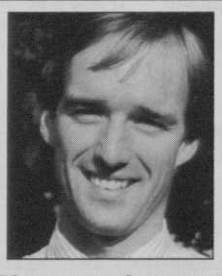
HOW AN ADVISOR CAN



STRI agronomists provide an unbiased assessment to realise a golf course's potential, reports JONATHAN TUCKER

Preconceived ideas are often held about golf course agronomists. To dispel some of the popular misconceptions, STRI golf course consultants are not substitute greenkeepers (the day to day running of the course, we believe, should be left firmly in the hands of the head greenkeeper or course manager), nor are they simply idealistic botanists, but provide a realistic approach to course management and tailor recommendations to requirements of individual courses.

The first approach to the STRI from a golf club is either in response to a short term problem or when there has been progressive deterioration in playing surfaces. The solution may be quite simple but the remedy can be complex and involve a long term prescription, therefore early advice should be sought. Thorough analysis of turf and sub-surface conditions may also reveal potential problems for the future unless pro-active management strategies are adopted which do not simply paper over the cracks. Under these circumstances the primary role of the agronomist is one of co-ordinator, ensuring that all elements of management are in place to sustain the required level of improvement.

Lack of continuity between green committees can severely hamper progress, as long term objectives become obscured or over-ridden in the interests of leaving a mark in the short term. Committees are essentially made up of golfers of a range of proficiency, drawn from various professional backgrounds. They cannot be fully versed in all the subtleties of golf course management and there may be friction with green staff when green committee members assume the role of course manager. While enlightened, streamlined committees do exist, pressures to preserve artificially lush, green, so-called holding, playing surfaces may be too great to resist despite the inevitable consequences of atrocious winter golf, prolonged use of temporary greens and excessive fertiliser/fungicide bills. To prevent this, clear direction is required from an agronomist who has no commercial axe to grind, one who can assess the situation objectively without being drawn into club politics.

Ideally, clubs need to formulate their own golf course policy document to avoid the constant changing of priorities and management direction which can often accompany new green committee personnel. The agronomist has an important input into the document, identifying roles and responsibilities, formulating policies and principles which must be kept in place to achieve stated objectives, and prescribing resource needs (manpower, materials and machinery). Construction projects must be phased according to priority, perhaps over several years. The agronomist can identify the best materials and methods for individual projects, thereby avoiding expensive failures and increased course disruption.

Education is a fundamental issue and the agronomist can convey the essential messages via the green committee or to a wider audience at an open forum. Course inspections are followed up with a detailed report and this acts as a powerful 'selling document' as well as informing the membership of progress and future demands of course maintenance. This information is invaluable for diffusing some of the resistance to potentially disruptive operations, supporting the committee's long term aims and minimising the risk of creeping complacency.

Frequency of course inspections can be modified to the requirements of individual clubs. Annual inspections may well be adequate when the management structure is sound and progress is assured, but there is also the option of biannual or possibly quarterly visits to monitor the situation more closely and to help and support the green staff. The STRI's golf course consultancy team can advise on all aspects of turf management, including basic agronomy and course management, land drainage, construction projects, architecture and design, staffing, mechanisation, etc. Ecology and conservation management is now an integral part of many golf courses to enhance both playing interest and aesthetic qualities. This service should not be confused with those misguided preservationists who regard all trees as sacrosanct, even when misplaced or totally foreign.

Efficiency is often the key to successful course management, particularly against the background of greater expectations for satisfactory playing surfaces year round, allied to the inexorable increase in demand. Green staff lumbered with antiquated, ineffective equipment and poorly housed in dilapidated buildings cannot hope to perform effectively and motivation can be quickly eroded. Therefore, assessment of the resources allocated to course management comes under the critical eye of the agronomist. If there are any weak links, these will be immediately identified and appropriate recommendations issued.

The essential principles of greenkeeping have remained unchanged since the turn of the century, though innovations and equipment are constantly being introduced which may well assist the green staff. Gimmicks can be quickly weeded out by the experienced agronomist and common mistakes avoided. Furthermore, greenkeepers often have excellent ideas and I would make no apologies for relating these to other golf clubs where they are applicable .

One of the strengths of the STRI is its laboratory facilities, which encompass the disciplines of chemistry, biology and soil physics. Golf courses are in a constant state of flux – the final arbitrator often being the weather. Turf diseases may develop rapidly and the golf course manager must therefore react quickly. The biology laboratory at the STRI provides information on disease identity and advice on suitable fungicides for treatment (in addition to sound cultural practices) as part of an integrated control strategy.

