



avoids surface marking when turning. A patented weight transference system on the rear three-point-linkage applies extra pressure to attachments when required, thus eliminating the need for extra weights. Low ground pressure tyres are standard. Power steering combined with a pivot steer chassis gives a tight turning radius on headlands and around obstacles.

Two or four-wheeled versions are available.

The Sisis 21-1D has a 21hp diesel engine four-wheel hydraulic drive plus weight transference system and articulated steering

Rear double-acting auxiliary hydraulic connections, pin and ball hitches are fitted as standard. Like the larger model this unit will operate a wide range of equipment.

Kawasaki

A diesel-powered version of the Mule is the latest addition to Kawasaki's range of low ground pressure trucks. Powered by a three-cylinder 23hp diesel the Mule 2510 is capable of carrying loads up to 500kg and has a towing capacity of 545kg.

Club Car

The use of aluminium throughout the construction of their Carryall is the big feature of their range of transport and utility vehicles, claims Club Car.

It is said to provide protection against the corrosive effects of surface spray from the turf. Two new models have joined the existing seven. The

total load capacity of the 272 is 545kg and the cargo bed takes up to 360kg.

The XRT is capable of carrying loads of 225kg and has an overall rating of 410kg.

Allett Mowers

Although designed mainly for bunker maintenance, the 18hp Diamond Versa Pro 2100 from Allett Mowers is said to have a range of groundcare attachments. These are operated from the hydraulic system and included is a 12-volt interface.

Power barrows

Allen Power Equipment's Sherpa is a four-wheeled self-powered barrow with a 200kg self-tipping hopper.

The 6hp DR Powerwagon Professional from Charterhouse Turf Machinery is fitted with wide floatation tyres and is capable of taking loads up to 362kg

The Dennis Power Barrow has a load capacity of up to 250kg and there is the option of hopper, flatbed or skip. The unit also converts into a sprayer or water carrier.

IPU's Power Barrow takes and 0.5tonne payload and offers five forward and one reverse speeds.

Conclusion

From this feature it can be seen that there is plenty of equipment for moving material on the market. In addition, the utility vehicle can represent a cost-effective investment to which ancillary equipment can be added at a later date.

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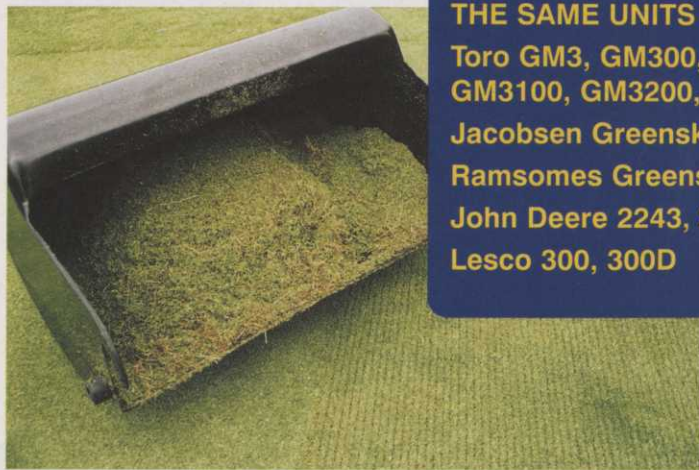


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Amenity grass breeding specialist, David Rhodes of Advanta Seeds UK, explains how breeders are giving greenkeepers a helping hand

1 Fields of dreams



Above: An aerial view of Advanta's breeding, research and trial facilities at Boothby Graffoe near Lincoln. The recently constructed reservoir, which holds just under 23 million litres of water, enables the company to replicate average rainfall in times of drought.

The stresses and strains we place on our sportsturf today, tests it to the limits. And these pressures are growing. Golfers, with more leisure time, want to play more rounds. Greens Committees want their courses to be in tip-top condition all year. There are also economic pressures on greenkeepers to cut labour costs, and environmental pressures to reduce chemical usage.

