

PERENNIAL WEEDY GRASSES

Quackgrass, bentgrass, tall fescue and nimblewill are perennial grasses that disrupt turfgrass quality and reduce the marketability of sod. Since there are no selective chemical controls for these weeds, nonselective herbicides have been used for spot-treating clumps and patches of undesirable perennial grasses. Dalapon and amitrole have been used for several years for this purpose; however, weed control has not always been satisfactory and the residual activity of these herbicides delays turfgrass recovery into treated areas. Recently, glyphosate (Monsanto's Roundup) has been shown to be effective in controlling perennial grasses while the lack of any residual activity following its use allows for rapid turfgrass growth into treated areas. Results from research have shown that treated sites can be reseeded soon after application of glyphosate. However, sufficient time should be allowed between chemical treatment and disc seeding to facilitate translocation of the herbicide within the plant; otherwise, the mechanical severing of stolons or rhizomes that accompanies disc seeding may interfere with herbicide translocation and, hence, control of the weed species.

SELECTION OF KENTUCKY BLUEGRASS VARIETIES

The intraspecific variability of Kentucky bluegrass has allowed the development of many varieties and experimental selections that differ widely in their color, texture, density, environmental adaptation, disease susceptibility, and other factors. The basis for these breeding efforts is that improvements in the characteristics and adaptation of a turfgrass reduce its dependency on cultural practices designed to compensate for specific weaknesses. Thus, turfgrass management is made simpler and higher turfgrass quality is obtainable with the use of improved varieties.

The diseases of principal importance have been Helminthosporium leaf spot, Sclerotinia dollar spot and Fusarium blight (Table 2). Those varieties showing the least injury from these diseases were: A-20, A-34, Adelphi, Baron, Bonnieblue, EVB-282, EVB-391, Galaxy, Glade, K1-131, K1-132, K1-143, K1-155, Majestic, Cheri, Monopoly, P-59, P-140, Parade, PSU-150, Sodco, Touchdown, Victa and Windsor. The summer quality data reflect both disease incidence and summer stress tolerance. Thatch development varied from 0.71 to 1.91 cm thick, depending upon variety. There is reason to believe that thatch has an important effect on summer stress tolerance since Nugget typically declines as summer temperatures rise while, at the Belleville site in southern Illinois, the absence of thatch in Nugget is associated with substantially better summer quality.

The blends reflect disease and quality levels that represent compromises between the two component varieties. Considering the fact that no variety is perfect, blending superior varieties allows for incorporating the desirable features of each component while reducing the impact of a specific weakness on general turfgrass quality. The Kentucky bluegrass (Fylking)-fine fescue mixtures have not been good turfs due to the poor adaptation and high disease susceptibility of the fescues. The Fylking-Pennfine (perennial ryegrass) mixture is predominantly perennial ryegrass and its quality through the season is similar to that of Pennfine alone.

SOIL-LESS (WASHED) SOD

A new and potentially important development by Warren's Turf Nursery is "soil-less" sod. Recently harvested sod is washed free of soil with a device that employs a steel conveyer belt, a series of water jets for washing, and a roller assembly to squeeze excess water from the sod. The resulting sod is lighter, easier to handle, and less costly to transport. Research results have shown that, under moderate climatic conditions, soil-less sod roots faster than conventional sod. Also, soil

Table 2. Performance of Kentucky bluegrass varieties, blends and mixtures in 1975.

Variety	Spring Green-up ¹	Leaf Spot Disease ²	Fusarium Blight ²	Dollar Spot Disease	Thatch Depth, cm.	Quality ¹		
						7/11/75	8/15/75	10/9/75
A-20 (seeded)	3.3	2.0	1.0	1.0	1.39	2.7	2.0	3.7
A-20 (veg)	4.0	2.0	1.0	1.0	1.24	3.7	2.3	2.7
A-34	3.0	2.7	1.3	1.0	1.11	5.0	2.3	3.0
A-20-6	4.0	2.0	1.0	1.0	0.99	2.7	2.0	2.0
Adelphi	2.7	2.0	1.0	1.0	1.25	4.0	2.3	3.0
Ba 61-91	4.3	2.7	2.0	1.3	1.05	3.7	3.7	4.7
Ba 62-55	4.0	2.3	1.3	2.0	1.50	3.3	3.3	3.3
Baron	5.3	2.7	1.3	1.0	1.37	3.7	3.0	3.0
Bonnieblue	3.0	2.3	1.3	1.0	1.01	3.7	2.3	3.3
Brunswick	2.0	3.0	2.3	1.7	1.54	2.3	3.7	4.7
Campina	2.3	7.0	1.0	1.3	1.06	4.0	3.3	3.3
Delft	2.3	3.7	5.0	1.0	1.04	3.7	5.7	6.3
EVB-282	3.3	3.0	1.0	1.0	1.14	2.7	2.7	3.0
EVB-305	4.7	2.0	4.3	1.3	1.52	5.3	4.3	5.7
EVB-307	3.7	2.0	2.0	1.7	1.19	4.0	4.0	4.3
EVB-391	5.7	2.7	1.3	1.0	1.26	4.0	3.0	3.0
Fylking	4.3	2.3	2.3	1.3	1.30	3.3	3.3	4.7
Galaxy	3.7	2.0	1.3	1.0	1.17	3.7	2.3	3.3
Geronimo	3.0	3.3	2.0	2.0	1.25	3.3	4.0	4.3
Glade	3.7	2.7	1.0	1.7	1.54	3.7	3.3	3.0
K1-131	3.3	2.7	1.3	1.0	1.41	3.3	2.7	3.3
K1-132	3.3	3.0	1.0	1.0	1.27	3.3	3.0	3.0
K1-133	3.0	2.7	1.7	1.0	1.20	3.0	3.0	4.0
K1-138	3.0	4.0	5.7	1.0	1.21	3.7	6.3	5.7
K1-143	3.0	2.7	1.0	1.3	1.32	3.0	2.3	3.0
K1-155	2.7	2.0	1.3	1.0	1.21	4.0	2.7	3.3
K1-157	2.3	5.3	3.0	1.0	1.13	3.7	3.3	5.0
K1-158	2.0	5.3	1.7	1.0	1.22	3.0	1.7	2.7
K1-187	3.0	2.7	2.0	1.0	1.45	3.0	3.3	4.7

