FOLLOW THE SCIENCE

Independent scientific trials support claims for soil-based rootzones and topdressing materials.

BIGGA Education Supporter British Sugar TOPSOIL has, for many years, championed the use of soil-based rootzones and topdressings for golf course maintenance, citing, amongst other characteristics, their nutrient and moisture retention properties.

With a growing cohort of greenkeepers now regularly using soil-based products for tee, approaches and bunker construction, British Sugar TOPSOIL recently commissioned independent scientific trials to support its claims for its own products, Landscape20 topsoil and Sports&Turf topdressing, National TOPSOIL Manager Andy Spetch

believes strongly in providing professional greenkeepers with the data. analysis and scientific opinion on which to base their decision-making. He said: "The potential impact of making a wrong decision may prevent head greenkeepers from looking at ways of doing things differently. I am an advocate of using soil-based products for certain projects because I believe they are better suited to the increasingly extreme climatic conditions we are experiencing. I hope the trials results we present here will give greenkeepers confidence to look at alternatives to traditional sand and

compost-based mixes."

THE TRIALS

Four trials were undertaken at the STRI in Bingley, West Yorkshire, during the autumn/ winter of 2020, under the auspices of Head of Research Dr Christian Spring.

Each trial was run as a randomised complete block design, with each treatment replicated five times in pots measuring 11cm x 11cm x 12cm deep. Each trial compared

Trial A



STRI's Head of Research Dr Christian Spring (left) with British Sugar TOPSOIL's Andy Spetch at the Bingley trial site

British Sugar TOPSOIL's
Landscape20 65:35 and
Sports&Turf 90:10 sand and
soil mix products with the
following sports growing media:
/ USGA style free-draining mix (80:20 sand: peat mix)
/ Tee's mix (70:30 sand: peat mix)

/ Sand: soil mix (80:20 sand: soil mix)

/ Clay loam soil N:B Peat was used

experimentally to ensure that

in September 2020 in STRI's greenhouse and finished in mid-November. Trial A pots were placed in a controlled

environment chamber to help facilitate the creation of moisture deficit. The trial was started in November 2020 and concluded in February 2021.

peat-amended mixes did not

have a greater nutrient reserve

compared to other treatments.

Trials B, C & D were started

The following assessments were carried out weekly on each of the four trials: turf density; turf quality; turf colour; visual turf uniformity; turf stress; sward height; rooting length and density score.

In addition to the above assessments, Trials A (seeded drought trial) and C (seeded nutrient trial) were also assessed for grass germination (date) and rate of maturation, the latter assessed twice weekly for the first month of the trial and weekly thereafter.

Trial A: To assess water retention of Landscape20 topsoil and Sports&Turf sand: soil mix in pots when seeded

Landscape20 performed well under moisture deficit and was the optimum treatment, providing significant benefit in terms of turf density, turf quality, turf colour and visual uniformity. Although seeds sown in Landscape20 took longer to complete germination compared to other treatments, the grass matured more quickly.

Sports&Turf tended to perform similarly to the sandier mixes in the trial, although growth tended to be somewhat slower.

STRI feedback: "When seeding in dry conditions, use of Landscape20 would offer benefits over similar materials tested in this trial."

Trial B: To assess water retention of Landscape20 topsoil and Sports&Turf sand: soil mix in pots when turfed

Landscape20 performed

Trial B



strongly as one of the optimal mixes. Turf laid on this growing medium was able to withstand moisture deficit better than on sandier materials, but it also had optimal root density, being closer to that found on the sandier rootzones.

Sports&Turf performed similarly to the comparative growing media.

STRI feedback: "It was interesting that the Landscape20 was able to bridge the differences between the sandier and heavier mixes."

Trial C: To assess nutrient retention of Landscape20 topsoil and Sports&Turf sand: soil mix in pots when seeded

This trial tested the six treatments with and without a pre-seeding fertiliser.

Both Landscape2O and Sports&Turf performed strongly in comparison to similar mixes and had visible and measurable benefits. At the end of the trial Landscape2O's greater natural soil nutrient reserves resulted in less turf stress and consistently optimum growth rates throughout. In those pots without pre-seeder fertiliser, turf grown in Landscape20 had longer rooting length than comparison treatments as a result of healthy grass growth combined with an open pore structure allowing root development.

At the end of the trial, turf grown in Sports&Turf tended to be greener and have less visible symptoms of turf stress and the longest roots compared to comparison treatments.

STRI feedback: "Nutrient differences [between all treatments] were most evident towards the end of the trial as the grass plants had put on significant biomass and had a high demand for nutrients."

Trial D: To assess nutrient retention of Landscape20 topsoil and Sports&Turf sand: soil mix in pots when turfed

Differences among treatments in this trial were less clear than when pots were seeded, due to the turf layer providing a degree of pre-existing life support network for the grass. Landscape2O and Sports&Turf tended to perform broadly similarly to other mixes.

STRI feedback:

"Landscape2O and Sports&Turf provided an effective turf bed growing media and demonstrated enhanced soil nutrient reserves."

Conclusion

These trials strengthen the understanding of British Sugar TOPSOIL products in particular and illustrate the benefits derived from using soil-based products rather than sand-based dressings and rootzones for certain applications.

When mixed with the correct sand, and with the correct maintenance programme in place, a sustainably-sourced soil based rootzone will deliver a good supply of valuable nutrients to sustain healthy tees, approaches and fairways whilst also delivering the drainage rates needed.

Both of the British Sugar TOPSOIL products tested in this trial - Landscape20, typically 65% sand:soil mix, and Sports&Turf, typically 90% sand:soil mix demonstrated benefits for the turf grown on them in terms of their natural nutrient content and water-holding capabilities. With the costs associated with irrigation and inorganic fertiliser constantly rising, and climate change bringing its own challenges with drier springs and summers, making the right choice of a rootzone and topdressing is more straightforward if we follow the science.

Continue to conversation

For more detail on these trials, contact topsoil@britishsugar.com www.bstopsoil.co.uk

Working in partnership with British Sugar TOPSOIL Sports&Tur