

OVERSEEDING OF GOLF GREENS WITH BENTGRASS

There has been a clear trend in recent years of increased overseeding of *Poa annua*-dominated greens with bentgrass in the UK and Ireland. This has been driven predominantly by a desire for more sustainable turf management & improved performance, especially year-round playability.

UK PERFORMANCE DATA



Series G
Greens, Close Mown Trials (Mown at 4mm)
Table G1
Bentgrasses (Agrostis spp.)

Cultivar	Visual Merit	Shoot Density	Leaf Texture	Recovery	Winter Survival	UK Trials
Browntop (Agrostis subsp.)	8.5	7.8	8.1	8.5	8.2	BSPB
Creeping (Agrostis subsp.)	6.5	6.2	6.8	6.5	6.8	BSPB
Charles & Howden	8.8	8.5	8.2	8.8	8.5	BSPB
Plumley	8.2	7.9	8.0	8.3	8.1	BSPB
Plumley 2	8.1	7.8	7.9	8.2	8.0	BSPB
Plumley 3	8.0	7.7	7.8	8.1	7.9	BSPB
Plumley 4	7.9	7.6	7.7	8.0	7.8	BSPB
Plumley 5	7.8	7.5	7.6	7.9	7.7	BSPB
Plumley 6	7.7	7.4	7.5	7.8	7.6	BSPB
Plumley 7	7.6	7.3	7.4	7.7	7.5	BSPB
Plumley 8	7.5	7.2	7.3	7.6	7.4	BSPB
Plumley 9	7.4	7.1	7.2	7.5	7.3	BSPB
Plumley 10	7.3	7.0	7.1	7.4	7.2	BSPB
Plumley 11	7.2	6.9	7.0	7.3	7.1	BSPB
Plumley 12	7.1	6.8	6.9	7.2	7.0	BSPB
Plumley 13	7.0	6.7	6.8	7.1	6.9	BSPB
Plumley 14	6.9	6.6	6.7	7.0	6.8	BSPB
Plumley 15	6.8	6.5	6.6	6.9	6.7	BSPB
Plumley 16	6.7	6.4	6.5	6.8	6.6	BSPB
Plumley 17	6.6	6.3	6.4	6.7	6.5	BSPB
Plumley 18	6.5	6.2	6.3	6.6	6.4	BSPB
Plumley 19	6.4	6.1	6.2	6.5	6.3	BSPB
Plumley 20	6.3	6.0	6.1	6.4	6.2	BSPB
Plumley 21	6.2	5.9	6.0	6.3	6.1	BSPB
Plumley 22	6.1	5.8	5.9	6.2	6.0	BSPB
Plumley 23	6.0	5.7	5.8	6.1	5.9	BSPB
Plumley 24	5.9	5.6	5.7	6.0	5.8	BSPB
Plumley 25	5.8	5.5	5.6	5.9	5.7	BSPB
Plumley 26	5.7	5.4	5.5	5.8	5.6	BSPB
Plumley 27	5.6	5.3	5.4	5.7	5.5	BSPB
Plumley 28	5.5	5.2	5.3	5.6	5.4	BSPB
Plumley 29	5.4	5.1	5.2	5.5	5.3	BSPB
Plumley 30	5.3	5.0	5.1	5.4	5.2	BSPB
Plumley 31	5.2	4.9	5.0	5.3	5.1	BSPB
Plumley 32	5.1	4.8	4.9	5.2	5.0	BSPB
Plumley 33	5.0	4.7	4.8	5.1	4.9	BSPB
Plumley 34	4.9	4.6	4.7	5.0	4.8	BSPB
Plumley 35	4.8	4.5	4.6	4.9	4.7	BSPB
Plumley 36	4.7	4.4	4.5	4.8	4.6	BSPB
Plumley 37	4.6	4.3	4.4	4.7	4.5	BSPB
Plumley 38	4.5	4.2	4.3	4.6	4.4	BSPB
Plumley 39	4.4	4.1	4.2	4.5	4.3	BSPB
Plumley 40	4.3	4.0	4.1	4.4	4.2	BSPB
Plumley 41	4.2	3.9	4.0	4.3	4.1	BSPB
Plumley 42	4.1	3.8	3.9	4.2	4.0	BSPB
Plumley 43	4.0	3.7	3.8	4.1	3.9	BSPB