Kenblue	3.0	5.0	2.0	1.3	0.96	3.7	3.3	4.0
1L-3817	4.3	2.3	2.7	1.3	1.13	4.3	4.3	4.3
Majestic	2.7	2.0	1.0	1.0	1.41	4.0	2.3	2.7
Merion	3.0	2.0	1.7	1.3	1.02	2.3	3.0	4.0
MLM 18001	3.3	3.0	1.3	1.0	1.58	3.7	2.7	2.7
Monopoly	2.7	2.7	1.0	1.0	1.06	2.3	2.0	2.7
Nugget	7.7	1.0	2.7	3.3	1.52	4.7	5.3	5.3
P-59	2.0	2.3	1.0	1.0	1.33	4.7	2.7	2.7
P-140	2.3	2.7	1.0	1.7	1.76	2.3	2.3	2.7
Parade	2.3	2.3	1.3	1.7	1.01	4.3	3.0	2.7
Park	2.3	5.3	2.0	1.0	0.71	2.7	3.3	5.0
Pennstar	4.0	2.0	2.0	1.0	1.22	3.3	3.3	4.0
Plush	3.7	3.0	1.7	1.0	1.33	2.3	2.3	3.7
PSU-150	3.3	2.0	1.0	1.0	1.17	3.0	3.3	3.7
PSU-169	3.0	2.3	1.7	1.0	1.13	4.3	3.3	4.0
PSU-190	3.7	2.7	1.7	1.0	1.29	3.0	3.3	4.0
PSU-197	3.7	2.7	2.7	1.0	0.97	3.0	4.0	5.3
RAM #1	4.3	2.7	1.3	2.7	1.68	3.7	3.7	3.7
RAM #2	3.0	2.7	3.0	1.3	1.37	3.7	4.3	4.3
Sodco	3.0	3.0	1.0	1.0	1.37	3.0	2.7	2.3
Sydsport	4.0	2.0	1.7	1.0	1.22	5.0	3.0	3.0
Touchdown	3.3	2.3	1.0	1.0	1.91	4.3	3.0	2.7
Vantage	3.0	3.7	1.7	1.0	1.02	2.7	2.7	3.3
Victa	5.0	2.7	1.0	1.0	1.47	3.0	3.0	3.3
Windsor	3.0	3.0	1.0	1.0	1.22	2.7	2.0	3.0

.....Blends.....

Merion + Kenblue	3.0	3.0	1.7	1.0	1.22	3.0	3.3	4.3
Merion + Pennstar	2.3	2.0	1.0	1.0	1.19	2.3	3.0	4.0
Merion + Baron	3.3	2.3	2.0	1.0	1.30	3.7	3.3	4.0
Nugget + Pennstar	7.0	1.3	2.0	1.0	1.28	4.3	4.0	4.3
Nugget + Park	3.0	2.3	3.7	1.0	1.10	3.7	5.0	6.0
Nugget + Glade	4.7	2.0	1.3	1.0	1.42	3.7	2.7	3.7

Nugget + Adelphi	4.3	1.7	1.3	1.0	1.27	4.3	2.7	3.3
Victa + Vantage	3.7	2.7	1.7	1.0	1.40	3.3	3.0	3.3
P-59 + Brunswick	2.3	2.7	3.3	1.0	1.41	3.3	4.3	5.3
Blend 38	3.3	3.0	1.7	1.0	1.51	3.3	3.0	3.3
.....Mixtures.....								
Fylking + Jamestown (RF)	4.0	2.3	5.0	1.0	1.36	4.7	4.3	6.0
Fylking + Pennlawn (RF)	3.3	2.3	5.3	1.0	1.24	3.7	5.7	6.0
Fylking + C-26 (HF)	3.7	2.0	3.3	1.3	1.31	3.7	4.3	5.7
Fylking + Pennfine (PR)	1.0	2.0	1.0	1.3	0.72	2.7	3.3	2.7

¹ Spring green-up and quality ratings were made using a scale of 1 through 9 with 1 representing best quality and 9 representing poorest quality.

² Disease ratings were made using a scale of 1 through 9 with 1 representing no disease and 9 representing complete blighting of the turf.

Table 3. Lutein content in fresh clippings of various turfgrasses.

Lutein	Cultivars
mg/kg fr wt	
360-300	Adelphi, A-34, Pennfine PR
299-250	Baron, Majestic, Pennstar, Merion Fylking, Kenblue, Sydsport, Brunswick, Common PR, Manhattan PR, K-31 TF
249-200	Park, Windsor, A-20, Victa, Parade, Glade, Bonnieblue, NK-200 PR
199-150	Nugget, Touchdown
99-50	Vantage