



Overseeding Efficiency

The challenge

The effects of wear and tear from increased levels of play, impacts of climate change such as wet summers or cold winters, disease and pest damage and cutting heights can put stress on the turf leaves and lead to a deterioration in playing quality and presentation of the golf course.

To repair and maintain a uniform good quality turf, with firm, fast, true and smooth greens, overseeding is often necessary. This is a routine part of golf course management in which grass seed is spread on top of the existing grass to promote new growth.

Overseeding with a different botanical grass species is often carried out to alter the species composition of a playing surface to encourage better playing characteristics.

The finer grasses such as bents and fescues create firm, fine and fast greens with less thatch build up and improved disease tolerance, while annual meadow grass gives good summer surfaces that very often suffer through autumn and winter, being soft and disease prone.

Overseeding however has varying degrees of success depending on the soil environment, overseeding procedures, germination and establishment. The seed can be a significant part of course management expenditure so it is essential that this material is used efficiently and effectively **to avoid unnecessary wastage and cost.**

The Solution

Factors such as the optimum germination and growing conditions, the timing of overseeding, the seed cultivars, the application rate and techniques and ongoing turf management will all affect success rate.

Overseeding best practice techniques and alternative application methods of overseeding have been developed in recent years to improve the take up rate, resulting in the desired turf quality and reduce the cost of wasted seed.

Optimum Germination Conditions

Firstly the correct conditions under which overseeding takes place are important for success. The soil mechanics / condition must be suitable for supporting the seed i.e. very little thatch present, no drainage issues and moss should be controlled at the first available opportunity, with the residual dead matter scarified out of the sward.

Less controllable conditions such as light, airflow, water and appropriate soil and air temperatures are also required for turf grass seed to germinate so the turf surface can heal as quickly as possible. If the soil temperatures have increased to around 8-10°C consistently, an application of growth regulator such as Primo Maxx could be considered to hold back the top growth of the existing sward, allowing the new seedlings a better chance of establishment.

Timing of overseeding

Overseeding is best carried out in late summer-early autumn when existing sward growth naturally slows as the grass prepares to produce flowers and seeds. The soil temperature is still generally high enough and rainfall is often adequate for the germination and establishment of new seedlings. Maintenance practices begin to reduce at this time which will give the new seedlings a greater chance of surviving with rapid establishment during the following spring when the next growth pattern commences. For best results seed should be sown on two or three occasions at half rates.

A spring / early summer overseeding will likely germinate the same however the level of the post-seeding management and intensity of play at this time of year may impact on seed establishment so it may not be a practical time for all courses. Greater success can be seen from over sowing with fescue grasses in spring, and fescue/bent mixes in late summer/autumn.

Research at the Sports Turf Research Institute (STRI) has shown that applying Primo Maxx five days before a June over sowing operation allowed significantly better seedling establishment in a bent/annual meadow-grass sward. Using Primo Maxx may also allow the height of cut to be raised slightly without affecting playing quality, which will also be beneficial to the establishing seedlings.

Choosing the correct seed species and cultivars

New cultivars have been bred and varieties are continually being improved to meet the increasing pressures placed on the sward by climatic changes and increased usage of the golf course. Many cultivars produce greater shoot density and are more disease tolerant. The most suitable species for each course location will obviously vary.

Advice should be taken from agronomic experts such as STRI who have a long established cultivar-testing program for amenity grasses and the 2017 Turfgrass Seed Booklet -

http://www.bspb.co.uk/sg_userfiles/BSPB_Turfgrass_2017.pdf

The lists within this booklet enable managers of turf to evaluate the different cultivars in terms of colour, shoot density, and disease tolerance.

Using a balanced mix of 2-3 top rated cultivars with consideration to seed age, coatings and dressings, may enhance germination and establishment.

Fescues are often favoured due to the fact they need less water, fungicide and fertiliser than other species. Fescues are slow growing so require less mowing saving labour, fuel and machinery wear and less green waste produced and also lays down organic matter at a much reduced rate compared to other grasses requiring less thatch management.

Varieties of bent grass such as Browntop, Creeping, Velvet and Colonial Bent are often favoured in inland soil based greens and mixed with fescues for coastal links courses.

Application technique

The soil surface and seedbed should be prepared to be a good growing medium for overseeding by removal of moss/thatch and moisture applied if required. Removal of organic matter can be done by hollow coring or deep scarification. The surface impact will depend on the tine or blade size, which should be determined by the amount of organic matter that needs to be removed. The depth of hollow coring or deep scarification should be just below the base of the thatch layer.

The soil must be open structured and not compacted to form a seed bed and allow roots to develop so aeration to the desired depth may be required (hollow tining, micro-hollow tining, solid tining or sarrel rolling) or by opening a channel using a slit-seeder or deep scarifying. The seed is then applied and brushed or dragmatted into the holes so in contact with the growing medium to permit germination. Top dressing is then applied to protect seedlings through growth from establishment to maturity and area irrigated and fed with nutrients as required.

Allowing the grass to grow in for a week to ten days minimum before any cut or leaving hollow tine holes partially full (i.e. 1-2mm below the turf surface) gives the seedlings a chance to establish, mature and thicken without being unduly disturbed from mowing (especially if a spring time overseeding).

Over seeding can be carried out by hand or by using a stitch or dimple seeder, a drop spreader or placed directly into soil with a specialist seeder machine.

A disc seeder, such as the Charterhouse vertiseed, to place the seed directly into the soil profile at the predetermined depth also increasing the amount of seed to soil contact.

The Vredo overseeder system uses a 2 disc machine to create a v shaped slit for the seed to an adjustable depth. The slit is then closed over by the roller.

A seeder attachment on the Graden unit can place the seed directly into the lines where organic matter has been removed and sand injected.



Overseed rates differ but one example is a rate of approx. 35g/m² for fescue and bent/fescue mixes and at the lower rate of approx. 5-6g/m² for a pure bent-grass mix.

Germination and establishment

Germination will occur if soil conditions and application are successful combined with the weather. Germination sheets could be used to cover the surface but are disruptive so rarely suitable in golf courses.

The important 'establishment phase' is when the seedlings strengthen enough to survive the fine turf environment and mowing and thatch management should be minimised at this time and fertiliser applied if necessary to encourage root and shoot growth.

The Outcomes

With so many different types of conditions, cultivars and application techniques, successful seed germination and overall % uptake can vary considerably. A variety of courses of different types and locations were surveyed to find out how efficient their overseeding was.

All courses surveyed overseed their greens and often their tees and some fairways also. Areas overseeded for links courses were between 4 and 24 ha. For inland courses areas were between 1 and 17ha. Seed was applied separately from top dressing by all surveyed clubs except in some weak areas and aprons.

Staff time spent on overseeding varied from 45 – 480 hours per year and expenditure on seed varied from £500-5000 in inland courses and up to £10k in some links courses.

Many clubs were not aware of the uptake rate of their seed application. Clubs that apply seed by hand had up take rates of 5-20% whereas those using drop, dimple seeder and other overseeder machinery had uptakes of 60-90%.

Seed can cost from £160+ for 20kg Fescue seed, £200+ for fescue/bent seed mix, up to £350-500 for 20kg of some bent varieties. This could cover approx. 1000m² at a 20g/m² application rate. (example costings from www.rigbytailor.com)

In conclusion: Investment in or hiring of overseeder machinery could therefore reduce wastage of seeds and reduce overseeding costs significantly.