ryegrass; *PT=Poa trivialis*

Seeding rates: PR, PRb, IR = 600 lb/a; *PT* = 200 lb/a

2004-2005 Management Information for the USGA, GCSAA, and NTEP On-Site Testing of Grasses for Overseeding Bermudagrass Fairways

Location:
Indian Wells Country Club, Classic Course, 8th Fairway

SEEDBED PREPARATION
Scalp to stolons

MOWING

Initial height	3/4"
mowing height during test	1/2"
Frequency	6 days/week
Type of mower	Toro 5400 ReelMaster

CULTIVATION

Aerfication - dates	N/A
Aerification - type	N/A
Verticutting	N/A
Dates of topdressing	N/A
Other cultural practices	N/A

MAINTENANCE PRACTICES TO ENHANCE SPRING TRANSITION

OTHER INFORMATION

Course closed for overseeding	Yes
Landing area	Yes
Divoting problem	No
Cart allowed on Test area	Yes
Traffic patterns	No

NOTES/COMMENTS

We scalp to the point that only stolons are left. Spread the seed and water every 1.5 hours the first 4 days then gradually reduce the water to night water only after 17 days. We don't do anything special to aid in the transition process.

FERTILIZATION

Date(s)	Product	Rate (lbs./M)
11/4/2004	Best 12-12-12	0.75 lb N/M
12/8/2004	Best 22-3-9 NitraKing	1.0 lb N/M
1/25/2005	Best 22-3-9 NitraKing	1.0 lb N/M
5/5/2005	Best 25-5-5	1.3 lb N/M
Monthly	AN 20 (Liquid)	0.1 lb N/M

FUNGICIDES

Date(s)	Product	Rate (oz./M)
N/A		

HERBICIDES

Date(s)	Product	Rate (oz./M)
N/A		

INSECTICIDES

Date(s)	Product	Rate (oz./M)
N/A		

OTHER PRODUCTS

Date(s)	Product	Rate (oz./M)
10/15-25/2004	Dispatch	Accumulative of 2 oz/M (injected through irrigation system)
10/28/2004	Primo Maxx	0.25 oz/M

2005-2006 Management Information for the USGA, GCSAA, and NTEP On-Site Testing of Grasses for Overseeding Bermudagrass Fairways

Location:
Indian Wells Country Club, Classic Course, 8th Fairway

SEEDBED PREPARATION
Scalp to stolons

MOWING

Initial height	3/4"
mowing height during test	1/2"
Frequency	6 days/week
Type of mower	Toro 5400 ReelMaster

CULTIVATION

Aerfication - dates	N/A
Aerification - type	N/A
Verticutting	N/A
Dates of topdressing	N/A
Other cultural practices	N/A

MAINTENANCE PRACTICES TO ENHANCE SPRING TRANSITION

We scalp to the point that only stolons are left. Spread the seed and water every 1.5 hours the first 4 days then gradually reduce the water to night water only after 17 days. We don't do anything special to aid in the transition process.

OTHER INFORMATION

Course closed for overseeding	Yes
Landing area	Yes
Divoting problem	No
Cart allowed on Test area	Yes
Traffic patterns	No

NOTES/COMMENTS
Primo and Turflon are tank mixed.

FERTILIZATION

Date(s)	Product	Rate (lbs./M)
11/2/2005	Best 12-12-12	.9 lb N/M
12/27/2005	Best 22-3-9 NitraKing	1.0 lb N/M
1/25/2006	Best 22-3-9 NitraKing	1.0 lb N/M
4/4/2006	Best 25-5-5	1.3 lb N/M
Monthly	AN 20 (Liquid)	0.15 lb N/M

FUNGICIDES

Date(s)	Product	Rate (oz./M)
N/A		

HERBICIDES

Date(s)	Product	Rate (oz./M)
31-Oct-05	Turflon Esther	.14 oz/M

INSECTICIDES

Date(s)	Product	Rate (oz./M)
N/A		

OTHER PRODUCTS

Date(s)	Product	Rate (oz./M)
10/15-25/05	Dispatch	Accumulative of 2 oz/M (injected through irrigation system)
10/31/2005	Primo Maxx	0.25 oz/M

USGA, GCSAA, and NTEP On-site Testing of Grasses for Overseeding Bermudagrass Fairways, 2004-2006

2-Year Overall Analyses of Selected Data
2004-2006

Table 1. Two-season average ratings for visual turfgrass plot quality, plot color, overseed turfgrass color, leaf texture, and leaf density for a bermudagrass fairway overseeded with 31 treatments consisting of cultivars and blends of perennial and intermediate ryegrasses, and cultivars of *Poa trivialis*, in Indian Wells, Calif., over the 2004-2005 and 2005-2006 overseed seasons.

		Two-season average				
		Plot (overseed turfgrass + bermudagrass)		Overseed turfgrass		
Treatment	Species[z]	Quality[y,x]	Color[w,v]	Color[v,u]	Leaf texture[t,s]	Density[r,q]
Charger	PR	6.1	6.8	6.0	7.0	6.3
Winterplay	*PT*	5.3	5.1	4.4	7.2	5.6
ProSelect	PRb	6.1	6.7	6.6	6.8	6.0
Marvelgreen Supreme	PRb	5.8	5.7	6.5	7.0	5.4
ALS2	PR	5.9	6.6	6.8	7.0	5.8
PRS2	PR	6.1	6.4	6.6	7.2	6.2
Overseeding Eagle Blend	PRb	6.1	6.8	6.8	6.9	6.6
Futura 2500	PRb/IR	6.1	6.8	6.8	6.8	6.3
Pick SD	PR	5.5	5.6	6.4	7.0	5.9
Playmate	PRb	6.1	5.9	6.8	7.0	6.6
BMX 020383	PR	6.3	6.7	7.3	7.0	6.9
RAD-OS3	IR	6.1	6.4	6.0	6.8	6.8
RAM-100	*PT*	5.5	5.4	4.8	7.8	5.8
IS-OS	PR	6.2	6.7	6.6	7.0	6.2
Top Hat	PR	6.3	6.3	6.2	7.0	7.0
IS-IR3	IR	6.3	6.8	6.3	7.0	6.3
Champion GQ	PRb	5.8	5.8	6.1	7.1	5.8
Magnum Gold	PRb	5.9	5.8	6.7	7.0	5.7
Flash II	PR	6.5	6.8	6.8	7.2	6.3
MTV-124	PR	5.8	6.1	6.4	7.0	5.8
OS	PR	6.5	6.9	7.0	6.9	7.1
STP	PR	6.1	6.5	6.9	7.2	6.3
PR 17	PR	6.0	6.6	6.5	7.0	6.0
Starlite	*PT*	5.4	5.8	4.8	7.4	5.8
CRR	PR	6.3	6.9	7.0	6.8	6.8
League Master	PRb	6.0	6.4	6.8	7.1	5.8
OSC110	PR	6.1	6.6	6.6	7.2	6.1
OSC108	PR	6.2	6.8	7.0	7.0	6.7
Covet	PR	6.1	6.7	6.5	7.3	5.7
OSC116	PR	6.1	6.8	6.7	7.0	6.3
Colt	*PT*	4.5	3.7	4.0	7.5	4.3
LSD, $P = 0.05$[p]		0.4	0.7	0.5	0.4	1.2
Mean		6.0	6.3	6.4	7.1	6.1

[z] PR = perennial ryegrass, PRb = perennial ryegrass blend, IR = intermediate ryegrass, *PT* = *Poa trivialis*.

