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Agronomy
N.J. Ehlke, L.J. Elling and W.C. Stienstra

Performance of Kentucky Bluegrass Strains

Strain testing of Kentucky bluegrass was initiated in 1969 on the Wellin Farm near Roseau, Minnesota. Trials prior to 1972 were not adequately planned and conducted to report valid seed yield data. New trials have been established each year since 1972 except for 1974 and 1978 when seedlings were not initiated or the seedlings failed due to inclement weather. Seedlings were normally maintained for three years. Data were collected for maturity, lodging, plant height, and seed yields each production year. Powdery mildew infection readings were recorded when natural epidemics developed. Normally winter injury on Kentucky bluegrass was not severe. After the severe 1984-85 winter, strains showed consistent differences in winter injury and the injury was evaluated on April 27, 1985.

Kentucky bluegrass strains (260) were grown in experimental trials from 1972 to 1985. Seed for the trials were submitted by seed company representatives and/or producers interested in the seed production potential of the entry. Entries were generally seeded in 1 x 4 meter plots with three replications. Broadleaf weeds were controlled by spraying 2,4-D or Dicamba. Five hundred pounds per acre of 20-10-10 fertilizer were applied in October each year. The fertilizer rate was considered satisfactory for screening but may not be the optimum level for individual strains. Square meter samples were harvested from each plot and field dried in Roseau, before being transported to St. Paul for threshing and processing. The residual was usually removed by burning, but occasionally the residual was clipped and removed.

The data presented are as follows:
Maturity is the average July harvest date of the entry over tests and years. Dates for maturity ranged from July 1 to 18 with Park maturing on the 6th. Nineteen of the strains were earlier than Park, nine strains averaged the same maturity as Park, and the remaining 233 strains matured later than Park.

Lodging scores are reported as the average over tests and years. A rating scale of 1 to 5 was used where 1 represents no lodging and 5 represents severe lodging. The fertilizer rate may have caused excessive lodging in some strains since the rate applied may not have been optimum for all entries.

Plant height at harvest is reported in inches and was measured from ground level to the top of the panicles. The range in plant height was from 15 to 32 inches with Park averaging 30 inches. For lodged strains, the culms were pulled erect for measurement.

Winter injury usually is not observed on Kentucky bluegrass strains in northern Minnesota. The 1984-1985 winter was very severe and many entries showed winter injury. Injury ratings were made on April 27, 1985 based on a scale of 1 to 5 where 1 represents no injury and 5 represents severe injury including a high percentage of dead plants. This was the first opportunity to observe and record valid winter injury scores on Kentucky bluegrass strains.

Powdery mildew is a common disease on grasses. Disease incidence varies in both severity and occurrence on Kentucky bluegrass in northern Minnesota. Powdery

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mildew infection was evident in 1973, 1976, 1982, 1985, and 1986. Overall ratings have been assigned to each entry for powdery mildew reaction on the basis of disease scores recorded during the years of infections. The disease scores were made on stands in the first year of seed production with the exception of 1985 and 1986 when scores were taken on older stands. Generally powdery mildew is most severe on Kentucky bluegrass the first year after establishment. Two year and older stands show much less infection. No explanation is available currently to explain the relationship of disease severity with stand age.

Seed yields are reported as a percent of the test average over years for a given seeding year. The least significant differences (LSD) are large, but generally the year-to-year yields are consistent for the different trials. When the difference in yield between two strains exceeds the LSD, the strains are judged to have different seed yield potentials. Test average seed yields ranged from 198 lbs/acre for the 1975 seeding to 561 lbs/acre for the 1979 seeding. Dry weather in 1976 and 1977 caused the lower than normal seed yields reported for the 1973 and 1975 seedings. The range in seed yield was great: the lowest average seed yield over all trials was 22% for strain ZW42-103 while the highest average seed yield was 174% for Merit. Park produced 155% of the test average yield in the 1972 and 1975 seedings and 131% of the overall seed yield test average.

Interpretating the data:

The seed yield data are presented as a percent of the test average over the years the trial was harvested. The average seed yield (pounds per acre) of a strain for a particular seeding year can be calculated by multiplying the yield expressed in percent of the test average, times the average yield for the seeding year and then dividing by 100. For example, Park, which produced 155% of the test average for the 1972 seeding, yielded 645 pounds of seed per acre (416 lbs/A x 155/100 = 645 lbs/A).

Strain performance should be judged on the basis of all available information. High seed yield should not be the only criterion when selecting Kentucky bluegrass strains. For example, Trenton, which shows above average seed yields, is highly susceptible to powdery mildew. Trenton was included in the 1981 seeding, and powdery mildew was a severe problem in 1982. Trenton yielded only 91% of the test average in the 1981 seeding. However, Trenton was included in the 1982 seeding which was not affected by powdery mildew and yielded 151% of the test average. Date of maturity, lodging, and powdery mildew resistance may be significant factors under certain production systems. No strain, regardless of how well it performed in the seed yield trials, can compensate for poor management.