Plumley 44	3.9	3.6	3.7	4.0	3.8	BSPB
Plumley 45	3.8	3.5	3.6	3.9	3.7	BSPB
Plumley 46	3.7	3.4	3.5	3.8	3.6	BSPB
Plumley 47	3.6	3.3	3.4	3.7	3.5	BSPB
Plumley 48	3.5	3.2	3.3	3.6	3.4	BSPB
Plumley 49	3.4	3.1	3.2	3.5	3.3	BSPB
Plumley 50	3.3	3.0	3.1	3.4	3.2	BSPB
Plumley 51	3.2	2.9	3.0	3.3	3.1	BSPB
Plumley 52	3.1	2.8	2.9	3.2	3.0	BSPB
Plumley 53	3.0	2.7	2.8	3.1	2.9	BSPB
Plumley 54	2.9	2.6	2.7	3.0	2.8	BSPB
Plumley 55	2.8	2.5	2.6	2.9	2.7	BSPB
Plumley 56	2.7	2.4	2.5	2.8	2.6	BSPB
Plumley 57	2.6	2.3	2.4	2.7	2.5	BSPB
Plumley 58	2.5	2.2	2.3	2.6	2.4	BSPB
Plumley 59	2.4	2.1	2.2	2.5	2.3	BSPB
Plumley 60	2.3	2.0	2.1	2.4	2.2	BSPB
Plumley 61	2.2	1.9	2.0	2.3	2.1	BSPB
Plumley 62	2.1	1.8	1.9	2.2	2.0	BSPB
Plumley 63	2.0	1.7	1.8	2.1	1.9	BSPB
Plumley 64	1.9	1.6	1.7	2.0	1.8	BSPB
Plumley 65	1.8	1.5	1.6	1.9	1.7	BSPB
Plumley 66	1.7	1.4	1.5	1.8	1.6	BSPB
Plumley 67	1.6	1.3	1.4	1.7	1.5	BSPB
Plumley 68	1.5	1.2	1.3	1.6	1.4	BSPB
Plumley 69	1.4	1.1	1.2	1.5	1.3	BSPB
Plumley 70	1.3	1.0	1.1	1.4	1.2	BSPB
Plumley 71	1.2	0.9	1.0	1.3	1.1	BSPB
Plumley 72	1.1	0.8	0.9	1.2	1.0	BSPB
Plumley 73	1.0	0.7	0.8	1.1	0.9	BSPB
Plumley 74	0.9	0.6	0.7	1.0	0.8	BSPB
Plumley 75	0.8	0.5	0.6	0.9	0.7	BSPB
Plumley 76	0.7	0.4	0.5	0.8	0.6	BSPB
Plumley 77	0.6	0.3	0.4	0.7	0.5	BSPB
Plumley 78	0.5	0.2	0.3	0.6	0.4	BSPB
Plumley 79	0.4	0.1	0.2	0.5	0.3	BSPB
Plumley 80	0.3	0.0	0.1	0.4	0.2	BSPB
Plumley 81	0.2	0.0	0.0	0.3	0.1	BSPB
Plumley 82	0.1	0.0	0.0	0.2	0.0	BSPB
Plumley 83	0.0	0.0	0.0	0.1	0.0	BSPB
Plumley 84	0.0	0.0	0.0	0.0	0.0	BSPB
Plumley 85	0.0	0.0	0.0	0.0	0.0	BSPB
Plumley 86	0.0	0.0	0.0	0.0	0.0	BSPB
Plumley 87	0.0	0.0	0.0	0.0	0.0	BSPB
Plumley 88	0.0	0.0	0.0	0.0	0.0	BSPB
Plumley 89	0.0	0.0	0.0	0.0	0.0	BSPB
Plumley 90	0.0	0.0	0.0	0.0	0.0	BSPB
Plumley 91	0.0	0.0	0.0	0.0	0.0	BSPB
Plumley 92	0.0	0.0	0.0	0.0	0.0	BSPB
Plumley 93	0.0	0.0	0.0	0.0	0.0	BSPB
Plumley 94	0.0	0.0	0.0	0.0	0.0	BSPB
Plumley 95	0.0	0.0	0.0	0.0	0.0	BSPB
Plumley 96	0.0	0.0	0.0	0.0	0.0	BSPB
Plumley 97	0.0	0.0	0.0	0.0	0.0	BSPB
Plumley 98	0.0	0.0	0.0	0.0	0.0	BSPB
Plumley 99	0.0	0.0	0.0	0.0	0.0	BSPB
Plumley 100	0.0	0.0	0.0	0.0	0.0	BSPB

A summary of the performance of a range of browntop & creeping varieties & the two species can be compared directly against each other.