[y] Average of 15 ratings taken between 2 Dec. 2004 and 9 June 2005 (8 ratings) and 1 Dec. 2005 and 10 May 2006 (7 ratings).

[x] Scale: 1 to 9, 1 = worst, 6.5 = minimally acceptable, 9 = best quality.

[w] Average of two ratings taken on 20 Jan. 2005 and 19 Jan. 2006.

[v] Scale: 1 to 9, 1 = brown, 6.5 = minimally acceptable, 9 = darkest green.

[u] Average of two ratings taken on 4 Mar. 2005 and 8 Mar. 2006.

[t] Average of two ratings taken on 6 Apr. 2005 and 5 Apr. 2006.

[s] Scale: 1 to 9, 1 = fine and 9 = coarse leaf texture.

[r] Average of two ratings taken on 6 Apr. 2005 and 8 Feb. 2006.

[q] Scale: 1 to 9, 1 = bare and 9 = maximum density.

[p] Mean separation by Fisher's protected LSD test (two treatments are significantly different when the difference between their means is greater than or equal to the LSD value).

Note: The study was seeded on 16 Oct. 2004 for the first overseed season and 13 Oct. 2005 for the second overseed season.

Note: All ryegrasses were seeded at 600 lb/acre and *Poa trivialis* was seeded at 200 lb/acre.

Table 2. Two-season average ratings for percent coverage of overseed turfgrass during establishment, fall and spring transitions for a bermudagrass fairway overseeded with 31 treatments consisting of cultivars and blends of perennial and intermediate ryegrasses, and cultivars of *Poa trivialis*, in Indian Wells, Calif., over the 2004-2005 and 2005-2006 overseed seasons.

		Two-season average				
		Establishment	Fall transition	Spring transition		
Treatment	Species[z]	(November)[y]	December[x]	March[w]	April[v]	May[u]
Charger	PR	73.3	76.7	76.7	44.2	21.7
Winterplay	*PT*	60.0	75.8	91.7	46.7	35.0
ProSelect	PRb	74.2	78.0	76.7	37.5	20.0
Marvelgreen Supreme	PRb	66.7	80.8	68.3	35.0	25.0
ALS2	PR	71.7	80.0	67.5	36.7	20.0
PRS2	PR	68.0	78.0	81.0	52.0	25.0
Overseeding Eagle Blend	PRb	76.7	80.0	75.0	48.3	23.3
Futura 2500	PRb/IR	63.3	75.0	79.2	45.0	27.5
Pick SD	PR	55.8	71.7	65.8	41.7	26.7
Playmate	PRb	63.3	78.3	81.7	45.0	25.0
BMX 020383	PR	62.5	75.8	85.0	52.5	28.3
RAD-OS3	IR	73.3	80.0	85.0	47.5	20.0
RAM-100	*PT*	59.2	81.7	87.5	50.0	40.8
IS-OS	PR	80.0	84.0	84.0	46.0	18.0
Top Hat	PR	75.0	80.8	85.8	52.5	23.3
IS-IR3	IR	71.7	86.7	89.2	45.8	17.5
Champion GQ	PRb	77.5	81.7	70.8	35.0	21.7
Magnum Gold	PRb	69.2	85.0	65.0	37.5	30.0
Flash II	PR	80.0	90.0	81.7	45.0	20.0
MTV-124	PR	61.7	77.5	64.2	37.5	23.3
OS	PR	70.0	83.3	83.3	49.2	31.7
STP	PR	69.2	79.2	80.8	44.2	21.7
PR 17	PR	75.0	73.3	70.0	40.0	20.0
Starlite	*PT*	46.7	68.3	84.2	35.8	34.2
CRR	PR	74.2	83.3	81.7	47.5	21.7
League Master	PRb	69.2	78.3	72.5	40.8	20.0
OSC110	PR	72.5	84.2	68.3	41.7	20.0
OSC108	PR	68.3	84.2	80.8	47.5	25.0
Covet	PR	76.7	80.8	70.8	43.3	25.0
OSC116	PR	67.5	81.7	76.7	42.5	33.3
Colt	*PT*	39.2	43.3	60.0	48.3	23.3
LSD, $P = 0.05$[t]		12.8	11.6	NS	NS	9.9
Mean		68.0	78.6	77.1	43.9	24.8

[z] PR = perennial ryegrass, PRb = perennial ryegrass blend, IR = intermediate ryegrass, *PT* = *Poa trivialis*.

[y] Average of two ratings taken on 18 Nov. 2004 and 22 Nov. 2005.

[x] Average of two ratings taken on 16 Dec. 2004 and 20 Dec. 2005.

[w] Average of two ratings taken on 4 Mar. 2005 and 8 Mar. 2006.

[v] Average of two ratings taken on 6 Apr. 2005 and 5 Apr. 2006.

[u] Average of two ratings taken on 4 May 2005 and 10 May 2006.

[t] Mean separation by Fisher's protected LSD test (two treatments are significantly different when the difference between their means is greater than or equal to the LSD value).

Note: The study was seeded on 16 Oct. 2004 for the first overseed season and 13 Oct. 2005 for the second overseed season.

Note: All ryegrasses were seeded at 600 lb/acre and *Poa trivialis* was seeded at 200 lb/acre.

Table 3. Two-season average ratings for percent coverage of green bermudagrass during fall and spring transitions for a bermudagrass fairway overseeded with 31 treatments consisting of cultivars and blends of perennial and intermediate ryegrasses, and cultivars of *Poa trivialis*, in Indian Wells, Calif., over the 2004-2005 and 2005-2006 overseed seasons.