Amenity grass breeders recognise and understand these pressures. They

are working at the forefront of breeding technology, aiming to produce new cultivars that can cope with increased use, with less physical and chemical input.

Up until 1940, commercial use of amenity grasses in Europe was mainly restricted to trading of seed lots, collected from natural stands of species such as bent grasses and fine fescues. But in the 1960's a revolution took place in turfgrass breeding, when new varieties were developed

specifically for amenity use.

At the same time, the introduction of plant breeder's rights for amenity grasses, and the publication of cultivar lists – led to increased investment by breeding companies in this area. Over the past 20 years the number of cultivars included in the Common Catalogue of the EU – which lists all known, distinct varieties, has increased more than six-fold.

The traditional species sown on golf courses, are the red fescues and bents,

which have been in use since the 19th century. Red fescues make up the major part of greens mixtures where a smooth surface is a priority. Cultivars such as Mocassin now have good tolerance to close mowing, high shoot density, and fine leaves. This is a direct result of objective plant breeding over the past few decades. Newer cultivars of strong creeping red fescues are also finer-leaved, and produce denser swards, than they did ten years ago.

There have also been significant improvements in chewing fescues. Varieties like Center now produce high quality, dense, bright green turf, which stands up to close mowing, and has good resistance to disease.

Breeding improvements in ryegrasses have produced finer leaved cultivars, which produce a denser sward. Newer varieties such as the tough, hard-wearing Amadeus, which works well on ryegrass tees, also have a better resistance to crown rust and red thread, than previous varieties.

Breeding objectives

Seed breeders set clear objectives before they start the selection process, and find out from end-users what their expectations are, for the grass seed they will be using in the future. This understanding of the problems and aspirations of greenkeepers is essential to ensure that breeders develop appropriate varieties, which can help greenkeepers in their day-to-day work.

The objectives of our breeding programme, are to produce grasses that:

- tolerate high wear at low cutting heights
- recover quickly from damage/divotting
- grow slowly, which means less mowing
- are disease resistant
- establish quickly from seed – so that repaired areas are out of play for the shortest time possible.
- tolerate drought
- use less fertiliser

An overriding breeding goal is to encourage high reproductive capacity, for however superior the turf grass characteristics of a new cultivar are, if it is infertile, or fails to produce abundant seed, it will have no commercial future.

Linked characteristics

One of the greatest challenges for breeders is to select desirable characteristics, without adversely affecting other connected features. For instance selecting for less dependence on fertiliser, may increase a variety's susceptibility to disease.

Mowing is the most expensive aspect of turfgrass management. To

reduce the frequency of cutting, the growth vigour of the grass plant has to be curtailed. This can be done through breeding, and we are currently carrying out trials in Holland and Belgium, looking at the varying growth rates of a range of different cultivars.

However care has to be taken, as altering growth rate will have knock-on effects on speed of establishment and wear tolerance. Also, plants that grow more slowly are more prone to disease. The breeder's job is to try and combine these contradicting, but vitally important characteristics, into one and the same cultivar.

Twenty years ago, our breeders made disease resistance a top priority in their breeding programme. This foresight has now paid-off, with their latest varieties all showing very good resistance to red thread.

Our breeding programme is centred at state-of-the-art laboratories in Kapelle in Holland. Two senior breeders are supported by ten technical and development managers, working on both agricultural and amenity grasses. In some years the company will be able to launch three or four new varieties, in other years none – reflecting the element of chance inherent in conventional breeding.

The initial crosses are made in Holland. Seed from promising plants is multiplied up to give enough for trialling. This is carried out all over the world, depending on the species involved and the intended market.

UK trials

At our plant breeding station at Boothby Graffoe, in Lincolnshire, we establish merit trials on around 250 cultivars of amenity grass species each year. This is one of the largest sets of amenity grass trials in the UK. We have been trialling amenity grasses here for 20 years, and provide our breeders with information about new varieties in relation to existing ones, under UK conditions. This data is also used to determine which cultivars are put forward for entry into subsequent STRI List trials. New varieties from other breeders are also tested here.