Harvest date, lodging, plant height, powdery mildew reaction, and seed yields for Kentucky bluegrass strains grown 1972 to 1985 at Roseau, Minnesota

Strains	Harvest date	Lodging*	Plant height Inches	1984		Year Seeded										Average all tests	Data years
				Seeding Winter Injury** 4-27-85	Powdery mildew***	Number of years harvested											
						1972 (2)	1973 (2)	1975 (3)	1976 (2)	1977 (2)	1979 (3)	1980 (2)	1981 (4)	1982 (2)	1983 (2)		
----- Yields in percent of test averages -----																	
225	7-13	1.5	27	2.2	MR	---	---	---	---	---	---	---	---	---	144	144	2
239	7-13	1.5	27	1.2	MR	---	---	---	---	---	---	---	---	---	110	110	2
243(Nassau)	7-9	1.3	24	3.8	R	---	---	---	---	---	---	---	---	---	136	180	4
1528T (Midnight)	7-12	1.1	21	4.3	MS	---	---	---	---	---	---	---	---	---	164	164	2
A-20	7-14	2.0	24	4.7	R	---	---	---	34	49	---	---	---	---	36	40	6
A-20-6	7-14	1.6	---	3.3	R	---	---	---	---	---	---	---	---	---	33	33	2
A-20-6A	7-13	2.0	29	3.1	MR	---	---	---	---	---	---	---	---	---	71	71	2
A-34(Benson)	7-13	2.9	29	3.1	MR	---	---	---	84	85	---	---	---	---	78	82	6
Adelphi	7-12	1.4	26	2.0	MS	73	---	81	77	94	---	---	---	67	64	75	13
Admiral	7-10	2.0	25	4.1	---	---	---	---	---	---	---	---	---	---	112	112	2
America	7-13	1.3	22	3.8	R	---	---	---	---	---	---	94	132	132	147	127	10
Ampella	7-12	3.2	28	2.3	R	---	---	---	---	---	---	---	---	---	68	68	2
Apart	7-9	1.4	21	5.0	R	---	---	---	---	---	---	---	---	---	50	50	2
Apori	7-8	1.3	23	4.3	R	---	---	---	---	---	---	---	---	---	34	34	2
Aquila	7-12	1.6	22	4.7	R	85	---	63	128	118	80	113	84	---	60	89	20
Argyle	7-6	2.5	27	2.8	R	---	---	---	---	---	---	---	---	---	105	105	2
Arista	7-13	1.3	20	---	MS	---	124	144	128	124	119	---	---	---	---	128	12
Aspen	7-12	1.8	26	2.8	MS	---	---	56	118	---	108	---	---	88	139	99	12
Bain	7-3	3.0	28	3.7	R	---	---	---	---	---	---	---	---	120	76	98	4
Banff	7-12	2.0	27	2.0	S	---	---	---	---	---	112	---	---	---	135	121	5
Barblue	7-14	2.0	22	---	MR	---	---	---	---	---	---	97	92	---	---	94	6
Baron	7-12	1.1	21	3.2	S	---	---	139	122	146	165	154	131	128	190	146	20
Bar.Pp 80-T	7-15	1.1	18	---	VS	---	---	---	---	---	---	55	49	---	---	51	5
Bar.Pp 81-E	7-8	2.1	24	---	MS	---	---	---	---	---	---	---	108	148	---	121	6
Bartissimo	7-15	2.0	24	3.1	R	---	---	---	---	---	---	79	75	---	86	79	8
Bayside	7-7	2.0	31	1.3	R	---	---	---	---	---	---	---	---	---	85	86	2
Bel. 20	7-8	1.6	26	---	MS	---	---	---	---	---	---	---	---	120	69	95	4
Bel. 21	7-7	1.2	25	---	R	---	---	---	---	---	---	---	---	62	50	56	4
Bel. 22	7-1	2.3	25	---	---	---	---	---	---	---	---	---	---	101	---	101	2
Delturf	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Harvest date, lodging, plant height, powdery mildew reaction, and seed yields for Kentucky bluegrass strains grown 1972 to 1985 at Roseau, Minnesota (continued)