		Two-season average			
		Fall transition	Spring transition		
Treatment	Species[z]	December[y]	March[x]	April[w]	May[v]
Charger	PR	11.7	5.8	29.2	68.3
Winterplay	*PT*	10.0	5.8	48.3	56.7
ProSelect	PRb	15.0	10.0	41.7	68.3
Marvelgreen Supreme	PRb	10.8	10.8	34.2	53.3
ALS2	PR	11.7	11.7	36.7	58.3
PRS2	PR	14.0	16.0	39.0	71.0
Overseeding Eagle Blend	PRb	14.2	11.7	32.5	65.0
Futura 2500	PRb/IR	15.0	13.3	36.7	63.3
Pick SD	PR	15.8	13.3	30.8	55.0
Playmate	PRb	11.7	11.7	37.5	68.3
BMX 020383	PR	10.8	11.7	36.7	66.7
RAD-OS3	IR	10.8	8.3	36.7	73.3
RAM-100	*PT*	8.3	9.2	40.0	52.5
IS-OS	PR	12.0	10.0	34.0	72.0
Top Hat	PR	10.8	9.2	35.8	71.7
IS-IR3	IR	10.8	9.2	43.3	67.5
Champion GQ	PRb	11.7	12.5	29.2	58.3
Magnum Gold	PRb	11.7	13.3	32.5	51.7
Flash II	PR	7.5	9.2	35.8	72.5
MTV-124	PR	12.5	10.8	29.2	60.0
OS	PR	12.5	13.3	42.5	60.0
STP	PR	9.2	7.5	34.2	66.7
PR 17	PR	14.2	10.8	31.7	63.3
Starlite	*PT*	16.7	8.3	42.5	52.5
CRR	PR	10.0	12.5	40.8	70.0
League Master	PRb	11.7	13.3	36.7	66.7
OSC110	PR	12.5	12.5	37.5	65.0
OSC108	PR	11.7	11.7	35.8	65.0
Covet	PR	10.8	13.3	32.5	58.3
OSC116	PR	10.8	9.2	35.0	56.7
Colt	*PT*	14.2	9.2	22.5	56.7
LSD, $P = 0.05$[p]		NS	NS	NS	12.2
Mean		11.9	10.8	35.8	63.0

[z] PR = perennial ryegrass, PRb = perennial ryegrass blend, IR = intermediate ryegrass, *PT* = *Poa trivialis*.

[y] Average of two ratings taken on 16 Dec. 2004 and 20 Dec. 2005.

[x] Average of two ratings taken on 4 Mar. 2005 and 8 Mar. 2006.

[w] Average of two ratings taken on 6 Apr. 2005 and 5 Apr. 2006.

[v] Average of two ratings taken on 4 May 2005 and 10 May 2006.

[t] Mean separation by Fisher's protected LSD test (two treatments are significantly different when the difference between their means is greater than or equal to the LSD value).

Note: The study was seeded on 16 Oct. 2004 for the first overseed season and 13 Oct. 2005 for the second overseed season.

Note: All ryegrasses were seeded at 600 lb/acre and *Poa trivialis* was seeded at 200 lb/acre.

USGA, GCSAA, and NTEP On-site Testing of Grasses for Overseeding Bermudagrass Fairways, 2004-2006

First Year Data

2004-2005

Table 1. Visual turfgrass quality ratings (scale: 1 to 9, 1 = worst, 6.5 = minimally acceptable, 9 = best quality) for a bermudagrass fairway overseeded with 31 treatments consisting of cultivars and blends of perennial and intermediate ryegrasses, and cultivars of *Poa trivialis*, in Indian Wells, Calif., during the 2004-2005 overseed season.

		Fall transition			Winter season			Spring transition					
Treatment	Species[z]	2 Dec. 2004`	16 Dec. 2004	Overall	20 Jan. 2005	9 Feb. 2005	Overall	4 Mar. 2005	6 Apr. 2005	4 May 2005	9 June 2005	Overall	Grand overall
Charger	PR	6.2	6.5	6.3	7.2	7.0	7.1	6.5	6.5	6.0	6.3	6.3	6.5
Winterplay	*PT*	5.0	5.5	5.3	5.8	5.8	5.8	5.3	5.7	6.2	4.0	5.4	5.5
ProSelect	PRb	6.3	6.3	6.3	6.5	7.3	6.9	7.3	6.0	5.8	5.8	6.3	6.5
Marvelgreen Supreme	PRb	6.8	7.0	6.9	5.8	6.8	6.3	6.5	5.5	5.2	6.3	5.8	6.2
ALS2	PR	6.3	6.8	6.6	6.3	7.0	6.7	6.8	6.0	5.5	6.0	6.1	6.4
PRS2	PR	6.0	6.5	6.3	6.5	7.3	6.9	6.7	6.3	5.8	6.3	6.3	6.4
Overseeding Eagle Blend	PRb	7.2	6.8	7.0	7.2	7.2	7.2	7.3	6.8	6.0	5.3	6.5	6.8
Futura 2500	PRb/IR	6.8	7.0	6.9	6.5	6.8	6.7	6.7	6.3	5.3	6.0	6.1	6.5
Pick SD	PR	6.2	6.7	6.4	6.0	6.5	6.3	6.3	6.2	5.7	6.0	6.0	6.2
Playmate	PRb	6.7	6.8	6.8	5.8	7.2	6.5	6.5	6.3	6.0	6.3	6.3	6.5
BMX 020383	PR	7.0	7.2	7.1	7.0	7.0	7.0	7.5	6.7	5.3	6.0	6.4	6.7
RAD-OS3	IR	6.3	6.5	6.4	7.0	6.7	6.8	6.2	7.0	6.2	5.5	6.3	6.5
RAM-100	*PT*	4.7	5.3	5.0	6.0	6.5	6.3	5.2	5.8	5.7	5.3	5.5	5.6
IS-OS	PR	6.5	6.5	6.5	6.7	7.2	6.9	7.2	6.3	6.2	6.3	6.5	6.6
Top Hat	PR	6.8	6.3	6.6	6.5	6.8	6.7	6.7	6.7	6.3	6.5	6.5	6.6
IS-IR3	IR	6.2	6.2	6.2	6.5	6.7	6.6	6.8	6.3	6.3	7.0	6.6	6.5
Champion GQ	PRb	6.8	6.7	6.8	6.2	7.0	6.6	6.7	6.0	5.3	5.0	5.8	6.3
Magnum Gold	PRb	6.5	6.8	6.7	6.0	6.8	6.4	6.5	5.3	5.0	5.8	5.6	6.1
Flash II	PR	7.3	7.2	7.3	7.2	7.2	7.2	7.5	6.5	6.2	6.8	6.7	7.0
MTV-124	PR	6.3	6.8	6.6	6.3	7.3	6.8	6.3	5.8	5.7	5.0	5.8	6.3
OS	PR	6.8	6.5	6.7	7.2	6.8	7.0	7.0	6.8	5.8	5.8	6.4	6.6
STP	PR	6.5	7.0	6.8	6.5	7.5	7.0	6.7	6.7	6.3	7.0	6.6	6.8
PR 17	PR	6.7	7.0	6.8	7.0	7.8	7.4	6.8	6.3	6.0	6.3	6.4	6.8
Starlite	*PT*	4.5	5.3	4.9	5.7	6.7	6.2	5.2	6.3	6.8	3.8	5.7	5.6
CRR	PR	6.5	7.2	6.8	6.5	7.2	6.8	7.0	6.5	5.8	6.0	6.4	6.6
League Master	PRb	6.5	6.7	6.6	6.7	7.3	7.0	7.0	6.3	6.0	5.8	6.3	6.6
OSC110	PR	6.8	7.2	7.0	6.7	7.2	6.9	6.7	6.2	5.7	5.8	6.1	6.5
OSC108	PR	7.0	6.8	6.9	6.5	6.8	6.7	6.8	6.7	6.0	6.0	6.4	6.6
Covet	PR	7.0	7.0	7.0	6.7	7.0	6.8	6.7	6.3	5.8	5.5	6.1	6.5
OSC116	PR	7.2	7.3	7.3	7.2	7.7	7.4	7.3	6.5	5.5	4.8	6.1	6.8
Colt	*PT*	4.7	5.3	5.0	5.8	5.7	5.8	4.7	5.8	6.0	5.5	5.5	5.4
LSD, $P = 0.05$[y]		0.9	0.9	0.8	1.0	0.7	0.6	0.8	NS	NS	NS	0.7	0.5
Mean		6.4	6.6	6.5	6.5	7.0	6.7	6.6	6.3	5.9	5.8	6.2	6.4
C.V. (%)		9.0	8.4	5.9	9.2	6.1	7.7	7.4	8.6	10.8	13.9	8.3	8.0

[z]PR = perennial ryegrass, PRb = perennial ryegrass blend, IR = intermediate ryegrass, *PT* = *Poa trivialis*.