Currently varieties of perennial ryegrass, smooth stalked meadow grass and tall fescue are being evaluated in fairway trials, while cultivars of red fescue, browntop and creeping bent, hard and sheep's fescue are being assessed under a close mown regime.

The fairway trials plots are mown weekly during the growing season, at a height of 13mm, and as required at other times of year.

The close mown trials are mown two to three times a week, at a cutting height of 7mm from April to

September. This is relaxed to one cut per week, at 13mm outside this time period.

Both trials are sown in the summer and scored from the following March for two years.

Mixtures

As well as screening new cultivars, we are also trialling a range of commercial mixtures. When a greenkeeper buys a bag of grass seed it is usually made up of two, three or four cultivars, and we feel it is important to know how these varieties perform together.

We started these trials two years ago, and there have already been dramatic differences. When we look at shoot density, wear, tolerance to close mowing, cleanness of cut and disease resistance, the mixtures are out-performing the individual cultivars every time. This confirms the theory that the positive attributes of individual varieties, when combined in a mixture, produce a better sward than when they are sown in monoculture.

Biotechnology

It can take 15 to 20 years to bring a new variety to commercialisation using conventional breeding techniques. This time lag limits the rate of progress and precludes any quick response to changing market needs.

Biotechnology is changing this situation. Identifying favourable characteristics at genetic level, via gene mapping, allows more accurate selection. This takes some of the guess-work out of the system, and speeds up the breeding process.

This is a very exciting time for our breeders, who are anticipating that by using these new techniques, they can cut the development time by half or more – perhaps even down to five years. This would allow us to bring cultivars to the market much more closely suited to the users' current needs.

Overall the aim is to introduce genes that will increase stress tolerance - be it drought, disease or wear induced - and reduce growth, while trying to avoid any negative effects on sward density, ground cover or disease resistance.

While breeders are working hard to produce grass varieties ideally suited to greenkeepers' needs, these new generations of cultivars will still need top class management, to keep fairways, tees and greens in optimum condition all year round. An integrated approach will always be needed. Only by working together will breeders and greenkeepers produce the fine turf qualities required, by the increasingly demanding golfers of the future.



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Ad Ref 172

The **BIGGA** website has been extensively redesigned, both in content and style. Check out a whole host of new features at www.bigga.org.uk

Wonder Web

-  Membership
-  Education
-  BTME
-  Latest
-  Directory
-  Links
-  Contact

Above: A new colour coding system makes navigation easy on the BIGGA website

The new look BIGGA website was launched at the beginning of April and is active as you are reading this article.

Jam-packed with up-to-the-minute information about BIGGA, greenkeeping and the fineturf industry in general, the website will be an informative and invaluable tool to anyone connected with the industry, game or indeed, the casual visitor.

New features on the site include an enhanced membership section, with a secure access point for members only. Once you have entered your surname and membership number, you will be granted access to a secure membership area, specially reserved for our exclusive members.

Education has also received a major overhaul, with full details of regional and BIGGA HOUSE training courses, library and career information, salary recommendations, as well as details of all our major competitions and events.

Completely new for 2000, is our 'Latest' section. Here, as you might expect, are articles and features with only the most recent information in mind. There is also an event calendar, to help you plan your BIGGA diary. If you would like to publicise an event, seminar or outing you are having, follow the email link, let us know, and we will update the page.