Strains	Harvest date	Lodging*	Plant height Inches	1984		Year Seeded										Average all tests	Data years
				Seeding Winter Injury** 4-27-85	Powdery mildew***	Number of years harvested											
						1972 (2)	1973 (2)	1975 (3)	1976 (2)	1977 (2)	1979 (3)	1980 (2)	1981 (4)	1982 (2)	1983 (2)		
----- Yields in percent of test averages -----																	
BH-61-91	7-13	1.0	23	3.4	MS	---	---	---	---	---	---	---	---	---	173	173	2
Birka	7-11	1.1	21	3.7	MR	89	---	65	74	---	---	---	---	---	49	69	9
Bonnie Blue	7-12	1.6	22	2.9	MR	---	---	49	66	---	---	---	---	---	61	57	7
Bono	7-12	1.0	23	3.0	R	---	---	---	---	---	---	---	---	---	33	33	2
Bristol	7-12	1.6	24	3.1	R	---	---	---	---	---	---	---	106	116	136	116	8
Gamilla	7-11	2.1	17	---	R	---	---	---	---	---	---	---	---	25	23	24	4
Caroline	7-15	1.7	31	---	---	---	---	---	---	---	---	88	---	---	---	88	2
Cello	7-16	1.6	24	3.3	VR	---	---	---	---	---	---	---	---	---	64	64	2
Charlotte	7-11	2.0	18	3.2	R	---	---	---	---	---	---	---	---	11	20	16	4
Cherl	7-11	1.1	24	3.3	R	---	---	140	108	123	---	---	---	---	163	134	9
CEB VB 3965	7-15	1.1	21	4.3	R	---	---	---	---	---	---	---	---	---	57	57	2
Claudia	7-10	1.5	25	---	MR	---	---	---	---	---	110	---	96	---	80	97	9
Columbia	7-13	2.0	26	2.5	MR	---	---	---	---	---	---	---	---	---	93	93	2
Cougar	7-9	1.0	20	---	R	---	---	105	116	---	---	---	---	---	---	109	5
Cynthia	7-12	1.9	22	---	---	---	---	---	---	---	---	156	---	147	---	152	4
Delft	7-6	1.8	26	---	S	129	---	138	115	---	---	---	---	---	---	129	7
Dormle	7-10	2.0	26	1.3	VR	---	---	---	---	---	122	---	---	---	160	137	5
Eclipse	7-14	2.0	24	4.0	R	---	---	---	---	---	---	---	94	96	126	103	8
Eda	7-12	1.0	18	---	---	---	---	---	74	69	---	---	---	---	---	72	4
Enmundl	7-12	1.4	23	2.0	MS	---	---	83	87	101	86	---	---	67	89	85	14
Enoble	7-12	2.3	24	4.4	VS	100	---	86	127	97	---	---	---	---	101	101	11
Enprima	7-9	1.7	25	---	MR	144	---	213	155	87	---	---	142	120	---	148	15
Entopper	7-14	1.3	24	---	R	---	---	---	---	---	121	---	138	99	121	123	11
Erte	7-5	1.8	23	3.3	S	---	---	---	---	---	---	---	---	95	54	75	4
Escort	7-13	3.3	28	4.1	MS	---	---	---	---	---	88	87	90	103	53	85	13
EVB-5585	7-14	3.3	27	---	---	---	---	---	61	54	---	---	---	---	---	58	4
EVB-8268	7-16	1.3	27	---	---	---	---	---	---	---	---	---	---	---	135	135	2
Fanfare	7-11	2.3	30	---	MS	---	---	112	80	73	---	---	---	---	---	92	7
Fylking	7-6	1.8	19	2.8	MS	---	83	35	75	---	---	---	---	---	26	53	9
Galaxy	7-9	1.0	21	---	MS	---	---	84	71	---	---	---	---	---	---	79	5

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				Seeding Winter Injury** 4-27-85	Powdery mildew***	Number of years harvested											
						1972 (2)	1973 (2)	1975 (3)	1976 (2)	1977 (2)	1979 (3)	1980 (2)	1981 (4)	1982 (2)	1983 (2)		
----- Yields In percent of test averages -----																	
Gardl	7-18	1.5	19	---	---	---	---	---	---	87	72	74	---	---	---	77	7
Georgetown	7-13	1.6	27	---	S	---	---	---	---	---	---	---	---	---	76	76	2
Geronimo	7-9	1.9	26	2.0	VS	---	---	---	---	144	185	---	140	---	128	151	11
Glade	7-12	1.4	21	2.4	MS	56	---	44	81	---	87	---	---	---	76	68	12
Golf	7-9	1.0	21	---	MS	---	117	130	121	---	---	---	---	---	---	124	7
Granada	7-11	2.1	25	---	---	---	---	---	---	83	69	---	---	72	---	74	7
H-7	7-15	2.0	27	4.1	R	---	---	---	---	---	---	---	---	---	52	52	2
Harmony	7-11	1.2	21	4.3	R	---	---	---	---	---	---	---	144	160	179	157	8
Holiday	7-11	1.6	24	2.0	R	---	---	---	---	---	---	---	67	51	76	65	8
Holt	7-5	1.3	22	---	R	---	---	---	---	---	53	---	59	---	---	56	7
I-13	7-16	2.0	23	3.3	MS	---	---	---	---	---	---	---	---	---	38	38	2
ISI-128	7-12	1.7	24	4.1	S	---	---	---	---	---	---	95	87	---	129	100	8
Julia	7-10	2.7	24	---	---	---	---	---	---	---	---	---	---	72	---	72	2
K-412	7-14	1.0	22	---	R	47	---	---	---	---	---	---	---	---	---	47	2
K0-140	7-6	3.0	29	1.3	R	---	---	---	---	132	---	---	116	191	117	134	10
K1-76	7-6	2.0	32	---	R	---	---	---	150	101	---	---	176	---	---	151	8
K1-78	7-10	3.5	31	---	---	---	---	---	---	99	---	---	---	---	---	99	2
K1-80	7-7	2.7	29	---	---	---	---	82	99	---	---	---	---	---	---	91	4
K1-83	7-11	3.0	28	---	---	---	---	---	115	---	---	---	---	---	---	115	2
K1-88	7-9	2.8	28	---	---	---	---	126	84	---	---	---	---	---	---	105	4
K1-119	7-8	3.2	31	---	---	---	---	112	119	---	---	---	---	---	---	116	4
K1-120	7-9	1.5	26	---	---	---	---	85	---	---	---	---	---	---	---	85	2
K1-121	7-13	2.9	32	---	---	---	---	---	119	---	---	---	---	---	---	119	2
K1-132	7-15	2.0	23	---	MR	35	---	---	---	---	---	---	---	---	---	35	2
K1-135	7-13	2.4	27	---	---	---	---	---	89	---	---	---	---	---	---	89	2
K1-138	7-14	1.3	22	---	MR	103	---	---	---	139	---	---	---	197	---	146	6
K1-139	7-9	3.3	29	---	S	83	---	---	120	71	---	---	---	---	---	91	6
K1-140	7-9	2.4	29	---	---	---	---	114	87	---	---	---	---	---	---	101	4
K1-141	7-11	3.2	29	---	---	---	---	---	108	---	---	---	---	---	---	108	2
K1-148	7-12	1.5	22	---	---	---	---	71	67	---	---	---	---	---	---	69	4