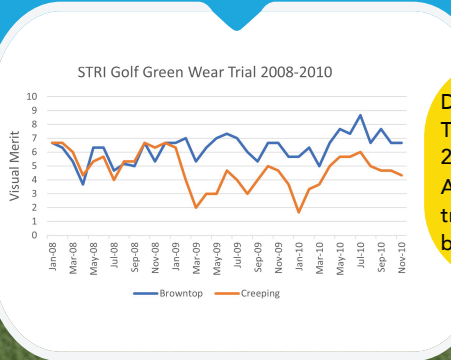
- The most comprehensive, reliable, & independent data on bentgrass performance for golf greens in the UK are in the BSPB Turfgrass Seed trials.
- Browntop varieties at the top of the list offer superior mean performance (shoot density & visual merit), as well as finer leaf texture.
- **Charles & Howden** offer better performance than all the creeping bents in the BSPB trails.

DISEASE TOLERANCE



- Both browntop & creeping bentgrasses offer strong tolerance to **Microdochium**, at the species level, particularly in comparison to **Poa annua**.
- Browntop (colonial) bentgrass is thought to have superior tolerance to Dollar Spot in USA (Plumley et al., 2000 & Hempfling, 2024 (online)) compared to creeping bentgrass.
- It should be noted, however, that recent breeding advances in **stolonifera** has improved tolerance levels. Without extensive data, relying on monoculture overseeding, particularly with creeping bentgrass, may not be prudent if Dollar Spot is a future concern.

YEAR-ROUND PERFORMANCE



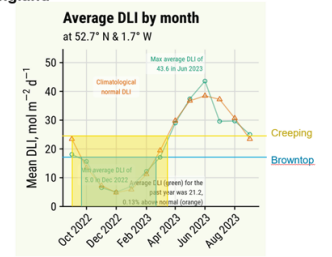
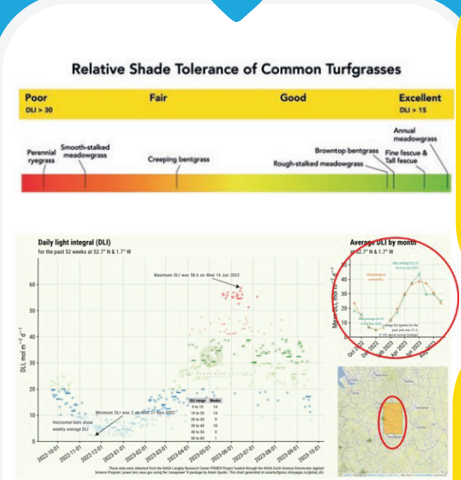
Data from Golf Green Trial STRI/Barenbrug 2010. An independent UK trial run by STRI on behalf of Barenbrug.

- Browntop bentgrasses perform better than creeping varieties in the BSPB trials (under no golf wear).
- In independent wear trials (such as above graph), the performance gap between browntop & creeping bentgrass widens further.
- Browntop exhibits stronger year-round growth and better recovery & performance during winter & spring.
- This is because browntop bentgrass plots contained an average of only 9% *Poa annua* ingress, compared to 21% in the creeping bents, at the conclusion of the trial.

Overseeding of golf greens with bentgrass is increasing in the UK & Ireland.

Both browntop and creeping bentgrass mixtures & varieties are marketed for their suitability, yet available scientific data & research points to browntop being the more appropriate choice, in terms of turfgrass traits (density, fineness & aesthetics), year-round demands of the golf industry, shade tolerance & disease tolerance in UK conditions.

SHADE TOLERANCE & DLI DATA



DLI requirements of cool-season turf species. Adapted from USGA publication. Details relative shade tolerance of turfgrass species in terms of their approximate Daily Light Integral requirements for healthy turf.

Data extrapolated from DLI App in Shiny Apps | Asian Turfgrass Center. DLI measurements for central England using NASA data for 2022/23. Creeping bentgrass (with an estimated requirement of 24.5 mol/m2/day) falls below the DLI curve for 6 weeks longer than browntop's requirement of 17 mol/m2/day. In other UK locations, this extends to 8 weeks.

- Browntop bentgrasses are better adapted for year-round growth in the UK versus creeping bentgrass due to their superior tolerance of low light conditions.
- It can be seen that browntop bentgrass requires less DLI than creeping bentgrass from the available species data.
- The numbers cited for the two species are 24.5 mol/m2/day for creeping bent & 17 mol/m2/day for browntop. Cultivar differences among species are likely to differ widely & the subject needs more study to solidify conclusions.
- If these DLI figures are broadly accurate, this difference in shade tolerance could contribute to around 6-8 weeks of additional growing conditions in terms of light availability in the UK climate.