[y]Mean separation by Fisher's protected LSD test (two treatments are significantly different when the difference between their means is greater than or equal to the LSD value).

Note: The study was seeded 16 Oct. 2004 with three 5.0- x 20.0-ft replicate plots for each of the 31 overseed turfgrass treatments.

Note: All ryegrasses were seeded at 600 lb/acre and *Poa trivialis* was seeded at 200 lb/acre.

Table 2. Percent coverage of overseed turfgrass during establishment, fall transition, winter season, and spring transition for a bermudagrass fairway overseeded with 31 treatments consisting of cultivars and blends of perennial and intermediate ryegrasses, and cultivars of *Poa trivialis*, in Indian Wells, Calif., during the 2004-2005 overseed season.

		Establishment		Fall transition		Winter season	Spring transition			
Treatment	Species[z]	5 Nov. 2004`	18 Nov. 2004	2 Dec. 2004	16 Dec. 2004	9 Feb. 2005	4 Mar. 2005	6 Apr. 2005	4 May 2005	9 June 2005
Charger	PR	68.3	86.7	90.0	88.3	100.0	93.3	63.3	16.7	22.5
Winterplay	*PT*	35.0	63.3	75.0	76.7	100.0	98.3	40.0	30.0	12.5
ProSelect	PRb	75.0	86.7	90.0	85.0	99.3	86.7	43.3	13.3	27.5
Marvelgreen Supreme	PRb	56.7	86.7	93.3	91.7	96.0	76.7	43.3	23.3	12.5
ALS2	PR	63.3	88.3	91.7	90.0	98.3	76.7	50.0	20.0	22.5
PRS2	PR	63.3	76.7	86.7	83.3	98.3	80.0	56.7	13.3	22.5
Overseeding Eagle Blend	PRb	80.0	93.3	93.3	90.0	100.0	83.3	63.3	13.3	22.5
Futura 2500	PRb/IR	53.3	76.7	93.3	90.0	100.0	80.0	58.3	23.3	22.5
Pick SD	PR	46.7	78.3	73.3	80.0	97.0	76.7	53.3	16.7	17.5
Playmate	PRb	51.7	78.3	90.0	91.7	99.0	81.7	56.7	20.0	25.0
BMX 020383	PR	73.3	83.3	93.3	96.7	97.7	78.3	56.7	20.0	22.5
RAD-OS3	IR	66.7	85.0	90.0	91.7	100.0	93.3	60.0	16.7	17.5
RAM-100	*PT*	45.0	61.7	80.0	80.0	98.3	85.0	50.0	36.7	17.5
IS-OS	PR	82.7	90.0	88.3	86.7	96.7	86.7	60.0	10.0	17.5
Top Hat	PR	78.3	86.7	91.7	83.3	100.0	88.3	66.7	13.3	15.0
IS-IR3	IR	71.7	83.3	86.7	88.3	96.7	86.7	56.7	11.7	5.0
Champion GQ	PRb	70.0	86.7	93.3	88.3	99.0	81.7	50.0	16.7	40.0
Magnum Gold	PRb	76.7	86.7	90.0	90.0	97.7	71.7	46.7	23.3	22.5
Flash II	PR	70.0	85.0	96.0	96.7	100.0	88.3	56.7	10.0	15.0
MTV-124	PR	70.0	85.0	88.3	88.3	99.3	76.7	53.3	20.0	35.0
OS	PR	46.7	86.7	91.7	86.7	97.0	80.0	58.3	30.0	20.0
STP	PR	63.3	78.3	88.3	93.3	100.0	93.3	60.0	16.7	7.5
PR 17	PR	73.3	93.3	90.0	90.0	100.0	88.3	60.0	15.0	12.5
Starlite	*PT*	21.7	55.0	58.3	70.0	100.0	81.7	43.3	36.7	30.0
CRR	PR	66.7	86.7	92.7	93.3	100.0	81.7	56.7	16.7	15.0
League Master	PRb	73.3	91.7	93.3	85.0	100.0	85.0	53.3	16.7	35.0
OSC110	PR	88.3	93.3	93.3	93.3	98.3	71.7	53.3	13.3	25.0
OSC108	PR	84.3	86.7	93.3	90.0	99.3	81.7	60.0	13.3	7.5
Covet	PR	76.7	90.0	91.7	93.3	99.3	76.7	56.7	20.0	35.0
OSC116	PR	71.7	91.7	95.3	95.0	100.0	85.0	56.7	30.0	40.0
Colt	*PT*	40.0	65.0	70.0	70.0	96.7	93.3	76.7	33.3	20.0
LSD, $P = 0.05$[y]		24.7	14.1	12.6	14.9	NS	NS	NS	12.2	NS
Mean		64.6	82.8	88.1	87.6	98.8	83.5	55.5	19.7	21.4
C.V. (%)		23.4	10.4	8.8	10.3	2.3	11.0	18.7	38.0	52.4

[z]PR = perennial ryegrass, PRb = perennial ryegrass blend, IR = intermediate ryegrass, *PT* = *Poa trivialis*.

[y]Mean separation by Fisher's protected LSD test (two treatments are significantly different when the difference between their means is greater than or equal to the LSD value).

Note: The study was seeded 16 Oct. 2004 with three 5.0- x 20.0-ft replicate plots for each of the 31 overseed turfgrass treatments.

Note: All ryegrasses were seeded at 600 lb/acre and *Poa trivialis* was seeded at 200 lb/acre.

Table 3. Visual turfgrass color ratings for overall plot color and genetic color of overseed turfgrass (scale: 1 to 9, 1 = brown, 6.5 = minimally acceptable, 9 = darkest green) for a bermudagrass fairway overseeded with 31 treatments consisting of cultivars and blends of perennial and intermediate ryegrasses, and cultivars of *Poa trivialis*, in Indian Wells, Calif., during the 2004-2005 overseed season.

