



David Rhodes explains how to achieve the best results from the time, effort and money invested in sward renovation

Testing times

How you can improve your turfgrass

These days, greenkeepers are being asked to provide good playing conditions seven days a week, every week of the year. This continual wear and tear, in increasingly wet conditions, is bound to affect the quality of the grass surface at strategic points across the course. Deterioration may also result from excessive thatch accumulation, a predominance of undesirable grass/or weed species, excessive shade, or injury due to pests and disease. Improving the sward by laying new turf or overseeding will often be the only answer.

In most situations, unless an instant surface is required, overseeding will be cheaper and more practical than putting down new turf. Although less demanding in the initial phase of establishment, turf limits the choice of species and cultivar to that used by the turf grower, and this may not be the ideal match for the course.

With over 200 amenity grass cultivars on the STRI List, the possible combination of varieties and species that can be sown in a repair, or overseed mixture, is endless. Trials at our research station in Lincolnshire, repeatedly show that mixtures out-perform the individual varieties grown on their own - especially with regard to density, colour and disease resistance. Considerable time and effort is taken to devise mixtures to suit a particular end-use. These do not necessarily include all the best-rated cultivars, but those that will

grow and perform well together in a specific situation.

In amenity grass breeding programmes, the primary objective is to find new varieties that will reduce labour and input costs — for example, by selecting cultivars that require less mowing, chemical sprays and fertiliser.

In Britain, important qualities to look for in grass seed selection are persistence under close mowing, durability under wear, disease tolerance, turf density, slow vertical growth rate, good winter colour, and cleanness of cut. The life of any sward, be it tee, green or fairway, is neither static nor infinite. Even areas prone to least damage, will eventually benefit from being replaced with genetically better, healthier plants. Advances in breeding continually produce new varieties with superior characteristics to those already available.

Sow quality seed

Good quality seed is essential for successful establishment. The three basic components of quality are purity, viability (germination) and trueness of type. Quality seed must confirm to UK seed labelling laws. For example, the Higher Voluntary Standard for purity in rye grass is 98 per cent, and for fescues is 95 per cent.

Seed size and weight are important characteristics associated with

seedling vigour, both between, and within species and cultivars. For example, rye grass has greater vigour than bent grass. The relative vigour of seed lots can be obtained from the interim germination on the seed test certificate. Lots with a high interim germination, which will be similar to the final germination, have the highest vigour.

Seed numbers per kilogram differ widely for different species. With large seeds like those of perennial rye grass, there are less seeds per gram than for bent grasses. Therefore more weight of seed is required to achieve the same plant numbers. Achieving the right sowing depth is critical, which for most turf-grass seeds ranges from 1.25mm to 6.5 mm. Seeds sown too deeply may not germinate.

The type of grass, soil conditions, planting depth, germination percentage, seedling vigour and the level of post planting care, all determine how much grass seed is needed. The target should be a living count of between 10,700 and 21,500 plants per square metre, to ensure rapid establishment of a thick, dense sward.

When to sow?

Turfgrass renovation programmes need to be planned to ensure the various operations progress in a systematic manner, with minimum disruption to players. Cool season grasses are usually sown in late spring and early autumn, with an optimum

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HERE ARE THE RESULTS

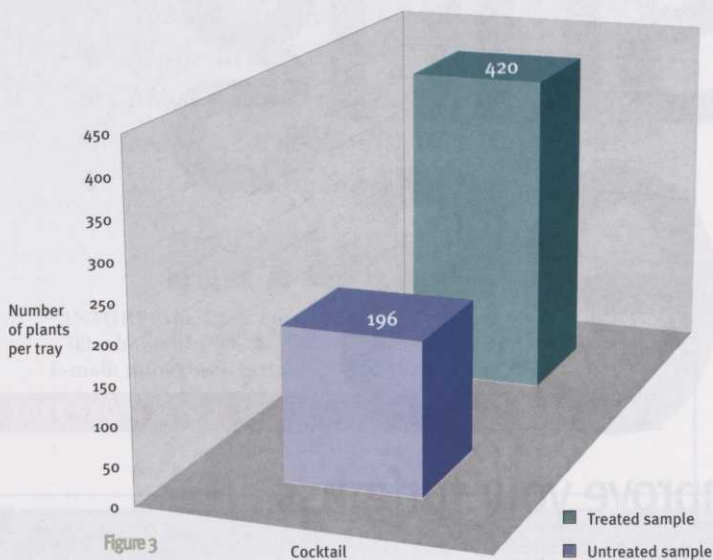


Figure 1 shows how the seed treatment speeds up establishment in a perennial rye grass/red fescue lawn mixture, sown at Advanta's Lincolnshire research station in September 1999.

In figure 2, trials carried out in glass houses in Holland, demonstrated that more than twice the number of plants established with the treated sample.

Finally, figure 3 displays the results of mixtures trials carried out by several Dutch turf growers during 1999. The greatest difference is seen where smooth stalked meadow grass was grown with creeping red fescue, rather than with perennial rye grass where the meadow grass suffered from the much fiercer competition.