Harvest date, lodging, plant height, powdery mildew reaction, and seed yields for Kentucky bluegrass strains grown 1972 to 1985 at Roseau, Minnesota (continued)

Strains	Harvest date	Lodging*	Plant height Inches	1984		Year Seeded										Average all tests	Data years
				Seeding	Powdery mildew***	Number of years harvested											
				Winter InJury** 4-27-85		1972	1973	1975	1976	1977	1979	1980	1981	1982	1983		
				(2)	(2)	(3)	(2)	(2)	(3)	(2)	(4)	(2)	(2)				
----- Yields in percent of test averages -----																	
K1-149	7-10	1.0	19	---	---	---	---	---	50	---	---	---	---	---	50	2	
K1-150	7-11	1.8	23	---	---	---	---	93	61	---	---	---	---	---	77	4	
K1-152	7-11	1.7	27	2.4	MS	---	---	118	136	---	---	105	99	102	111	12	
K1-153	7-10	3.5	28	---	---	---	---	81	---	---	---	---	---	---	81	2	
K1-154	7-10	4.5	30	---	R	---	---	---	---	---	---	---	---	---	---	---	
K1-158	7-8	3.5	30	---	MR	69	---	---	---	---	---	---	---	---	69	2	
K1-159	7-13	2.6	30	---	---	---	---	115	89	---	---	---	---	---	102	4	
K1-160	7-7	2.7	30	---	---	---	---	119	134	---	---	---	117	---	123	6	
K1-187	7-14	1.5	22	---	MR	30	---	---	---	---	---	---	---	---	30	2	
K1-193	7-11	3.5	28	---	MR	43	---	---	---	---	---	---	---	---	43	2	
K1-194	7-16	1.0	20	---	R	43	---	---	---	87	---	---	---	---	65	4	
K1-196	7-9	2.0	25	---	S	71	---	---	---	---	---	---	---	---	71	2	
K2-46	7-10	1.0	20	---	---	---	---	64	---	---	---	---	---	---	64	2	
K2-74	7-11	1.5	29	---	MS	89	---	---	---	---	---	---	---	---	89	2	
K2-81	7-6	4.5	31	---	MR	63	---	---	---	---	---	---	---	---	63	2	
K2-161	7-10	1.9	28	---	---	---	---	110	131	---	---	---	---	---	121	4	
K2-175	7-12	3.0	24	---	---	---	---	---	71	---	---	---	---	---	71	2	
K3-34	7-12	1.0	15	---	---	---	---	44	---	---	---	---	---	---	44	2	
K3-45	7-13	1.2	23	---	---	---	---	52	47	---	---	---	---	---	50	4	
K3-52	7-11	1.5	27	---	---	---	---	70	---	---	---	---	---	---	70	2	
K3-157	7-10	2.1	30	3.4	R	---	---	---	110	90	---	---	98	79	103	96	12
K3-160	7-9	2.0	30	4.3	R	---	---	---	114	83	---	---	84	66	91	87	12
K3-161	7-15	3.4	33	---	---	---	---	---	105	---	---	---	---	---	105	2	
K3-162	7-7	3.0	25	2.4	MR	---	---	---	---	---	113	---	77	48	65	79	11
K3-166	7-10	1.8	28	---	---	---	---	111	114	---	---	---	120	---	114	5	
K3-167	7-10	2.4	29	---	---	---	---	---	---	85	---	---	---	---	85	3	
K3-168	7-9	2.3	28	---	---	---	---	---	---	71	---	---	---	---	71	3	
K3-170	7-9	2.6	28	---	---	---	---	---	---	79	---	---	---	---	79	3	
K3-174	7-1	1.6	29	---	---	---	---	---	---	---	---	---	106	---	106	2	
K3-178	7-10	1.9	28	3.0	S	---	---	---	---	---	102	---	121	130	121	117	11