		Overall plot color	Genetic color of overseed turfgrass
Treatment	Species[z]	20 Jan. 2005	4 Mar. 2005
Charger	PR	6.7	5.8
Winterplay	*PT*	5.3	4.2
ProSelect	PRb	6.2	7.0
Marvelgreen Supreme	PRb	5.3	6.8
ALS2	PR	6.5	7.0
PRS2	PR	6.7	7.0
Overseeding Eagle Blend	PRb	7.0	7.0
Futura 2500	PRb/IR	6.8	6.8
Pick SD	PR	5.5	6.8
Playmate	PRb	5.7	7.0
BMX 020383	PR	6.7	7.2
RAD-OS3	IR	6.3	6.0
RAM-100	*PT*	5.8	4.7
IS-OS	PR	6.7	7.0
Top Hat	PR	6.3	6.2
IS-IR3	IR	6.5	6.3
Champion GQ	PRb	6.0	6.8
Magnum Gold	PRb	5.5	6.8
Flash II	PR	7.0	7.0
MTV-124	PR	6.2	6.5
OS	PR	6.8	7.0
STP	PR	6.7	7.2
PR 17	PR	6.5	7.2
Starlite	*PT*	5.5	4.2
CRR	PR	7.0	7.2
League Master	PRb	6.5	7.0
OSC110	PR	6.5	6.8
OSC108	PR	6.5	7.3
Covet	PR	6.7	6.8
OSC116	PR	6.8	7.2
Colt	*PT*	5.3	4.0
LSD, $P = 0.05$[y]		1.1	0.7
Mean		6.3	6.5
C.V. (%)		10.6	6.6

[z]PR = perennial ryegrass, PRb = perennial ryegrass blend, IR = intermediate ryegrass, *PT* = *Poa trivialis*.

[y]Mean separation by Fisher's protected LSD test (two treatments are significantly different when the difference between their means is greater than or equal to the LSD value).

Note: The study was seeded 16 Oct. 2004 with three 5.0- x 20.0-ft replicate plots for each of the 31 overseed turfgrass treatments.

Note: All ryegrasses were seeded at 600 lb/acre and *Poa trivialis* was seeded at 200 lb/acre.

Table 4. Percent coverage of green bermudagrass during the fall and spring transition and percent coverage of dormant bermudagrass during the winter season for a bermudagrass fairway overseeded with 31 treatments consisting of cultivars and blends of perennial and intermediate ryegrasses, and cultivars of *Poa trivialis*, in Indian Wells, Calif., during the 2004-2005 overseed season.

		Fall transition		Winter season	Spring transition			
Treatment	Species[z]	2 Dec. 2004	16 Dec. 2004	9 Feb. 2005	4 Mar. 2005	6 Apr. 2005	4 May 2005	9 June 2005
		% green		% dormant	% green			
Charger	PR	6.7	8.3	0.0	6.7	33.3	80.0	77.5
Winterplay	*PT*	20.0	10.0	0.0	1.7	56.7	70.0	62.5
ProSelect	PRb	8.3	12.5	0.7	13.3	46.7	83.3	72.5
Marvelgreen Supreme	PRb	6.7	8.3	4.0	13.3	36.7	66.7	87.5
ALS2	PR	8.3	8.3	1.7	16.7	43.3	76.7	77.5
PRS2	PR	11.7	13.3	0.0	18.3	36.7	85.0	77.5
Overseeding Eagle Blend	PRb	5.0	8.3	0.0	16.7	33.3	86.7	62.5
Futura 2500	PRb/IR	5.7	7.5	0.0	20.0	36.7	73.3	77.5
Pick SD	PR	18.3	13.3	3.0	20.0	31.7	76.7	82.5
Playmate	PRb	8.3	8.3	1.0	15.0	30.0	80.0	75.0
BMX 020383	PR	6.7	3.3	0.7	18.3	33.3	76.7	77.5
RAD-OS3	IR	8.3	6.7	0.0	6.7	40.0	83.3	80.0
RAM-100	*PT*	16.7	10.0	1.7	15.0	43.3	63.3	72.5
IS-OS	PR	10.0	10.0	3.3	13.3	33.3	86.7	82.5
Top Hat	PR	8.3	10.0	0.0	11.7	33.3	86.7	85.0
IS-IR3	IR	10.0	10.0	1.0	13.3	43.3	88.3	95.0
Champion GQ	PRb	6.7	8.3	1.0	15.0	35.0	73.3	60.0
Magnum Gold	PRb	8.3	8.3	2.3	18.3	30.0	56.7	75.0
Flash II	PR	4.0	3.3	0.0	11.7	38.3	90.0	85.0
MTV-124	PR	10.0	6.7	0.7	13.3	33.3	70.0	65.0
OS	PR	8.3	10.0	1.3	20.0	40.0	66.7	80.0
STP	PR	10.0	5.0	0.0	5.0	30.0	83.3	92.5
PR 17	PR	6.7	10.0	0.0	10.0	36.7	81.7	87.5
Starlite	*PT*	33.3	20.0	0.0	11.7	56.7	63.3	55.0
CRR	PR	5.7	6.7	0.0	18.3	40.0	83.3	85.0
League Master	PRb	6.7	11.7	0.0	15.0	43.3	83.3	65.0
OSC110	PR	6.7	6.7	1.7	18.3	36.7	73.3	75.0
OSC108	PR	6.7	8.3	0.7	16.7	36.7	86.7	90.0
Covet	PR	8.3	5.0	0.7	18.3	33.3	70.0	60.0
OSC116	PR	4.7	3.3	0.0	10.0	33.3	60.0	60.0
Colt	*PT*	25.0	16.7	1.7	5.0	23.3	66.7	77.5
LSD, $P = 0.05$[y]		10.5	NS	NS	NS	14.4	19.5	NS
Mean		10.0	9.0	0.9	13.8	37.4	76.5	76.0
C.V. (%)		64.1	60.1	215.2	49.2	23.6	15.6	18.4

[z]PR = perennial ryegrass, PRb = perennial ryegrass blend, IR = intermediate ryegrass, *PT* = *Poa trivialis*.

[y]Mean separation by Fisher's protected LSD test (two treatments are significantly different when the difference between their means is greater than or equal to the LSD value).

Note: The study was seeded 16 Oct. 2004 with three 5.0- x 20.0-ft replicate plots for each of the 31 overseed turfgrass treatments.

Note: All ryegrasses were seeded at 600 lb/acre and *Poa trivialis* was seeded at 200 lb/acre.

Table 5. Visual leaf texture (scale: 1 to 9, 1 = fine, 9 = broad leaf texture) and density (scale: 1 to 9, 1 = bare, 9 = maximum density) ratings of the overseed grass for a bermudagrass fairway overseeded with 31 treatments consisting of cultivars and blends of perennial and intermediate ryegrasses, and cultivars of *Poa trivialis*, in Indian Wells, Calif., during the 2004-2005 overseed season.

