

The reclamation of indigenous turf

Eddie Park details the implementation of policy to remove thatch and *Poa annua*.

WHILE writing this series, I have become ever more aware that events are rapidly overtaking us. Many greenkeepers have assured me that the arguments about policy are now less important. They find them easier to accept, but they are much more concerned about the golfers for whom they cater.

Their worry is how to live with the frequently unreasonable demands of members and committees. Their only refuge is to seek compromises and, as many are finding out, compromising with nature just does not work. I suspect we have yet to see the worst side-effects of some of the methods being used today.

So, let us look at this another way. No compromises! Lay down the hard line based on scientific reasoning and implement correct policy to the full. A sentence from a book by Sir Daniel Hall in 1909 is worth quoting: 'The object of the scientific man should be to lay down principles which the practical man in his turn must learn to apply to his own conditions; success is only possible when he, too, does some thinking.'

For us, the principles were laid down long ago, but we must do some thinking on all the details of implementation to achieve success. And we must not be deflected from these basic principles by anyone. We must be ready with proper explanations, based on the first principles of science. That is not easy. At times, it is like playing a piano concerto while all the time having to explain what you are doing and sometimes to people who haven't even seen a piano.

Last time, I suggested a series of tests and observations on the site of our course to equip us with a good deal of basic knowledge. Especially, we must be quite certain which grasses are present, for botanical analysis is 'radar' without which we cannot find the way. We are going through a jungle and the clear path has not been hacked out in most cases for nearly 50 years.

I regard qualified agronomic advice as essential, but it must be

genuine and well-based in science. The sort of superficially impressive stuff we sometimes read, which may concentrate purely on the soil and never even mention the grasses, is unlikely to help us.

Few people in the past 50 years have successfully achieved an agrostis/fescue sward, let alone maintained one when they have got it. So, we must immediately consider if we have the skilled manpower to complete this programme.

I have always believed that the majority of our present generation of head greenkeepers could, with a little extra training, carry out the function of full course managers. But it is difficult, worrying and time-consuming and clubs must pay proportionately more for a higher-quality person.

Craftsmen

Additionally, an 18-hole course needs a minimum of four skilled craftsmen—not just pushers of mowers. Fine grasses require higher standards of treatment, more care in cutting and verti-cutting, extra time in more frequent top-dressing and skilled turf work as well as great care in the use and application of such chemicals and fertilisers as we still require.

Over-dosage means disaster, under-dosage means an expensive failure. Therefore, we must use better means of measurement and intelligent calibration of sprayers. Aeration must be effective and, yet, keep disruptions to a minimum. It can be done and quickly, but it does mean extra skill and care.

We will need to make better use of the sophisticated machinery we demand. That means higher standards in everyday machinery maintenance.

Obviously, we will save money on fertilisers, chemicals and, perhaps, watering equipment, yet we will need to spend it on staff, staff facilities and better machinery.

Irrigation is a much more skilled job than we have rated it in the past. The correct balance of water, allowing for varying permeability in different

areas of the green, the use of rain gauges, moisture meters, soil thermometers, weather forecasts, wetting agents, etc., all call for great judgement. We will have to spend the money if we want success.

To attract and keep top-quality staff, we must offer proper salaries and proper working conditions. Health and safety inspectors are already looking at golf clubs and they will demand not just safety-guards, belts and pulleys, but heated staff-rooms with cooking facilities, toilets, showers, etc. Too many clubs have been too mean for too long.

I think we must be prepared to make some estimate of the potential of the site based on an appreciation of its terrain and such vegetation as we could reasonably hope to achieve. Not every club has the potential of St Andrews or Sunningdale. (Or—dare I say it?—Carnoustie or Hoylake.) The members have a right to know what might be achieved and, equally, a right to know how long any remedial programme should take.

From my observations, a plan to remove thatch, if properly implemented, can be successful in little more than two years. A plan to reduce *Poa annua* from dominance to insignificance and replace it with *Agrostis/fescue* will take three to four summer seasons. Any compromises will be paid for with failure or greatly increased time.

Let us start on our programme. Thatch has been caused by an over-production of grass roots combined with a reduction in the decomposition of the resultant excess organic matter. Thatch builds up rapidly, especially over compacted soil, partly because of poor surface drainage, which inhibits the bacterial activity that should be decomposing the thatch. Fungicides and other chemicals, used too often, may have a similar effect.

So, really deep aeration carried out with great regularity will not only allow surface drainage, but get some air (and bacteria) into the thatch layer. The great trick is to push it hard enough, often enough and deep enough to get it over quickly. Undoubtedly, deep slitting is traumatic at first, but skilled men find ways of reducing surface damage and, as we get re-invasion by deeper rooting grasses, the disturbance is much reduced and slitting frequency becomes less.

Unhappily, too many clubs set their sights no higher than the destruction of thatch when the real joy is to go further and destroy the *Poa annua* as well.

Here we must pause and have

another good, hard think. The basis of our vegetation is the association of plants living together more or less in harmony with each other. This plant association has arisen, perhaps over a long period, from the particular mix of ecological factors affecting the site. Change the ecological factors and the plant association will change in a fairly ordinary manner under the influence of the laws of adaptation and natural succession. If the new environment is suitable, there will be infiltrations of new species that may become dominant.

The composition of the plant association may change markedly with some plants being ousted or much reduced in frequency. These things *will* happen, like it or not. Nature's laws are just as certain as, for example, Newton's law of gravity. The apple *does* fall to the ground—it *does not* fly off into mid air.