Harvest date, lodging, plant height, powdery mildew reaction, and seed yields for Kentucky bluegrass strains grown 1972 to 1985 at Roseau, Minnesota (continued)

Strains	Harvest date	Lodging*	Plant height Inches	1984		Year Seeded										Average all tests	Data years
				Seeding Winter Injury** 4-27-85	Powdery mildew***	Number of years harvested											
						1972 (2)	1973 (2)	1975 (3)	1976 (2)	1977 (2)	1979 (3)	1980 (2)	1981 (4)	1982 (2)	1983 (2)		
----- Yields In percent of test averages -----																	
K3-179	7-9	2.3	27	4.0	VS	---	---	---	---	---	56	---	68	62	42	59	11
K3-180	7-3	1.1	24	---	---	---	---	---	---	---	---	---	---	87	---	87	2
K3-187	7-5	1.4	25	---	---	---	---	---	---	---	---	---	---	105	---	105	2
K3-204	7-15	3.2	26	---	---	---	---	---	82	---	---	---	---	---	---	82	2
K3-222	7-5	1.0	23	---	---	---	---	---	---	---	---	---	---	73	---	73	2
K3-226	7-17	3.0	27	---	---	---	---	70	---	---	---	---	---	---	---	70	2
K3-227	7-10	2.1	29	---	---	---	92	94	---	---	---	---	---	---	---	93	4
K4-125	7-15	2.7	29	---	---	---	---	61	---	---	---	---	---	---	---	61	2
K4-126	7-14	2.5	29	---	---	---	---	73	---	---	---	---	---	---	---	55	2
K4-127	7-16	2.7	27	---	---	---	---	55	---	---	---	---	---	---	---	73	2
K4-135	7-11	1.0	20	---	---	---	83	---	---	---	---	---	---	---	---	83	2
K4-136	7-13	3.3	28	---	---	---	---	78	---	---	---	---	---	---	---	78	2
K4-137	7-13	2.2	28	---	---	---	143	126	---	---	---	---	---	---	---	135	4
K4-138	7-10	1.5	25	---	---	---	82	50	---	---	---	---	---	---	---	66	4
K4-139	7-14	1.1	21	---	---	---	89	82	---	---	---	---	---	---	---	86	4
K5-2	7-6	2.5	31	---	---	---	107	---	---	---	---	---	---	---	---	107	2
K5-22	7-14	1.2	24	---	---	---	119	95	---	---	---	---	---	---	---	107	4
K5-63	7-9	2.8	30	---	---	---	124	107	---	---	---	---	---	---	---	116	4
K5-65	7-13	1.2	21	---	---	---	72	87	---	---	---	---	---	---	---	80	4
K5-66	7-13	1.7	24	---	---	---	60	67	---	---	---	---	---	---	---	64	4
K5-67	7-12	1.8	22	---	---	---	53	66	---	---	---	---	---	---	---	60	4
K6-29	7-5	2.5	30	---	---	---	113	---	---	---	---	---	---	---	---	113	2
K6-30	7-13	2.1	28	---	---	---	132	124	---	---	---	---	---	---	---	128	4
K6-31	7-12	1.8	28	---	---	---	92	117	---	---	---	---	---	---	---	105	4
K6-32	7-10	2.2	28	---	---	---	119	122	---	---	---	141	---	---	---	127	6
K6-33	7-10	3.1	28	---	---	---	93	95	---	---	---	---	---	---	---	94	4
K6-34	7-8	3.2	29	---	---	---	127	70	---	---	---	---	---	---	---	99	4
K6-35	7-6	3.0	30	---	---	---	100	---	---	---	---	---	---	---	---	100	2
K6-36	7-10	4.8	31	---	---	---	102	76	---	---	---	---	---	---	---	89	4
K6-37	7-10	4.6	32	---	---	---	115	80	---	---	---	---	---	---	---	98	4

Harvest date, lodging, plant height, powdery mildew reaction, and seed yields for Kentucky bluegrass strains grown 1972 to 1985 at Roseau, Minnesota