		Leaf texture	Density
Treatment	Species[z]	6 Apr. 2005	6 Apr. 2005
Charger	PR	7.0	6.0
Winterplay	*PT*	7.0	4.7
ProSelect	PRb	6.7	5.0
Marvelgreen Supreme	PRb	7.0	4.7
ALS2	PR	7.0	5.0
PRS2	PR	7.0	5.7
Overseeding Eagle Blend	PRb	7.0	6.3
Futura 2500	PRb/IR	6.7	5.7
Pick SD	PR	7.0	5.7
Playmate	PRb	7.0	5.7
BMX 020383	PR	7.0	6.3
RAD-OS3	IR	7.0	6.3
RAM-100	*PT*	8.3	4.3
IS-OS	PR	7.0	5.7
Top Hat	PR	7.0	6.0
IS-IR3	IR	7.0	5.3
Champion GQ	PRb	7.0	5.3
Magnum Gold	PRb	7.0	4.3
Flash II	PR	7.0	6.0
MTV-124	PR	7.0	5.3
OS	PR	7.0	6.0
STP	PR	7.3	6.3
PR 17	PR	7.3	6.0
Starlite	*PT*	8.0	5.3
CRR	PR	7.0	5.7
League Master	PRb	7.0	5.3
OSC110	PR	7.3	5.0
OSC108	PR	7.0	6.0
Covet	PR	7.3	5.0
OSC116	PR	7.0	5.7
Colt	*PT*	8.0	5.7
LSD, $P = 0.05$[y]		0.5	NS
Mean		7.1	5.5
C.V. (%)		4.7	14.1

[z]PR = perennial ryegrass, PRb = perennial ryegrass blend, IR = intermediate ryegrass, *PT* = *Poa trivialis*.

[y]Mean separation by Fisher's protected LSD test (two treatments are significantly different when the difference between their means is greater than or equal to the LSD value).

Note: The study was seeded 16 Oct. 2004 with three 5.0- x 20.0-ft replicate plots for each of the 31 overseed turfgrass treatments.

Note: All ryegrasses were seeded at 600 lb/acre and *Poa trivialis* was seeded at 200 lb/acre.

USGA, GCSAA, and NTEP On-site Testing of Grasses for Overseeding Bermudagrass Fairways, 2004-2006

Second Year Data

2005-2006

Table 1. Visual turfgrass quality ratings (scale: 1 to 9, 1 = worst, 6.5 = minimally acceptable, 9 = best quality) for a bermudagrass fairway overseeded with 31 treatments consisting of cultivars and blends of perennial and intermediate ryegrasses, and cultivars of *Poa trivialis*, in Indian Wells, Calif., during the 2005-2006 overseed season.

		Fall transition			Winter season	Spring transition					
Treatment	Species[z]	1 Dec. 2005 `	20 Dec. 2005	Overall	5 Jan. 2006	8 Feb. 2006	8 Mar. 2006	5 Apr. 2006	10 May 2006	Overall	Grand overall
Charger	PR	5.3	5.2	5.3	6.5	6.3	5.7	4.3	5.5	5.5	5.5
Winterplay	*PT*	4.7	4.7	4.7	5.3	4.7	5.2	6.0	4.7	5.1	5.0
ProSelect	PRb	5.5	5.7	5.6	6.8	6.3	5.5	5.2	5.2	5.5	5.7
Marvelgreen Supreme	PRb	5.2	5.0	5.1	6.3	5.8	5.8	4.7	4.7	5.3	5.4
ALS2	PR	4.8	5.8	5.3	6.7	6.2	5.7	4.5	4.3	5.2	5.4
PRS2	PR	4.5	5.0	4.8	6.3	6.3	6.0	6.0	5.8	6.0	5.7
Overseeding Eagle Blend	PRb	4.7	4.7	4.7	6.0	6.3	5.8	5.5	5.2	5.7	5.5
Futura 2500	PRb/IR	5.0	4.7	4.8	6.3	6.5	6.5	5.5	5.7	6.0	5.7
Pick SD	PR	4.7	4.7	4.7	5.3	5.2	5.0	4.3	4.7	4.8	4.8
Playmate	PRb	4.8	5.3	5.1	6.3	6.3	6.3	5.3	5.5	5.9	5.7
BMX 020383	PR	4.7	4.3	4.5	5.5	6.5	6.8	6.2	6.3	6.5	5.8
RAD-OS3	IR	5.2	5.3	5.3	6.5	6.0	6.3	5.2	5.5	5.8	5.7
RAM-100	*PT*	4.8	5.5	5.2	5.7	5.3	6.0	5.8	5.3	5.6	5.5
IS-OS	PR	4.8	6.0	5.3	6.5	6.5	6.0	4.8	5.5	5.7	5.7
Top Hat	PR	5.7	5.7	5.7	6.3	6.5	5.8	5.8	5.7	6.0	5.9
IS-IR3	IR	5.7	6.0	5.8	6.8	6.7	6.3	5.7	5.0	5.9	6.0
Champion GQ	PRb	4.8	5.5	5.2	6.7	5.7	5.2	4.2	4.5	4.9	5.2
Magnum Gold	PRb	5.3	5.5	5.4	6.7	6.2	5.7	4.7	5.2	5.4	5.6
Flash II	PR	6.0	5.8	5.9	7.0	6.2	6.2	5.5	5.8	5.9	6.1
MTV-124	PR	4.8	5.0	4.9	6.3	5.5	5.7	4.2	5.0	5.1	5.2
OS	PR	5.7	5.7	5.7	7.3	7.2	6.7	5.8	5.7	6.3	6.3
STP	PR	5.3	4.8	5.1	5.5	5.3	5.8	4.8	5.3	5.3	5.3
PR 17	PR	5.5	5.0	5.3	6.5	5.5	5.3	4.2	4.8	5.0	5.3
Starlite	*PT*	4.7	4.7	4.7	5.5	5.5	6.2	4.8	4.5	5.3	5.1
CRR	PR	5.0	5.5	5.3	6.3	6.8	6.8	6.0	5.7	6.3	6.0
League Master	PRb	4.8	5.5	5.2	6.7	6.0	5.0	4.5	5.0	5.1	5.4
OSC110	PR	5.3	5.2	5.3	7.0	6.5	5.7	5.0	5.2	5.6	5.7
OSC108	PR	5.0	5.2	5.1	6.8	6.5	6.2	5.3	5.5	5.9	5.8
Covet	PR	5.8	5.2	5.5	6.8	6.0	5.8	5.0	5.3	5.5	5.7
OSC116	PR	5.0	5.0	5.0	6.5	6.2	5.7	4.7	5.3	5.5	5.5
Colt	*PT*	2.8	3.0	2.9	3.3	4.2	3.7	2.7	4.5	3.8	3.5
LSD, $P = 0.05$[y]		1.1	1.0	0.9	0.8	1.1	1.2	NS	NS	1.1	0.7
Mean		5.0	5.2	5.1	6.3	6.0	5.8	5.0	5.2	5.5	5.5
C.V. (%)		13.0	11.6	8.2	8.2	10.8	12.1	21.3	14.6	9.5	11.9

[z]PR = perennial ryegrass, PRb = perennial ryegrass blend, IR = intermediate ryegrass, *PT* = *Poa trivialis*.

[y]Mean separation by Fisher's protected LSD test (two treatments are significantly different when the difference between their means is greater than or equal to the LSD value).

Note: The study was seeded 13 Oct. 2005 with three 5.0- x 20.0-ft replicate plots for each of the 31 overseed turfgrass treatments.

Note: All ryegrasses were seeded at 600 lb/acre and *Poa trivialis* was seeded at 200 lb/acre.