Chemical analysis of soil is useful as a back-up to visual assessment of turf condition. Contrary to the belief held in some quarters, it is not employed alone for the purpose of justifying phosphate or potassium input but to assess underlying trends. Where there are no perceptible adverse effects on the desirable turfgrasses/playing surface qualities, even from low levels of phosphate or potash, then application of these nutrients is not recommended by the STRI.

The fescue/bent grasses (which we aim to nurture) can thrive over a wide range of acidity/alkalinity from acid moorland to alkaline links. But pH analysis in the laboratory can expose fluctuations and if necessary adjustments made by the use of acidifying or alkaline materials.

Procedure for pH testing and nutrient analysis may vary from laboratory to laboratory, therefore the over-riding consideration is to carry out these tests under consistent conditions so that comparisons can be made with confidence over time.

Elements such as copper, zinc, manganese, nickel and cadmium can pose toxicity problems if present at high concentration, therefore analysis will pin-point these toxic elements in contaminated soils. Salt damage is a potential threat on coastal sites and although some turfgrasses have a greater tolerance than others, prolonged exposure and sudden inundation with sea-water will cause turf loss. Tests for the concentration of salt, which rely on measurement of electrical conductivity in a representative soil extract, will help to indicate when it is safe to overseed.

Physical analysis of soils is particularly important in relation to new constructions or possibly when vetting top dressing materials for suitability. For new golf greens certain design criteria need to be satisfied, therefore the proportion of sand to silt and clay (i.e. texture) can be ascertained by particle size analysis. The soil

HELP

material is first dispersed before passing the liquid through sieves of varying mesh size. The silt and clay fractions not retained by the sieves are measured separately by mixing with water and measuring the quantities which have settled after a set time. The organic matter content of the soil is determined by igniting a soil sample and measuring the loss in weight.

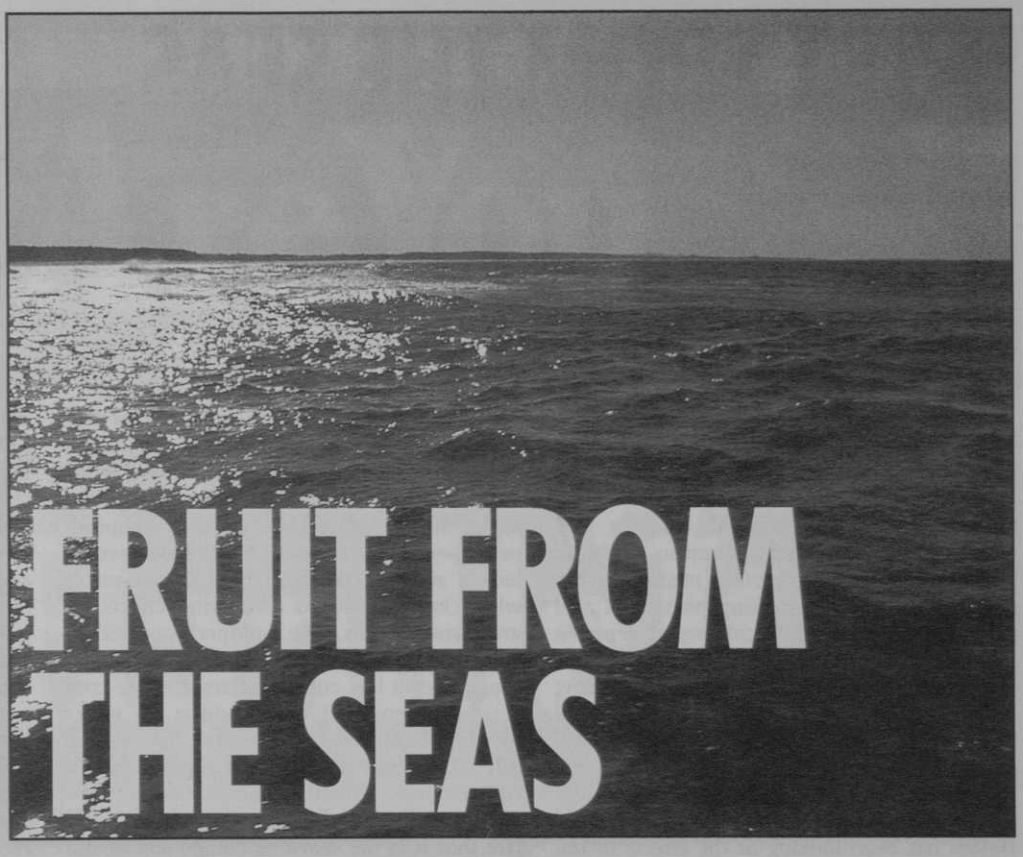
Sands can be tested to assess their compatibility with the soil and to derive a suitable mixing ratio. Hydraulic conductivity tests will provide some indication of the performance of the rootzone mixture in the field. Measurements are made by determining the rate at which water descends through a column of soil.