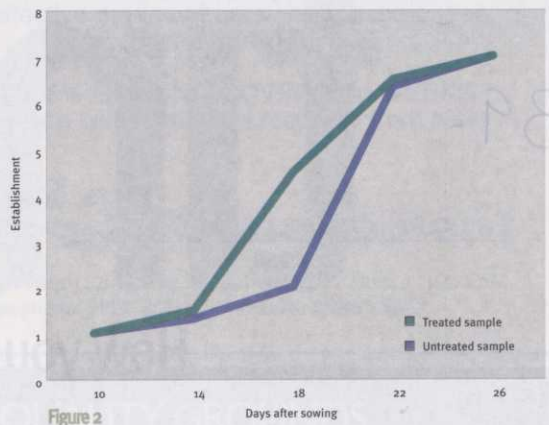
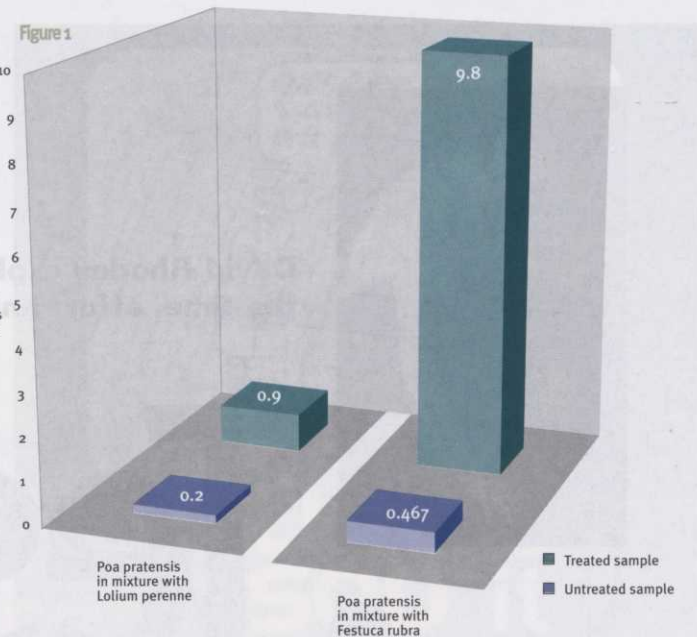
temperature for seed germination of 16 to 30°C. September is usually the ideal, providing moist, warm conditions, allowing new plants to establish well enough before day length shortens. Competition from annual weeds and existing grasses is also less at this time.

The continual heavy rain and flooding experienced by many last autumn, means there will be more spring renovation going on this year. The best advice is to aim for mid-April seeding, as soil temperatures should have risen high enough to allow germination.

How to sow

The sequence of operations includes site preparation - ie weed and thatch control, mowing, aeration and nutrition, followed by the selection of appropriate seeds, sowing, and post planting care. The surface should contain at least 60% cover of desirable perennial grasses. If substantial weed or non-desirable grasses are present, treatment with a non-selective herbicide may be needed first.

Thatch control is very important, and excess material should be reduced with a vertical mower, or in severe cases with a turf cutter, and removed from the site. Generally the area should be vertically cut in several directions before overseeding,



particularly when using mixtures containing bent grass as the seed is so small. All turf grasses produce lateral growth as stolons, aerial tillers or trailing stems. This lateral growth gives the appearance of complete turf cover, but in fact it may shade developing seedlings and new tillers.

Soil analysis will highlight any deficiencies in the nutrient status of the root zone, and the opportunity to apply fertiliser, particularly phosphorous, at seeding should not be missed.

Nitrogen should be withheld for three weeks prior to, and following overseeding, to reduce competition.

The seed can be applied with a spreader - with passes at right angles to ensure even distribution, or broadcast by hand. This should be followed by topdressing and watering if necessary (not last autumn!), to encourage optimum germination and growth.

Post establishment care practices need to be in place for at least four to eight weeks following sowing, and the area will be out of action for this period. Irrigation is especially important after spring sowing to avoid loss by desiccation during the summer months. The initial irrigation should be long enough fully to wet the root zone, and frequent enough to keep the area moist.

When the plants are firmly rooted, and leaf growth has reached 40 to 50

millimetres in length, mowing can start. No more than one-third of the leaf should be removed at any one time to ensure optimum growth. Mowing height should be reduced gradually over a period of one to two months, until the recommended height is achieved. Cylinder mowers can pull out newly established grass, so it is better to start off with a rotary machine.

Difficult conditions

Where greenkeepers are under intense pressure to repair key playing areas in far from ideal conditions, such as a late wet spring, an additional insurance is available from seed treatments.

These, like Advanta's own Headstart, can contain cytokinins, enzymes and trace elements. Cytokinins promote cell division, particularly in rapidly dividing cells, such as occurs during germination. The enzymes help mobilise food reserves, which are an essential source of energy in germinating seed. The chelated trace elements are readily available to the young seedling, and two organic complexes called osmotic attractants, draw available moisture to the germinating seed from its immediate surroundings.

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