Strains	Harvest date	Lodging*	Plant height Inches	1984		Year Seeded										Average all tests	Data years
				Seeding Winter Injury** 4-27-85	Powdery mildew***	1972	1973	1975	1976	1977	1979	1980	1981	1982	1983		
				Number of years harvested										(2)	(2)		
----- Yields in percent of test averages -----																	
K6-79	7-13	1.3	22	---	---	---	---	---	---	67	---	---	---	---	67	2	
K6-80	7-5	1.8	34	1.2	VS	---	---	---	---	113	---	---	113	96	91	105	10
K6-81	7-18	2.5	32	---	---	---	---	---	---	100	---	---	---	---	---	---	2
K6-86	7-16	3.7	29	---	---	---	---	---	---	70	---	---	---	---	---	70	2
K6-87	7-7	2.7	28	---	---	---	---	---	---	114	---	---	---	137	---	126	4
K7-48	7-14	3.0	29	---	---	---	---	---	99	---	---	---	---	---	---	99	2
K7-103	7-14	3.5	25	---	---	---	---	---	---	53	---	---	---	---	---	53	3
K7-104	7-13	4.2	30	---	---	---	---	---	---	120	---	---	---	---	---	120	3
K7-105	7-12	4.3	29	---	---	---	---	---	---	124	---	---	---	---	---	124	3
K7-138	7-15	1.3	23	---	---	---	---	---	---	153	---	---	---	---	---	153	3
K8-144	7-14	2.0	24	---	MR	74	---	---	---	---	---	---	---	---	74	2	
K8-219	7-14	1.0	23	---	MR	89	---	---	---	---	---	---	---	---	89	2	
K9-49-P124	---	---	---	---	MS	---	---	---	---	---	---	---	---	---	---	---	---
K9-53-P129	---	---	---	---	R	---	---	---	---	---	---	---	---	---	---	---	---
K9-81-P76	---	---	---	---	R	---	---	---	---	---	---	---	---	---	---	---	---
Kenblue	7-4	2.0	30	1.0	R	---	---	---	---	---	---	---	---	110	110	2	
Kimono	7-12	2.0	22	2.8	S	---	---	---	---	95	105	---	94	77	75	91	13
Kyostl	7-5	1.0	23	---	---	---	---	---	---	---	---	---	76	---	---	76	2
Leikra	7-4	2.9	32	4.0	R	---	---	---	---	---	---	---	104	63	---	84	4
Lovegreen	7-13	1.2	21	5.0	R	---	---	---	---	---	---	---	---	86	---	86	2
Majestic	7-11	1.3	18	2.8	MS	---	---	67	95	---	---	---	---	---	78	78	7
Melba	7-10	1.2	15	---	---	---	---	---	---	---	---	---	91	---	---	91	2
Mentor	7-12	1.4	21	---	---	---	---	---	---	52	---	---	---	---	---	52	3
Mer.Pp-43	7-7	1.5	24	2.9	R	---	---	---	---	---	---	---	67	74	---	71	4
Mer.PP 300	7-11	1.1	22	3.4	MS	---	---	---	---	---	---	---	---	167	---	157	2
Merlon	7-7	2.0	25	3.4	MS	---	---	86	106	---	---	---	---	---	98	95	7
Merlit	7-13	1.1	21	3.8	VS	---	---	---	---	---	---	181	138	---	237	174	8
Miranda	7-18	2.6	22	---	---	---	---	---	---	---	---	119	---	---	---	119	2
Mierille	7-14	1.4	20	3.0	S	---	---	---	---	---	---	---	61	---	42	55	6
MLM-18011	7-18	1.6	23	1.7	S	---	---	---	---	---	129	60	75	---	127	96	11

Harvest date, lodging, plant height, powdery mildew reaction, and seed yields for Kentucky bluegrass strains grown 1972 to 1985 at Roseau, Minnesota (continued)