Again, physical testing of this nature is not intended as a substitute for the hand and eye of the agronomist, but it does provide objective information to support initial impressions.

New tee and green constructions can fail simply because an inappropriate turf is employed. For minor projects, samples of turf can be examined at the STRI or the golf club, but for larger construction projects (e.g. new golf courses) examination of the mature, cultivated turf at point of harvest will facilitate quality control. Where seeding is the preferred option for establishment purposes, the extensive cultivar testing programme at the Institute evaluates the suitability of different cultivars for specific purposes. The ranking of these cultivars enables choices to be made based on which criteria are most important.

In summary, the role of the STRI golf course agronomist is to provide a totally unbiased, objective assessment of all the conditions needed to realise the potential of the golf course. His support of the green staff should be unquestioned and if necessary the frequency of visits can be adjusted to meet the demands of particular courses. Unfortunately, there are no quick fixes in golf course management, therefore I would urge golf clubs to establish sound policies from the outset rather than accepting sub-standard golf for six months of the year!

● The author, Jonathan Tucker, is a consultant agronomist with the STRI.



FRUIT FROM THE SEAS

It's time to unravel the mysteries surrounding 'stimulating seawed,' reckons MIKE SAULL

Seaweed extracts have long been labelled as 'muck and mystery' products. And up until recently, greenkeepers fell into one of two categories – enthusiastic disciples or downright sceptics. Now though, the tide has changed, and far from being left washed up on the shoreline, extracts are being added into spray programmes on an increasing number of courses.

So what has brought about the change of heart and the increasing number of converts? Well, it appears as if some manufacturers are now able to back their claims with positive independent research. Furthermore, seaweed extracts suit the growing move away from completely inorganic based fertiliser programmes. Finally with increased pressure on turf from drought and numbers of golfers, greenkeepers recognise they need a fundamental rethink of how sprays can manipulate grass growth and in particular rooting. Seaweed extracts in their view are useful plant growth stimulants and not necessarily fertilisers. The move however is made at a time when scientists remain divided over the potential role of seaweed extracts on turf.

Most seaweed extracts (and for that matter granular meals) are derived from marine brown algae, usually Ascophyllum nodosum. The foliar applied products available are either true extracts or suspensions of finely divided algae. For example, Maxicrop, SM3, Marinure and Seamac, are produced by either a water extraction or by use of an aqueous alkali hydrolysis process. Others such as Kelpak and Goemar are suspensions.

There is a growing number who feel that the organic component of seaweed extracts is having a very real positive effect on stimulating plant growth. This is separate from and in addition to the valuable effects of added fertilisers in seaweed mixes. Claims surrounding the use of this base material include better rooting and tillering, increased resistance to stress conditions, reduced incidence of fungal attack and improved seed germination.

In the past it was felt that the effects of this seaweed extract could be explained by the content of trace elements. However, the quantities of dissolved solids in unformulated extracts that would be applied annually to turf are very small, and researchers have now shown that the trace elements present in seaweed extracts form an insignificant proportion of annual turf requirements.

Because of the small amount of material applied per hectare, the substances in seaweed which produce the beneficial results must be active at very low concentrations. Now, scientists at two of the UK's leading fundamental research centres are homing in on the organic constituents of the one major extract. "Cytokinins are growth stimulants naturally produced at the growing tips of plants," says Prof Gerald Blunden at the University of Portsmouth. "Amongst other activities, they can stimulate cell division and photosynthesis."

Evidence suggests that these compounds can increase major plant nutrient uptake with reports of increases in nitrogen, phosphorous, potassium, calcium, manganese, magnesium, iron and zinc being cited in the literature.

Many researchers have noted cytokinin-like activity when seaweed extracts have been applied in field trials. However, it seems likely that other compounds will also have a role to play. Because of the differences in cytokinin levels recorded for the same seaweed extract using different bioassay procedures, it could be that the extracts might contain other compounds which behave like cytokinins.

Betaines are one possible group of compounds and Ascophyllum is known to yield two ➡ 46