

The analysis fallacy

There is an old agricultural saying that the farmer's boot is the best fertiliser. As many of my remarks, which seem to me to be incapable of misinterpretation, obviously need to be explained, it should be made clear this does not mean that farming should revert to ploughing with horses, but that there is no substitute for experience. Better crops will result more from cultivation and planting at optimum times than by analysing soils in laboratories and applying a little bit of that and some more of the other! Walking out onto a ploughed field, kicking it and declaring that it is fit for cultivation will produce better results than talk of trace elements and special fertilisers, once the basic crop needs for the crop yield expected have been met. Too many of those who lack experience think all grasses require the same fertilisers and all that golf courses need is more fertiliser.

I am accused of 'refusing to take the guess-work out of greenkeeping' and to use soil testing – whatever that means. I rejected the concept of the infallibility of soil analyses over 50 years ago, long before computers became everyday playthings and before most of my critics were born. This rejection was based on the fact that even today there are no criteria saying exactly what good golfing greens require, either seasonally or in total. All we do know is that they will survive and indeed thrive on soils so low in fertility, as measured in terms of chemical analyses, that few other plants can live and we arrive at a monoculture situation, representative of our best golf courses.

I should stress that my reservations apply only to chemical and not physical soil analyses. The importance of correct structuring of soils and avoidance of de-structuring by massive earth moving, all too characteristic of 'American' course construction, has been known and understood for a century and is no new invention of the soil scientists!

What, after all, do soil analyses tell us? Assuming that sampling has been fully representative – and that is a bold assumption – at best it tells us the levels of lime, phosphates and potash (plus, if you are sufficiently naïve to think that they are of any significance save on sterile pure sand greens, trace elements) in the soil being tested – always assuming that the analysis can be supplied quickly enough for it to have any realistic significance. What it does not tell us is what the grass needs and what should be applied.

Statements that 'grass needs a balanced diet of nitrogen, phosphate, potash and micro-nutrients' are, like many apparently self-evident truths, subject to qualification. We need to know how much, how often, and in what form. Frankly our best grasses need so little that it would defy a computer to work out the microscopic proportions. It is not I who has misconstrued the facts, but as ever, those who have only a fleeting knowledge of our problems. I am the first to agree that where grasses are grown hydroponically on sterile sand-only greens, this is a different kettle of fish. Such turf is entirely dependent on what it receives at close and regular intervals, be it water or nutrients. If such nutrients, including micro-elements, are inadequate the grass will die. The ill effects of lime in terms of encouraging *Poa annua*, earthworm activity, disease and weeds has been known and appreciated all this century. It follows that any parallels drawn between management of sand-only greens and sand-soil ones must lead to disaster. Most of our established golf greens, even some of the best, are far too rich in plant nutrients.

Recent soil analyses from superb greens with *Agrostis tenuis* and fine fescue cover show phosphate levels at around 10 ppm or even less, yet Royal Birkdale greens showed (at lower levels especially) over 1000 ppm.

Yet even acceptance of the perfection of the greens with

such low phosphate levels does not stop the fertiliser adviser, or even, I regret to say, the STRI itself, from recommending the application of a super-phosphate! There is an old American adage applicable, to the effect that if it's working don't fix it. We know from a vast range of published research that our fine grasses require nitrogen only and virtually never need phosphate or potash in fertiliser form. It is the low levels of these mineral elements that keep out fertility demanding species such as that enemy of good greenkeeping, our old friend *Poa annua*.

I emphatically dispute Ken Siem's statement (Letters – August issue) that there are a lot of phosphorus and potash deficient courses throughout the world – at least there are none in Britain or Europe! How does he come to terms with the fact that there are millions of acres of fine turf in Britain alone, be they sandy heaths, acid moors or links (a term which must be noted is not restricted to courses north of the Border) which have never in recorded history received a single ounce of fertiliser. Any nutrient they do receive comes from a passing sheep, grouse or seagull!

I will not dwell unduly on other points raised as readers must be fed up with the word Penncross. It is sufficient to say that this species is totally unsuitable because of winter dormancy anywhere where there is a mild open winter climate, be this Britain, Northern Europe, the mild climates of the U.S. Pacific coast or even where it has been tried in New Zealand. It also demands high cost maintenance, is prone to thatch and disease and is easily invaded by alien grasses, except where hot summers preclude their co-existence. What really annoys many of us is that those few cases where Penncross is claimed as producing perfect putting surfaces are either under-played or shut in critical winter months. What is worse, pure sands are kept that way in some cases by the admitted illegal use of banned pesticides and mercurial fungicides. Penncross is fine where there is no winter or else no winter golf because of ice and snow. Elsewhere, when it is sold (at present it is illegal to do so) it should bear a warning: *this seed will seriously damage your pocket*.

So far as the USGA Green Section specification is concerned, it should be recorded that for 25 years greens have been constructed to a slight modification of the spec. to enable construction to be mechanised, and thus cheapened. We simply cannot afford to build greens by hand as is deemed necessary when using only 4" thickness of 4mm gravel, which is soon driven into the green base and lost in mechanical operations.

No-one has presumed to title these greens 'USGA Spec.' but many hundreds of eminently satisfactory courses bear witness to the efficiency of the modification, which essentially is only one in relation to a deeper depth of larger stone, blinded of course (with two layers when particle size demands) to stop infiltration of the sand-soil root zone mix.

One hopes that no-one will go on thinking that the USGA Spec. means pure sand and Penncross. It emphatically does not. Further, if anyone dares to suggest that British greenkeepers lack the skill and ability to look after Penncross – when it is lack of budgets and resources which cause their difficulties – I may well be less than restrained.

We could do without advice from overseas visitors who lack the humility to recognise that they know very little about our grasses, climate, soils or indeed the way we play the original version of the Royal and Ancient game. In doing so they think they can transplant their specifications instantly and without modification and ignore all the work at all levels put in for more than a century – indeed since greenkeeping started – which can be equated with the general use of the reel type mower.



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