Strains	Harvest date	Lodging*	Plant height Inches	1984		Year Seeded										Average all years	Data years
				Seeding Winter Injury** 4-27-85	Powdery mildew***	Number of years harvested											
						1972 (2)	1973 (2)	1975 (3)	1976 (2)	1977 (2)	1979 (3)	1980 (2)	1981 (4)	1982 (2)	1983 (2)		
----- Yields in percent of test averages -----																	
Mom-PpH519	7-12	1.9	23	---	---	---	---	---	---	---	118	---	---	---	118	3	
Mom Pp 1417	7-14	2.0	23	2.8	MR	---	---	---	---	---	134	---	137	---	129	134	9
Mom Pp 1765	7-11	2.0	24	---	MS	---	---	---	---	---	152	---	138	---	195	155	9
Mom Pp 2672	7-22	1.2	28	---	R	---	---	---	---	---	---	---	---	---	117	117	2
Mom Pp 3123	7-11	1.5	21	1.8	R	---	---	---	---	---	---	---	---	---	36	36	2
Mona	7-14	1.4	27	2.0	MR	---	---	---	---	---	---	---	---	---	106	106	2
Monopoly	7-14	3.3	28	4.1	R	---	---	125	125	98	---	101	125	130	89	115	17
Mosa	7-12	1.4	23	---	VS	---	---	---	---	98	131	---	105	98	115	110	13
Mystic	7-5	2.5	23	3.1	VR	---	---	---	---	---	---	---	---	85	118	102	4
N6-106	7-5	2.9	28	2.0	R	---	---	---	---	119	---	---	91	118	69	98	10
N 1213	7-16	1.2	23	---	---	---	---	---	56	85	---	---	---	---	73	73	5
Nerika	7-13	1.9	26	---	---	---	---	70	111	---	---	---	---	---	91	91	4
Newport	7-11	1.9	28	---	S	---	---	179	138	182	---	160	---	---	162	166	11
Nugget	7-15	1.1	17	3.0	MR	---	---	90	70	103	78	49	50	---	149	80	18
N-535 (challenger)	7-18	1.3	25	2.0	S	---	---	---	---	---	---	---	---	---	147	147	2
NJ 735	7-11	1.6	26	4.8	R	---	---	---	---	---	---	---	---	---	59	59	2
Olympisp	7-10	2.3	18	---	S	---	120	147	123	160	---	---	---	---	139	139	9
Onar	7-12	1.5	26	---	MR	---	---	92	84	80	---	---	---	---	86	86	7
P-141	7-13	2.2	23	---	---	---	---	---	---	77	93	---	---	---	83	83	5
P-143	7-11	2.3	25	---	---	---	---	---	---	58	---	---	---	---	58	58	3
P.O. 3132	7-8	1.6	20	---	---	---	---	---	---	---	---	---	55	---	55	55	2
P.O. 3232	7-8	1.9	23	---	---	---	---	---	---	---	---	---	57	---	57	57	2
P.O. 3332	7-8	1.2	20	---	---	---	---	---	---	---	---	---	60	---	60	60	2
P.O. 3432	7-10	1.2	21	---	---	---	---	---	---	---	---	---	107	---	107	107	2
P.O. 30232	7-12	1.5	19	---	---	---	---	---	---	---	---	---	91	---	91	91	2
Pp 133	7-16	1.5	19	---	MS	---	---	---	---	---	---	---	---	---	115	115	2
PPT6	7-15	1.0	18	---	VS	---	---	---	---	---	61	59	---	---	60	60	6
Parade	7-11	2.5	27	3.2	S	100	---	126	121	113	99	67	100	143	116	109	22
Park	7-6	3.2	30	2.1	S	155	129	155	135	93	138	146	98	147	129	131	24

Harvest date, lodging, plant height, powdery mildew reaction, and seed yields for Kentucky bluegrass strains grown 1972 to 1985 at Roseau, Minnesota (continued)

Strains	Harvest date	Lodging*	Plant height Inches	1984		Year Seeded										Average all tests	Data years						
				Seeding Injury** 4-27-85	Powdery mildew***	Number of years harvested																	
						1972	1973	1975	1976	1977	1979	1980	1981	1982	1983								
												----- Yields in percent of test averages -----											
Piedmont	7-5	1.6	27	4.1	MR	---	---	---	---	---	---	---	---	---	94	94	2						
Pennstar	7-12	1.8	21	---	MS	46	50	62	87	57	---	---	---	---	---	61	11						
Plush	7-9	1.8	27	3.0	MR	---	---	---	---	---	---	---	93	76	85	87	8						
Prato	7-5	1.9	23	---	MS	---	---	90	80	---	---	---	---	104	---	91	7						
Primo	7-7	2.1	28	---	MR	137	---	166	133	114	---	---	---	---	---	141	9						
PSU-150	7-11	2.7	28	2.0	R	---	---	---	---	---	---	---	---	---	59	59	2						
PSU-173	7-11	1.7	31	2.1	R	---	---	---	---	---	---	---	---	---	66	66	2						
PSU-190	7-12	2.0	25	4.0	R	---	---	---	---	---	---	---	---	---	88	88	2						
RR-10	7-21	2.4	23	---	---	---	---	---	---	---	---	111	---	---	---	111	2						
Ram I	7-12	1.6	22	3.7	R	---	---	62	96	---	107	85	81	56	72	81	18						
Ram II	7-10	1.0	20	---	R	---	---	75	86	---	---	---	---	---	---	79	5						
RU-128	7-9	1.7	26	---	MS	---	---	109	142	114	---	---	---	---	---	120	7						
RU-154	7-18	2.2	27	---	---	---	---	---	---	118	---	---	---	---	---	118	2						
RU-178	7-12	1.3	25	---	R	---	---	67	101	80	---	---	---	---	---	80	7						
Rugby	7-11	1.9	26	1.7	VS	---	---	---	123	103	110	67	103	134	91	105	17						
S-21	7-5	2.2	27	2.9	MR	---	---	---	---	---	---	---	---	---	114	114	2						
Saskia	7-13	2.0	20	3.6	R	---	---	---	---	---	---	181	---	---	218	200	4						
S.D. Common	7-5	3.0	28	3.8	MS	---	---	---	---	---	---	---	---	---	134	134	2						
Shasta	7-13	1.5	25	2.0	R	---	---	---	---	---	---	---	---	---	82	82	2						
Skoffl	7-13	1.1	15	---	---	---	---	---	27	60	---	---	---	---	---	44	4						
Sodco	7-13	1.6	24	---	MR	88	81	68	86	---	---	---	---	---	---	79	9						
Sophia	7-13	1.6	23	3.7	MR	---	---	---	---	---	---	---	122	105	127	119	8						
SV-01617	7-12	2.0	17	2.4	R	---	---	---	---	---	---	---	---	---	28	28	2						
Sydspart	7-13	1.3	23	2.4	MR	98	---	129	101	---	---	---	---	---	100	109	9						
Tivoli	7-19	1.4	18	---	---	---	---	---	---	66	68	78	---	---	---	70	7						
Touchdown	7-11	2.0	27	3.7	MR	---	---	72	79	40	51	54	50	---	33	55	18						
Trampas	7-8	1.3	20	---	R	---	---	86	105	---	---	---	---	143	---	108	7						
Trenton	7-12	1.7	27	2.0	VS	---	---	---	---	118	95	---	91	151	109	108	13						
Troy	7-6	1.6	32	---	---	---	---	---	127	---	102	---	---	---	---	112	5						
Turner	7-14	1.1	25	---	---	---	---	---	118	93	---	---	---	---	---	106	4						

