The Root to Victory on the Golf Course

Tim Fell of Tillers Turf, explains the ins and outs, the whys and whens of using rootzone turf on the green

There are two scenarios where turfing a green might be necessary: the renovated green, and the new green.

Renovation is required when the old green fails to support both the quality and quantity of play demanded by the golfers. The main season for renovation is September to March, when the old green is taken out of play. The members play on temporary greens until the renovated green comes back into the system in the spring.

So, there is an obvious need for speed, and no time to be wasted. Thus, turfing is the only option. If you seed, the green won't be back in play the following spring.

Where new holes are concerned there is a bit more flexibility. New holes will be part of a new 18-hole/9-hole development. They are sometimes seeded, sometimes turfed, depending partly on budget and partly on opening date. For cost comparisons, seeding works out at roughly 50p per square metre, while turf is about £7 per square metre. Clearly, there is a substantial difference, although that difference is much smaller when growing-in costs after seeding are taken into account.

But the case can be made for turf if the conditions are right. It means the course can open 6 months earlier, which in turn means earlier revenue in membership fees and green fees. Indeed, in the United States, sometimes entire courses are turfed, all 50 ha, so they can open soon afterwards.

THE OPTIONS AVAILABLE

Topsoil turf

This is turf which is grown on indigenous topsoil. It has been the main commercial source of turf for the golf industry, and the landscape industry, for the past 30 years.

However, now that most greens are constructed using high-quality imported rootzones, the use of topsoil turf has fallen dramatically. Waterlogging is a major problem on some greens, and is often caused as a result of incompatibility between topsoil turf and imported rootzones.

Incompatibility arises from the fact that there is a wide difference in particle size distribution between the two. In particular, the percentage of clay, silt, and very fine sand in most topsoil is too high, resulting in poor drainage of rain and irrigation water through the green profile. A distinct topsoil layer can often be seen in sections of a green where this type of turf has been used, and it is here that water is retained.

The general advice on overcoming problems associated with topsoil turf has been to hollow-core regularly and then to top-dress, to try to effect soil exchange.

This is labour intensive, expensive, slow and disruptive to the playing surface. The results are often far from satisfactory.

Sea-washed turf

This is turf which grows naturally on the edge of river estuaries, and was popular for golf and bowling greens up until the 1980s because of its very pure and fine mix of grasses.

It is not used now, due to the fact that the soil it grows on is silt, and contains an even higher percentage of fine particles than many topsoils. Accordingly, waterlogging would be an inevitable consequence of laying sea-washed turf onto a quality imported rootzone.

Re-using old turf

Obviously this does not apply to a new build, but existing turf can be stripped off and used on a renovated green.

There are two arguments for re-using - the first is cost. It is seen to be cheaper than buying in new turf. However, the costs are often underestimated - the old turf must be lifted, laid out on plastic sheets, kept alive and re-laid.

The second argument is that by using the turf again, the new green has the same playing characteristics as other greens on the course that haven't been renovated.

This argument loses its validity when you consider that the objective of a renovation is to improve the playing surface. It could be said that a better approach would be to accept a difference in the short term, with the aim of bringing all the greens up to the same high standard as the new ones.

▲ Close-up of turf grown on Tarmac USGA rootzone

▲ Precision lifting is necessary for accurate laying

The main argument against re-use is that it can bring problems associated with thatch (a major issue on greens), including increased disease potential.

Re-use is not always an option, particularly if the new green is larger than the old.

Washed turf

This was developed ten years ago to answer criticism associated with turf grown on topsoil, where problems arise from the material the grass is grown on. So, by washing away the topsoil, the problem of incompatibility can be eliminated.

The theory behind it is sound. The problem is that it is a product which needs careful handling and aftercare. The degree of skill, and the amount of aftercare, needed by the greenkeeper is much higher than with other sorts of turf.

This is because in the early stages after lifting, it is very fragile. It can dry out easily, and it's prone to disease because it doesn't have any of the benefits of buffering from the soil it's grown in.

There is a need for copious top-dressing and brushing to get rootzone back into the turf mat. Additionally, washed turf remains soft for at least a year after it has been laid. Some say the washing process damages the roots. It is also very susceptible to overheating in transport. The cost of washed turf lies somewhere between topsoil turf and rootzone turf.

Rootzone turf

Rootzone Turf is turf that has been grown on imported rootzone. Some believe it presents the best way of overcoming problems of incompatibility of soil types. The main objective is to match the underlying materials of the construction. By growing it on the same material the turf is to be laid on, the problem of waterlogging due to layering is overcome.

When building a green, laying anything other than rootzone turf could lead to a reduction in performance, or even failure, of the whole green at a later stage.

When you consider that a new green can cost £20-30,000 it pays to get it right first time.

In simple terms, the benefits from rootzone turf are clear. Firstly, it is very easy to use with no particular complications. Second, the green will be free-draining and firm. After all, the biggest problem on a green is waterlogging, which is normally associated with poor rootzone profiles.

HOW ROOTZONE TURF IS GROWN

Prior to establishing a crop on our nurseries, we, at Tillers, treat the soil to ensure any weed seeds in the top four inches are killed. This gives us an exceptionally high degree of purity. Following that, the seedbeds are levelled to a billiard-table standard. A layer of rootzone is applied, using a drop spreader. Then we sow a mix of fescue and browntop bent, and irrigate immediately afterwards to give a quick, even emergence.

In terms of a 50/50 mix, this gives a much higher proportion of the smaller bent seeds than fescue seeds, because the proportion refers to distribution by weight. So the crop is predominantly bent as it matures, which is what the majority of inland golf courses are looking for.

Then we start mowing the sward, over a period of months bringing the height down gradually to 7-8ml. Once it is at 7-8ml, we will topdress it regularly. Top-dressing is brushed in after it has been applied.

The benefits of topdressing are to give a really dense, firm sward, and to reduce the build-up of thatch.

We mow, sometimes every day during the height of the growing season, with a Toro triple mower 5200, which gives us a very fine quality cut. We give it a programme of fungicides to ensure we protect the crop against take-all and other diseases. We verticut regularly too, to cut out lateral growth and stimulate dense growth.

The whole process is similar to growing-in greens on a new course, and in fact we employ an experienced Greenkeeper to manage it.

▲ Mowing at 7mm with Toro 5200

AFTERCARE

The establishment of a rootzone turf after it has been laid is like any normal turf, and considerably more straightforward than washed turf. Because it has been mown at 7-8mm, and regularly top-dressed, it can very quickly be brought into play.