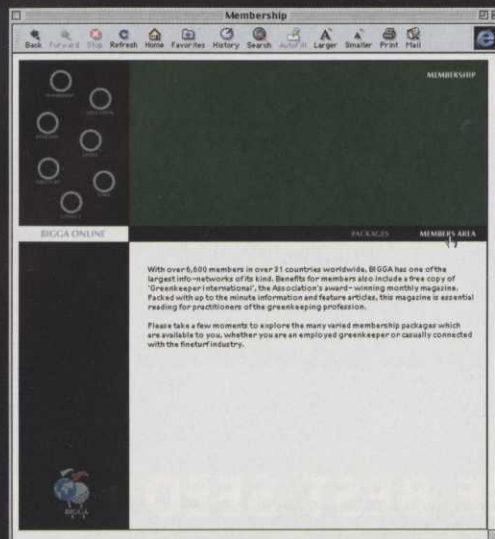
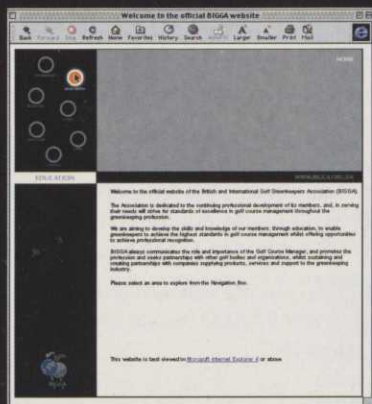
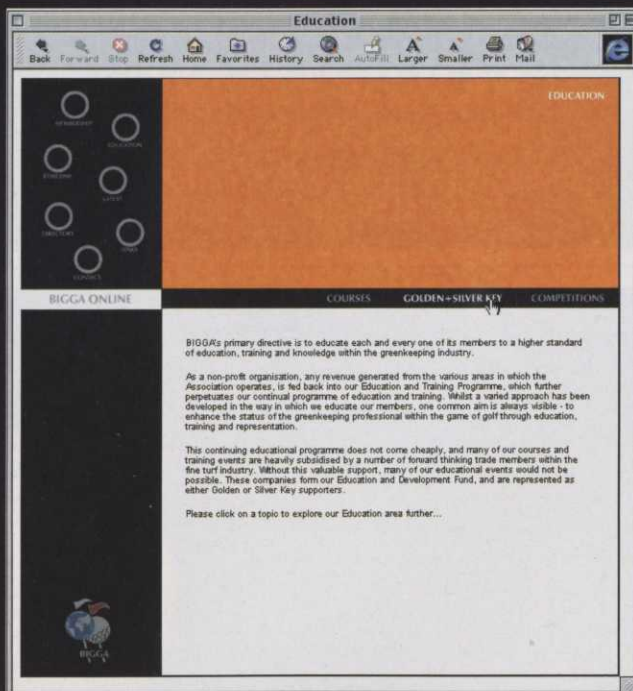
Also new for 2000, is the online BIGGA Golf Directory. Packed with industry links, products and services, the directory is searchable in both category and alphabetical orders. You can even link directly to a company's website, or email them instantly.

Keep checking this page regularly, as we will be launching our members directory in the very near future. So if you've lost contact with a colleague or friend, this is the place to get in touch with them!

There are also enhanced email and contact facilities for all of the staff at headquarters, so why not drop us a line!

<http://www.bigga.org.uk>

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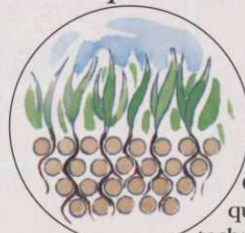
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Scott MacCallum looks at the recent controversial piece in The Daily Telegraph, the reaction to it and asks how best to move on from here

Q & A

Questions and answers

Many of you may have read, or perhaps heard about, the article which appeared in The Daily Telegraph, in February, which looked at the fine work being carried out at Temple Golf Club, the 1999 winner of the BIGGA Golf Environment Competition, in association with Amazone and Grass Roots.

Overall the piece was a positive look at the excellent work being done by Temple's Course Manager, Martin Gunn, and Chairman of Green, Malcolm Peake, but much of the attention the piece drew focused on the fourth paragraph which read: "Regular amateur golfers will be aware that during the last two decades course conditions throughout Britain have deteriorated alarmingly. This is particularly the case during the winter months, when the weather is at its worst."