I am now the proud possessor of a considerable collection of old books on golf, lawns and sports turf stretching back for over 80 years. Again and again I read about the various ways of influencing environmental factors that were frequently suggested, especially in the cases of fertility and moisture. This interference with the environment was actually almost entirely for golfing reasons, yet it has usually been justified in agronomic terms. 'You can't grow grass and/or water,' sounds good agronomic sense to the layman, but it just is not true. In ecological terms, what this interference with the environment did was to ensure a change in the composition of plant association—usually to convert



A group of grass species. 1. Mixed bents. 2. Fescue. 3. Rye. 4. Common bent. 5. Poa and bent.

Agrostis/festuca to *Poa annua*.

Now we want to convert it back again and we must look closely at those ecological factors that caused the original change. By now, you might be saying: 'I wish he would stop going on about ecology and just give me a straightforward programme to follow,' which is exactly my point. If we are to use the changes in environmental factors to control our grasses, it is a subtle business with frequent changes in direction to accommodate the weather, volume of play, etc. It's a bit like a referee playing the advantage rule!

However, let us make a rough game

plan for when we start to reduce a *Poa*-dominated sward—minimum fertiliser, minimum water, maximum aeration—because *Poa* thrives on a compacted wet fertile sward and the very opposite suits the fine grasses. We must add to this good husbandry, as I have previously defined it, and good craftsmanship. Simple enough in principle, but where do you start?

First, let us clear up two common misunderstandings. We do intend to kill off as much *Poa annua* as we can, so don't let's kid ourselves or our members. Turf density will fall and we must explain that we are going to replace this coarse weed grass with something finer and better. Also, the harsh treatment we are imposing to achieve this will not have to continue with the same intensity once we are back to the finer grasses.

Rectification of faulty drainage may well be the first priority with deep slitting still my first choice for aeration. How deep? As deep as you can comfortably manage without problems of long tines bending. How often? Tees and greens fortnightly and fairways monthly. Try it out and you will get some idea in six months if compaction is being sufficiently reduced and soil structure improved. You will see if water is still ponding in heavy showers on the greens and also if they remain frozen for too long in winter.

Whether you can continue this treatment in drier weather depends largely on your members allowing it and your powers of persuasion. Certainly, do not use water to close opening slits.

Continued overleaf...



A comparison of root growth—*Poa* is on the left, *Fescue* on the right.

Eddie Park Continued...

Perhaps the easiest thing is to stop buying fertiliser and even to sell off stocks that are not now needed. The treasurer quickly becomes an enthusiast! A little iron and ammonia plus some organics, costing well under £100, will be the only required supplements for the greens per annum.

However, I believe that good brought-in top-dressing is well worthwhile. The mixtures of Norfolk peat soil and sharp sand undoubtedly provide a low-grade fertility and even on the most unpromising soil we can gradually build up good greens, dressing them little and often (say, once a month in the growing season) at a cost of perhaps £2,500 per annum.

I know staff can provide free compost in the winter, but how free? Labour costs can be staggering and do you really have suitable ingredients? I would much prefer to see the winter working time devoted to conservation of the off-course environment. Too many courses are smothered by overgrown trees, hawthorn and bramble scrub. Neglect

of conservation in order to make compost is a false economy.

I would suspect that most of the foregoing is acceptable to many, for aeration and infertility are not hard to understand. However, I would suggest that if all this is done, and done fully, our attempts to reclaim indigenous turf will fail if we do not also rigidly control the amount and frequency of artificial irrigation.

I have acquired a good deal of practical experience in this subject and intend to devote most of my next article to it. I believe that, in the last 25 years, we have lost sight of reality, in quantity and frequency, of artificial watering. Changed objectives and methods must be combined with taking full advantage of mechanisation—men and machines must always be in a state of readiness for any task. There will always be that window in the weather when it is ideal for top-dressing, scarifying, aerating or whatever. Miss it and you may wait for weeks and dilute the ecological advantage you seek.

Every daily decision must be balanced and take into consideration: the golfer's demands (probably confused), aesthetic factors (very subjective), finance, greenkeeping technology and the environmental consequences. I have deliberately put these in ascending order of importance. The last is by far the most important and the most abused. And I did say *daily* decisions—therefore, committees can only make a limited input and they should realise that there are no easy options.

Finally, you may wonder if you can expect to see *Poa* dying out in droughts and in winter before an improvement is made in soil structure. Somewhat confusingly, after an improvement in soil structure, *Poa* looks greener in winter due to winter growth.

Initially, there will be a return on most sites of increasing colonies of *agrostis*—both *tenuis* and *stolonifera*. On the best sites, if watering is kept down, you will have small but invasive colonies of *fescue*. This will give a patchwork of differing colours of grasses, which is not to be judged solely by appearance, but by play in all conditions. We will return to these problems in a later article.

GREEN

The putting surface should be, The players may be,
The greenkeeper cannot afford to be!

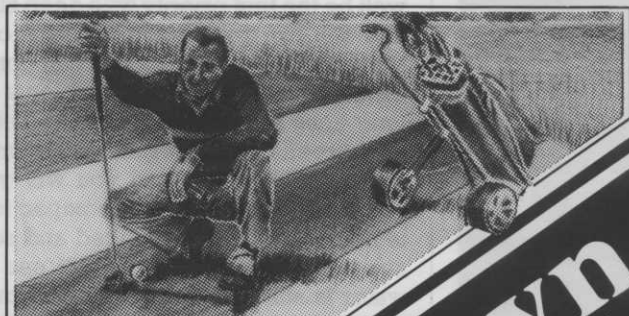
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