he availability of good quality mature turf containing the right grasses for a variety of situations and growing on appropriate soils is the acme of perfection. Whether considered good fortune, or the result of careful planning and foresight depends on your point of view, but the head greenkeeper or course manager who has developed such a resource can be forgiven for regarding it as better than money in the bank should disaster strike.

Advancing years bring some compensations but one's attitude tends increasingly towards pessimism. My beer glass is more often half empty nowadays than half full. With the sheer volume of traffic on our golf courses these days, both men and turf are under a good deal of pressure. The potential for disaster to strike is always there, from hydraulic oil pipe rupture and spillage to an overlap using a spray or a miscue with the weather forecast and having wetting agents or fertiliser down and then being stuck with a hot, sunny day.

There is sure to be a sod's law which states that if a disaster is going to happen, it will happen



the day before or the morning of your major club competition. Only you can minimise those risks, but a good turf nursery may well help you retrieve the situation if the worst happens, and we all have our fair share of vandalism these days.

Greens

Before assessing the desirable qualities for turf that will be used on putting surfaces, take into account the playing requirements for that area. Is the turf likely to be used to repair an area damaged by disease or winter kill and will the green be required to be in full use at normal cutting heights as quickly as possible? The same query must be answered if a green has been reconstructed and needs to be completely returfed.

The reason for asking yourself this question is quite simply that



Prepare and re-sow stripped areas in spring

most commercial turf grown from seed is barely 12 to 14 months old when it is sold, and relatively immature. Such material is certainly strong enough to cope with the stresses of lifting, handling, transport and relaying, and a good product will certainly look mature. Unfortunately, it will not cope at all well with normal green mowing heights and regular heavy play within months of laying.

How often do you see patches of new commercial turf introduced into putting greens which either gradually decline and die off, or remain weak and thin for two or three years affecting the smoothness of surfaces, never really blending in properly for a long time. In my opinion, the vast majority of commercial turf requires a "grow in" period before it can be expected to support close mowing and regular use. That period can take from nine months to two years depending on when the turfing is completed, the area of country and weather conditions.

One or two growers can now supply more mature sod, at a price. If you can afford it, that's fine, otherwise grow your own turf nursery.

Many clubs utilise part of the practice putting green for repairs, but that is never a really satisfactory solution, more of an emergency stop-gap. Far better to have a properly developed and maintained nursery area. Having a source of mature turf on site certainly widens management options. No longer is there need



'For quality greens turf on most sites, it is usually best to buy in a good commercial turf to establish the area.'

for ugly bare scars from winter disease or other forms of die back, even if tucked away at the edges of the putting surface. You can actively set about removing coarser ryegrass patches, or, if needs be, introduce bent and fescue turfgrass plugs into annual meadow-grass dominated areas in a controlled management programme over the years. That has to add up to easier management, better presentation and, to some extent, peace of mind.

The qualities we are looking for in turf include the correct grass species, ie a blend of fine fescues and browntop bents with very little annual meadow-grass and no coarser grass species. For most inland sites there should be at least 50% or more strongly established bent in the sward. Fescues generally take longer to achieve a mature sod that can cope with normal summer mowing heights as well as regular wear and tear and whilst a good proportion of them is acceptable for use on links greens, too high a proportion can lead to problems inland. The grasses should be growing in a free-draining medium that matches the soils on the existing greens. Even on older established courses the top profile will be fairly sandy as a result of regular topdressing, and there is no point "capping" that by laying on it a turf growing in heavy loam. The turf must also be free of soft, fluffy organic material at the immediate surface, and preferably used to regular mowing at the normal putting green height of cut.

Tees

The situation with regard to obtaining suitable turf for tees is far less demanding. The type of grasses forming the sward are less important, although on most courses a blend of fescues and browntop bent will still be the aim. A small amount of annual



meadow-grass will not matter and quite often the finer-leaved cultivars of smooth-stalked meadow-grass are included because these can blend well with the other fine-leaved species and established rhizomes improve recuperative powers following wear.

Perennial ryegrass is still regarded as unsatisfactory for tees on the vast majority of courses because of its open, tufted habit of growth, coarse, fibrous leaves and stems which are difficult to cut cleanly and intolerance of mowing at or below 12mm.