Table 2. Percent coverage of overseed turfgrass during establishment, fall transition, winter season, and spring transition for a bermudagrass fairway overseeded with 31 treatments consisting of cultivars and blends of perennial and intermediate ryegrasses, and cultivars of *Poa trivialis*, in Indian Wells, Calif., during the 2005-2006 overseed season.

		Establishment	Fall transition		Winter season	Spring transition			
Treatment	Species[z]	22 Nov. 2005 `	1 Dec. 2005	20 Dec. 2005	19 Jan. 2006	8 Feb. 2006	8 Mar. 2006	5 Apr. 2006	10 May 2006
Charger	PR	60.0	51.7	65.0	91.7	76.7	60.0	25.0	26.7
Winterplay	*PT*	56.7	53.3	75.0	96.7	91.7	85.0	53.3	40.0
ProSelect	PRb	61.7	40.0	73.3	93.3	78.3	66.7	31.7	26.7
Marvelgreen Supreme	PRb	46.7	30.0	70.0	70.0	75.0	60.0	26.7	26.7
ALS2	PR	55.0	38.3	70.0	83.3	78.3	58.3	23.3	20.0
PRS2	PR	55.0	25.0	70.0	97.5	82.5	82.5	45.0	42.5
Overseeding Eagle Blend	PRb	60.0	30.0	70.0	90.0	80.0	66.7	33.3	33.3
Futura 2500	PRb/IR	50.0	40.0	65.0	91.7	81.7	78.3	31.7	31.7
Pick SD	PR	33.3	38.3	63.3	78.3	71.7	55.0	30.0	36.7
Playmate	PRb	48.3	33.3	65.0	95.0	85.0	81.7	33.3	30.0
BMX 020383	PR	41.7	30.0	55.0	95.0	90.0	91.7	48.3	36.7
RAD-OS3	IR	61.7	53.3	68.3	100.0	88.3	76.7	35.0	23.3
RAM-100	*PT*	56.7	63.3	83.3	96.7	91.7	90.0	50.0	45.0
IS-OS	PR	65.0	40.0	80.0	95.0	82.5	80.0	25.0	30.0
Top Hat	PR	63.3	50.0	78.3	96.7	91.7	83.3	38.3	33.3
IS-IR3	IR	60.0	56.7	85.0	96.7	90.0	91.7	35.0	23.3
Champion GQ	PRb	68.3	33.3	75.0	78.3	65.0	60.0	20.0	26.7
Magnum Gold	PRb	51.7	41.7	80.0	80.0	78.3	58.3	28.3	36.7
Flash II	PR	75.0	56.7	83.3	90.0	81.7	75.0	33.3	30.0
MTV-124	PR	38.3	33.3	66.7	76.7	68.3	51.7	21.7	26.7
OS	PR	53.3	53.3	80.0	100.0	94.7	86.7	40.0	33.3
STP	PR	60.0	43.3	65.0	78.3	73.3	68.3	28.3	26.7
PR 17	PR	56.7	55.0	56.7	85.0	70.0	51.7	20.0	25.0
Starlite	*PT*	38.3	50.0	66.7	88.3	86.7	86.7	28.3	31.7
CRR	PR	61.7	36.7	73.3	96.0	86.7	81.7	38.3	26.7
League Master	PRb	46.7	36.7	71.7	81.7	68.3	60.0	28.3	23.3
OSC110	PR	51.7	40.0	75.0	81.7	83.3	65.0	30.0	26.7
OSC108	PR	50.0	36.7	78.3	95.0	85.0	80.0	35.0	36.7
Covet	PR	63.3	60.0	68.3	78.3	76.7	65.0	30.0	30.0
OSC116	PR	43.3	43.3	68.3	85.0	80.0	68.3	28.3	36.7
Colt	*PT*	13.3	10.0	16.7	30.0	30.0	26.7	20.0	13.3
LSD, $P = 0.05$[y]		22.7	NS	19.4	24.0	23.3	31.8	NS	NS
Mean		53.0	42.2	69.6	86.6	79.4	70.5	32.0	30.1
C.V. (%)		25.8	37.7	16.8	16.7	17.7	27.2	37.8	32.0

[z]PR = perennial ryegrass, PRb = perennial ryegrass blend, IR = intermediate ryegrass, *PT* = *Poa trivialis*.

[y]Mean separation by Fisher's protected LSD test (two treatments are significantly different when the difference between their means is greater than or equal to the LSD value).

Note: The study was seeded 13 Oct. 2005 with three 5.0- x 20.0-ft replicate plots for each of the 31 overseed turfgrass treatments.

Note: All ryegrasses were seeded at 600 lb/acre and *Poa trivialis* was seeded at 200 lb/acre.

Table 3. Visual turfgrass color ratings for overall plot color and genetic color of overseed turfgrass (scale: 1 to 9, 1 = brown, 6.5 = minimally acceptable, 9 = darkest green) for a bermudagrass fairway overseeded with 31 treatments consisting of cultivars and blends of perennial and intermediate ryegrasses, and cultivars of *Poa trivialis*, in Indian Wells, Calif., during the 2005-2006 overseed season.

		Overall plot color	Genetic color of overseed turfgrass
Treatment	Species[z]	19 Jan. 2006	8 Mar. 2006
Charger	PR	7.0	6.2
Winterplay	*PT*	4.8	4.7
ProSelect	PRb	7.2	6.2
Marvelgreen Supreme	PRb	6.0	6.2
ALS2	PR	6.7	6.5
PRS2	PR	6.0	6.0
Overseeding Eagle Blend	PRb	6.5	6.7
Futura 2500	PRb/IR	6.7	6.7
Pick SD	PR	5.7	6.0
Playmate	PRb	6.2	6.7
BMX 020383	PR	6.7	7.3
RAD-OS3	IR	6.5	6.0
RAM-100	*PT*	5.0	5.0
IS-OS	PR	6.8	6.0
Top Hat	PR	6.2	6.2
IS-IR3	IR	7.0	6.2
Champion GQ	PRb	5.5	5.3
Magnum Gold	PRb	6.2	6.5
Flash II	PR	6.7	6.7
MTV-124	PR	6.0	6.3
OS	PR	7.0	7.0
STP	PR	6.3	6.7
PR 17	PR	6.7	5.8
Starlite	*PT*	6.2	5.3
CRR	PR	6.8	6.8
League Master	PRb	6.3	6.7
OSC110	PR	6.7	6.3
OSC108	PR	7.0	6.7
Covet	PR	6.7	6.2
OSC116	PR	6.7	6.2
Colt	*PT*	2.0	4.0
LSD, $P = 0.05$[y]		1.1	0.9
Mean		6.2	6.2
C.V. (%)		10.1	8.4

[z]PR = perennial ryegrass, PRb = perennial ryegrass blend, IR = intermediate ryegrass, *PT* = *Poa trivialis*.

[y]Mean separation by Fisher's protected LSD test (two treatments are significantly different when the difference between their means is greater than or equal to the LSD value).

Note: The study was seeded 13 Oct. 2005 with three 5.0- x 20.0-ft replicate plots for each of the 31 overseed turfgrass treatments.

