

Sustainable management of sports turf

Along with aesthetics, a more recent and pressing consideration is the environmental impact of sportsturf provision. It has become increasingly important to the players and the public at large that sportsturf maintenance should not only provide the best surfaces possible but also do so with minimal negative effect on the environment, e.g. less reliance on excessive amounts of fertilisers, pesticides and irrigation water.

In golf, for example, this has led to the development of the principle of 'sustainable' management, which advocates managing local environmental conditions to favour the grass species, which can provide high quality surfaces without the need for high inputs of fertilisers, pesticides and water. This sustainable approach and associated theories such as the 'low disturbance theory' are becoming increasingly important in reducing the environmental impact of sport turf provision.

Pesticides, convenient formulations of fertilisers and automatic irrigation systems have been used to good effect in managing sport turf surfaces. Their continued use has developed local environments, which support grass species, which rely on these inputs. Government legislation to combat the negative effects of high pesticide and fertiliser usage and the effects of global warming mean that maintenance regimes based on high inputs may need to be reviewed and a more sustainable approach developed. Managers may need to adjust their maintenance regimes to take this factor into account.

What is sustainability?

The R&A Golf Course Committee has defined sustainable development and management as:

Optimising the playing quality of the golf course in harmony with the conservation of its natural environment under economically sound and socially responsible management.

Being sustainable is not an option. You cannot be unsustainable and expect to survive. Managing a golf course in a sustainable manner has to be a continuous goal and we should all be asking:

- Could we be more sustainable?
- Will we be sustainable in 20, 50, 100 years?

The sustainability ladder

Climbing the sustainability ladder is all about improving the golfing experience; providing better value for money, better year round playing surfaces and, at the same time, reducing the environmental impact of course management. However, it requires the commitment and support of the club so as not to shake the ladder as you attempt your ascent.

Different types of putting green, both in terms of their species composition and construction, can be considered sustainable if they fulfil the playing quality, environmental, financial and social constraints noted in the R&A definition. These parameters will vary depending on climate, budget, legislation (pesticide and water, for example), drainage and many other factors. In any situation there will be the opportunity to become more sustainable by improving on aspects of these constraints or to become less sustainable by moving in the other direction.

The same applies to all other areas of the golf course. Improving drainage to fairways through thatch reduction and enhanced water movement through the soil will result in better playing conditions, particularly over the autumn and winter months when soft, wet fairways result in playing restrictions and other problems such as worm casting. Firm, dry teeing grounds, of adequate size and not in a shaded environment, will provide a superior surface for play. Bunkers that are more akin to small ponds over winter, or ones with badly eroding banks, will do nothing to encourage golfers to renew a subscription or pay a visitors green fee. Rough that is graded to present a fair challenge, maintained to thin out jungle grassland and managed to increase habitat and wildlife diversity will improve the overall golfing experience.

Achieving sustainability is a constant challenge for everyone. It is important to assess the current level of sustainability of the course and to gauge its potential for climbing the ladder, not only in terms of how far limiting factors will allow you to climb but also at what pace the climb can be achieved. Set realistic goals; climbing a couple of rungs could be a considerable achievement, at which point it may be necessary to reassess the potential to climb higher.

The rungs of the sustainability ladder

For the more intensively maintained areas of the golf course, such as greens, their surrounds, fairways and tees, the grass species composition of turf provides an excellent biological indicator of progress up the sustainability ladder and the seven steps towards greater sustainability can be described thus:

Most sustainable



Step 7 – a fescue/browntop bent sward is attained but needs careful management to avoid sliding down the ladder.

Step 6 – as firmness, dryness and airflow continue to improve, the odd patch of fine fescue appears and a mixed sward develops with browntop bent and increasingly annual meadow-grass in the minority. Introducing fescue into the overseeding regime may well be required.

Step 5 – browntop bent begins to dominate a blend with annual meadow-grass. A fairly intensive overseeding programme may be necessary to make this step or, at the very least, to increase the rate of the climb.

Step 4 – browntop bent begins to increase but annual meadow-grass remains in a high proportion. Overseeding may be necessary to achieve this step.

Step 3 – thatch under control, shade adequately reduced, still annual meadow-grass but native browntop bent beginning to show through.

Step 2 – firmer with thatch being checked and shade reduced but still annual meadow-grass dominated.

Step 1 – wet, soft, thatchy turf dominated by annual meadow-grass, in shade and subject to regular disease attack. Drier, firmer turf in less shade has to be developed if you are to start climbing the ladder.

Least sustainable

The key to climbing the ladder is to continuously improve the growing environment. Throughout this process it is necessary to monitor progress and the work being put in to achieve each step on the climb. To some sites, it may not be possible to get beyond a certain step on the ladder, e.g. due to drainage or shade constraints which simply cannot be overcome. This may limit the sustainability of the site in terms of playability and income generation. Future climate change and regulations, e.g. water or pesticide availability, may remove one or two of the lower rungs of the ladder in terms of their sustainability and this possibility should be factored into long term planning.

Sustainable course management is not an option; it is essential to ensure that our golf courses will be enjoyed by future generations.