The soil type the grass is growing in is also less important, although obviously it is desirable to have it established in a sandy soil if the turf will be used over a special rootzone mixture even on tees.

Normal commercial turf, given a reasonable sward at all, might be expected to cope acceptably with summer play after turfing in the previous autumn or early winter. Do not expect miracles of course, such turf is still relatively immature and it will do better under a more relaxed mowing height, with regular divot repair, generous nutrition and irrigation when required.

Choice in this situation therefore boils down to a question of cost, and the quantity of turf required. Where you have the nursery space available and the time to manage it properly, a nursery for tee grade turf is well worthwhile, especially if embarking on a tee extension or enlargement programme spread over several years.

Fairways/traffic routes

Widespread weakness or damage due to drought or wear on fairways will normally be best tackled by appropriate surface treatment, seeding, mild feeding and, in dry situations, irrigation during the summer can often be the key to success. Large areas of turf for fairway repair are therefore unnecessary. It can, however, be useful to have some mature fairway quality turf available. This comes in useful for patching repairs on droughtprone mounds, local heavily trafficked areas, especially at the edges of bunkers, on green surrounds and anywhere that contours funnel feet and trolleys and which come into play.

Such places can seldom be given special treatment during summer, especially watering, and on dry slopes or mounds that can be vital to survival of thin, often rather thatchy and young commercial turf. Material like that cannot cope with heavy foot or trolley traffic either, unlike the tees which get a rest between periods of wear.

Bunker turf

The traditional and still best way of retaining and holding a face on links bunkers, especially those facing full sun all day, is to build up a revetted wall of turf. As might be expected, that requires a good deal of the right sort of turf and on a regular basis. Turf walls receiving full sun all day combined with sand splash, wind and normal erosion often survive no more than three or four years, so a regular replacement programme is essential. Where there are many bunkers on a course, up to 2 or 3 acres can easily be used per year on renovations and rebuilding throughout autumn and winter.

On many links, suitable areas of turf for this purpose in the rough have been plundered over the years to the point where there is very little of the correct type of turf remaining. Commercial turf is totally unsuitable for bunker revetting and even where this is used on bunker heads, it can be a disaster unless very carefully managed and watered in its first year. For these purposes, nursery turf really comes into its own. Because natural regeneration of turf on the links can be such a slow process, a special area which can be resoiled when necessary, irrigated in summer and which is reasonably convenient for regular maintenance is now more a necessity than a luxury.

Above all else, turf for revetting must be a tough, mature sod with a well developed fibrous root system which can be cut 50mm thick, will handle easily and build up into a solid turf wall. Grass composition is of less importance but for neatness, general appearance and ease of maintenance, the finer grasses are best.

AD



Protect your nursery area

Establishment

An area close to the maintenance base is ideal since it is then unlikely to be neglected. It can also double as an area for small trials with materials and for setting up machinery before venturing out onto more important fine turf playing areas. The chosen place should be away from areas that come into play, although space considerations often mean part of the practice ground may have to be utilised.

There should be a good 100 to 150 mm depth of sandy topsoil, especially for putting green turf. If not, ensure that a sandy rootzone is at least provided on that area. A means of irrigation is useful on inland sites, essential on links to allow sure establishment, rapid growth and development of a mature turf and also to ensure that you can recycle a small area on a regular basis.

For quality greens turf on most sites, it is usually best to buy in a good commercial turf to establish the area. Then, manage it carefully for 12 to 18 months until it matches the existing greens and is mature enough to take close cutting and play.

Seeding is clearly an option, but you must have a clean seed bed free of weeds and particularly weedgrasses such as annual meadow-grass, Yorkshire fog grass and perennial ryegrass. Many high hopes of developing a turf nursery have foundered through being swamped by these coarser species. Where you can start clean through adequate fallowing and cultivation, or on a naturally clean soil, produce a seed bed in late summer and sow during the period July through to early September. A small amount of an NPK fertiliser should be