Harvest date, lodging, plant height, powdery mildew reaction, and seed yields for Kentucky bluegrass strains grown 1972 to 1985 at Roseau, Minnesota (continued)

Strains	Harvest date	Lodging*	Plant height Inches	1984		Year Seeded										Average all tests	Data years
				Seeding Winter Injury** 4-27-85	Powdery mildew***	Number of years harvested											
						1972	1973	1975	1976	1977	1979	1980	1981	1982	1983		
(2)	(2)	(3)	(2)	(2)	(3)	(2)	(4)	(2)	(2)								
						----- Yields in percent of test averages -----											
Vanessa	7-12	1.3	23	4.1	VS	---	---	---	---	82	113	---	85	---	123	99	11
Vantage	7-9	3.0	29	2.8	S	---	---	54	78	---	---	---	---	---	114	78	7
Victa	7-10	1.1	21	3.8	VS	---	---	136	152	---	---	---	133	---	235	156	11
Wabash	7-9	1.6	29	3.7	R	---	---	---	---	---	---	---	---	---	59	59	2
Welcome	7-11	1.9	22	4.4	R	---	---	---	---	---	66	---	66	51	10	53	11
WWAG 401	7-17	1.5	24	---	---	---	---	---	---	67	---	---	---	---	---	67	2
WW AG 436	7-18	2.0	26	---	MS	---	96	---	---	---	---	---	---	---	---	96	2
WW AG 452	7-18	1.8	27	---	---	---	---	---	---	63	---	---	---	---	---	63	2
WW AG 462	7-17	2.2	29	---	---	---	---	---	---	136	---	---	---	---	---	136	2
WW AG 463	7-15	2.0	28	1.7	MS	---	106	---	---	123	---	---	---	---	95	108	6
WW AG 467	7-16	1.0	23	---	S	---	---	---	---	94	---	---	---	---	---	94	2
WW AG 468	7-14	1.7	28	---	---	---	---	---	---	94	---	---	---	---	---	94	2
WW AG 477	7-17	1.3	27	---	---	---	---	---	---	135	---	---	---	---	---	135	2
WW AG 478	7-18	1.2	16	2.2	S	---	---	---	---	94	---	---	---	---	86	90	4
WW AG 480	7-18	1.2	25	1.7	R	---	---	---	---	---	---	---	---	---	116	116	2
WW AG 520	7-18	2.0	22	---	---	---	---	---	---	111	---	---	---	---	---	111	2
ZW 42-94	7-12	1.3	21	---	---	---	---	---	---	---	---	---	---	---	37	37	2
ZW 42-96	7-12	1.5	24	---	---	---	---	---	---	---	---	---	---	---	129	129	2
ZW 42-102	7-10	2.7	24	---	---	---	---	---	---	---	---	---	---	---	37	39	2
ZW 42-103	7-9	2.7	27	---	---	---	---	---	---	---	---	---	---	---	22	22	2
ZW 42-108	7-12	2.0	21	---	---	---	---	---	---	---	---	---	---	---	61	61	2
LSD at 5% level						32	NS	30	38	28	31	36	35	50	40		
Average yield in lb/A						416	269	198	561	458	445	350	324	254	278		

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* 1 = erect plants; 5 = severely lodged.
 ** 1 = no winter injury apparent; 5 = severe damage; many plants killed.
 *** All readings recorded first crop year after seeding.
 VR = very resistant; R = resistant, MR = moderately resistant
 MS = moderately susceptible; S = susceptible
 VS = very susceptible

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