Note: All ryegrasses were seeded at 600 lb/acre and *Poa trivialis* was seeded at 200 lb/acre.

Table 4. Percent coverage of green bermudagrass during the fall and spring transition and percent coverage of dormant bermudagrass during the winter season for a bermudagrass fairway overseeded with 31 treatments consisting of cultivars and blends of perennial and intermediate ryegrasses, and cultivars of *Poa trivialis*, in Indian Wells, Calif., during the 2005-2006 overseed season.

		Fall transition		Winter season	Spring transition			
Treatment	Species[z]	1 Dec. 2005	20 Dec. 2005	19 Jan. 2006	8 Feb. 2006	8 Mar. 2006	5 Apr. 2006	10 May 2006
		% green		% dormant	% green			
Charger	PR	46.7	15.0	0.0	5.0	5.0	25.0	56.7
Winterplay	*PT*	46.7	10.0	3.3	5.0	10.0	40.0	43.3
ProSelect	PRb	60.0	16.7	0.0	3.3	6.7	36.7	53.3
Marvelgreen Supreme	PRb	66.7	13.3	0.0	3.3	8.3	31.7	40.0
ALS2	PR	60.0	15.0	0.0	5.0	6.7	30.0	40.0
PRS2	PR	75.0	15.0	0.0	5.0	12.5	42.5	50.0
Overseeding Eagle Blend	PRb	70.0	20.0	3.3	5.0	6.7	31.7	43.3
Futura 2500	PRb/IR	60.0	20.0	3.3	5.0	6.7	36.7	53.3
Pick SD	PR	55.0	18.3	1.7	5.0	6.7	30.0	33.3
Playmate	PRb	60.0	15.0	1.7	3.3	8.3	45.0	56.7
BMX 020383	PR	61.7	18.3	1.7	3.3	5.0	40.0	56.7
RAD-OS3	IR	43.3	15.0	0.0	3.3	10.0	33.3	63.3
RAM-100	*PT*	36.7	6.7	3.3	5.0	3.3	36.7	41.7
IS-OS	PR	56.7	15.0	0.0	5.0	5.0	35.0	50.0
Top Hat	PR	50.0	11.7	3.3	3.3	6.7	38.3	56.7
IS-IR3	IR	43.3	11.7	0.0	6.7	5.0	43.3	46.7
Champion GQ	PRb	66.7	15.0	0.0	5.0	10.0	23.3	43.3
Magnum Gold	PRb	55.0	15.0	1.7	3.3	8.3	35.0	46.7
Flash II	PR	43.3	11.7	0.0	3.3	6.7	33.3	55.0
MTV-124	PR	66.7	18.3	0.0	5.0	8.3	25.0	50.0
OS	PR	46.7	15.0	0.0	1.7	6.7	45.0	53.3
STP	PR	56.7	13.3	3.3	5.0	10.0	38.3	50.0
PR 17	PR	45.0	18.3	1.7	5.0	11.7	26.7	45.0
Starlite	*PT*	48.3	13.3	3.3	6.7	5.0	28.3	41.7
CRR	PR	63.3	13.3	0.0	10.0	6.7	41.7	56.7
League Master	PRb	63.3	11.7	1.7	3.3	11.7	30.0	50.0
OSC110	PR	60.0	18.3	0.0	3.3	6.7	38.3	56.7
OSC108	PR	63.3	15.0	0.0	5.0	6.7	35.0	43.3
Covet	PR	40.0	16.7	1.7	3.3	8.3	31.7	46.7
OSC116	PR	55.0	18.3	1.7	5.0	8.3	36.7	53.3
Colt	*PT*	46.7	11.7	20.0	8.3	13.3	21.7	46.7
LSD, $P = 0.05$[y]		NS	NS	4.6	NS	NS	NS	NS
Mean		55.0	14.9	1.9	4.7	7.7	34.3	49.1
C.V. (%)		27.8	35.4	149.2	57.3	53.8	33.6	20.5

[z]PR = perennial ryegrass, PRb = perennial ryegrass blend, IR = intermediate ryegrass, *PT* = *Poa trivialis*.

[y]Mean separation by Fisher's protected LSD test (two treatments are significantly different when the difference between their means is greater than or equal to the LSD value).

Note: The study was seeded 13 Oct. 2005 with three 5.0- x 20.0-ft replicate plots for each of the 31 overseed turfgrass treatments.

Note: All ryegrasses were seeded at 600 lb/acre and *Poa trivialis* was seeded at 200 lb/acre.

Table 5. Visual leaf texture (scale: 1 to 9, 1 = fine, 9 = broad leaf texture) and density (scale: 1 to 9, 1 = bare, 9 = maximum density) ratings of the overseed grass for a bermudagrass fairway overseeded with 31 treatments consisting of cultivars and blends of perennial and intermediate ryegrasses, and cultivars of *Poa trivialis*, in Indian Wells, Calif., during the 2005-2006 overseed season.

		Leaf texture	Density
Treatment	Species[z]	5 Apr. 2006	8 Feb. 2006
Charger	PR	7.0	6.7
Winterplay	*PT*	7.3	6.5
ProSelect	PRb	6.8	7.0
Marvelgreen Supreme	PRb	7.0	6.2
ALS2	PR	7.0	6.7
PRS2	PR	7.5	7.0
Overseeding Eagle Blend	PRb	6.8	6.8
Futura 2500	PRb/IR	6.8	6.8
Pick SD	PR	7.0	6.2
Playmate	PRb	7.0	7.5
BMX 020383	PR	7.0	7.5
RAD-OS3	IR	6.7	7.2
RAM-100	*PT*	7.3	7.3
IS-OS	PR	7.0	7.0
Top Hat	PR	7.0	8.0
IS-IR3	IR	7.0	7.3
Champion GQ	PRb	7.2	6.3
Magnum Gold	PRb	7.0	7.0
Flash II	PR	7.3	6.7
MTV-124	PR	7.0	6.2
OS	PR	6.8	8.2
STP	PR	7.0	6.2
PR 17	PR	6.7	6.0
Starlite	*PT*	6.8	6.3
CRR	PR	6.7	7.8
League Master	PRb	7.2	6.3
OSC110	PR	7.0	7.2
OSC108	PR	7.0	7.3
Covet	PR	7.2	6.3
OSC116	PR	7.0	7.0
Colt	*PT*	6.0	3.0
LSD, $P = 0.05$[y]		NS	1.8
Mean		7.0	6.8
C.V. (%)		6.0	16.3

[z]PR = perennial ryegrass, PRb = perennial ryegrass blend, IR = intermediate ryegrass, *PT* = *Poa trivialis*.

[y]Mean separation by Fisher's protected LSD test (two treatments are significantly different when the difference between their means is greater than or equal to the LSD value).

Note: The study was seeded 13 Oct. 2005 with three 5.0- x 20.0-ft replicate plots for each of the 31 overseed turfgrass treatments.

Note: All ryegrasses were seeded at 600 lb/acre and *Poa trivialis* was seeded at 200 lb/acre.