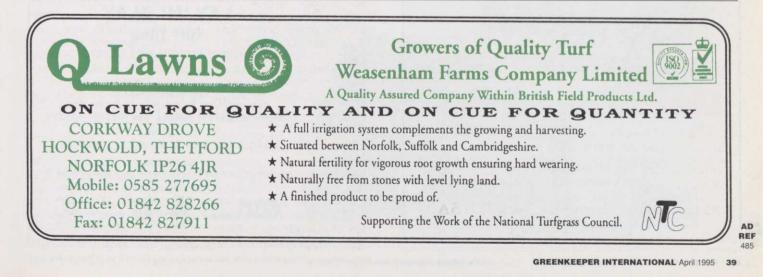
worked into the seed bed followed by sowing a standard fine grass seed mixture containing top-class cultivars of chewings fescue, slender creeping red fescue and browntop bent chosen from the tables in the current STRI publication "Turfgrass Seed".

Sow on to a firm soil bed with uniform surface levels at no more than 34 g/m² and very carefully hand rake or lightly harrow in; on sandy soil finish off by flat rolling. To ensure even coverage, split the total amount of seed and sow each half in opposite directions. Final raking should be at right angles to the greatest slope, especially on seed beds which will not require rolling afterwards.

Any areas to be sown for tees or general purpose material that could be used on fairways, traffic routes or bunkers should be clearly defined and sown with an appropriate seed mixture.

Management

Once fine turf has reached 50mm height from sowing, top over with rotary mowers twice at a height of 30mm. Then, gradually lower the height of cut by stages over several months to 12mm and in the second summer down to 6 to 8 mm. Always box off grass clippings. Top dress if you have to, but it is far better to spend time and effort achieving a really smooth, firm soil bed before sowing, and which will allow close mowing afterwards. Feed regularly and quite heavily with nitrogen-based fertiliser at between 150 and 250 kg N/ha





'A few courses are blessed with an ample depth of good fertile loam which can be stripped and regrown several times if the turf is cut thinly.'

during the first year to achieve rapid development of a strong, dense sward. Once the grass has established properly, reduce feeding to just basic maintenance of one or two nitrogen feeds and control thatch and any weeds as necessary.

Irrigate carefully in summer, particularly during the first year when rapid development of a dense and strong sward is vital. After that, use water at lower rates simply to maintain some growth, but at the same time aiming to develop a harder, tougher, more mature sod.

The same basic approach will be appropriate for other classes of turf from seed, although fertiliser treatment could be reduced. Maintain the sward at the height appropriate for its intended final use.

By buying in commercial turf intended for greens you can gain the establishment year. Such turf

may need topdressing to ensure a true mowing surface, keeping it topped initially at 12mm until roots are established strongly and the sward is growing away. Feeding will not be required at quite such high levels as from seed, but on sandy soils up to 150 kg N/ha may still be required to ensure vigorous enough growth and rapid development of a dense and mature turf. Commercial material often needs a bit more light raking or verticutting initially to reduce the often soft, fluffy thatch that comes with it. Afterwards, reduce these operations bearing in mind that to achieve maturity a turf must develop a strong mat of stems, roots and partly decomposed material at the surface which produces a tough mat that gives resilience and the wearing properties we are looking for.

It is, of course, possible to

work existing swards down, after all most of our older courses started life that way, even putting greens. Tees and general purpose turf can readily be worked down from rough simply by vigorous initial harrowing, flail mowing and, where necessary, surface level improvement. One or two feeds the following summer and a gradual reduction in height of cut combined with light raking and any weed control needed will soon produce results.

Bear in mind the need for regular preparation and resowing of areas that are stripped of turf over the winter. On sandy soils there will be a need to rebuild a suitable depth of topsoil from time to time, easily accomplished by spreading a skim of topsoil and then thoroughly incorporating this into the underlying sand to produce the very sandy mixtures suitable for links.

A few courses are blessed with an ample depth of good fertile loam which can be stripped and regrown several times if the turf is cut thinly. Indeed, it is not unknown on some sites like this for the turf to be cut and lifted, leaving 25 mm wide bands of grass between the stripped out rows, and for the area to recover within a year. It goes without saying that however the used area of nursery is re-established, a little protection from traffic or play if it is a part of the practice ground will help.

Conclusion

Commercial turf is often a clean, well-grown product, but it does have some limitations. Knowing and appreciating these, you can often tailor the situation to suit your own club's circumstances and requirements, and developing a turf nursery will often give you the best of both worlds.