At no stage does the writer, Colin Callander, until recently the Editor of Golf Monthly magazine, lay the blame

for this supposed deterioration at the door of the greenkeeper, but it is fair to assume that the golf playing readership of the Daily Telegraph will conclude that those responsible for the condition of the golf course are also responsible for any perceived drop in quality.

Now those within the greenkeeping fraternity know that, in the main, standards have indeed risen. How else could you cope with the demands for higher stimpmeter readings and increased play? But the fact that Colin Callander, a respected and knowledgeable member of the wider golfing community, feels otherwise should be a concern to us all.

Were the comments just the result of a short memory at the end of a long wet winter or is the problem more fundamental? Knowing Colin Callander well, I worked with him at Golf Monthly, I would give him more credit than the former option and having

spoken with him I know that he stands by his comments.

Therefore, should we be asking ourselves how do we get across to golf club members that course conditioning standards are indeed better now than they have ever been.

Should you be spending even more time talking with members and educating them in the job they pay you to do - the reason for aeration; why disease occurs; why the course needs to close and for what reason?

An exchange of information is important to clear up the misconceptions that can spread like wildfire and cause problems down the line.

John Ross, Course Manager at Laleham Golf Club, has already written eloquently on the matter and his letter is also printed but I'd be pleased to hear from any of you who have strong feelings on the problem, and indeed, ideas about how it can be solved.

Golf winning the battle against

Temple leading by example in the search for sustainable growth

By Colin Callander

When you first arrive at Temple Golf Club, near Maidenhead, there seems little to distinguish it from most other traditional British clubs. It has an attractive, but far from opulent, clubhouse which offers fare you might find at clubs all over the country.

It has its own professional's shop and even an obligatory pole on which a flag flies at half mast whenever a member dies. It all appears remarkable only because it is so unremarkable. Then you set foot on the course.

It is almost as if you have been transported back twenty or thirty years - to a time when British courses were in their prime. And never is this more apparent than if you visit in winter - when many other traditional clubs are so wet underfoot as to be almost unplayable. You can play here.

Regular amateur golfers will be aware that during the last two decades

course conditions throughout Britain have deteriorated alarmingly. This is particularly the case during the winter months, when the weather is at its worst.

Where once we could consider ourselves unfortunate to encounter temporary tees and winter greens even in the most inclement conditions, now they are commonplace for three months of the year.

It is no exaggeration to suggest that, at some clubs, golf is no longer a twelve month game. We might all fork out annual subscriptions which, on the face of it, entitle us to year-round golf, but the reality is that many courses are now in such a state of disrepair in winter as to dissuade all but the most enthusiastic golfers from venturing out at all.

Ten years ago Temple, like so many other clubs, was heading that way too. Then Head Greenkeeper, Martin Gunn, Chairman of Green, Malcolm Peake and Secretary, Keith Adderley

decided to transform the club's maintenance policy.

Their plan proved successful. So successful, in fact, that the club recently won the British and International Golf Greenkeepers Association Golf Environment Award for 1999.

What Gunn, Peake and Adderley realised, was that the club, like so many others, had almost inadvertently, fallen foul of the "Green is Great" mentality. With grim consequences, it had become all the rage at clubs throughout the country.

Intent on replicating the verdant and lush conditions of Augusta National and other foreign Tour venues, Temple, and all too many other clubs just like it, began, little by little, to use more water and fertiliser than ever before. In turn, this began to encourage infestation of poa annua grass at the expense of indigenous bents and fescues.

Sadly, the process is self-perpetuat-

ing. The more poa annua, the more a club needs to water and fertilise just to maintain a reasonable playing surface. Put simply, the course becomes addicted to regular - and very unnatural - feeding. It is akin to agricultural land whose fertility becomes dependent on intensive farming methods, and which, in the long term, prove unstable and unsustainable.

Soon Temple was caught in a vicious cycle. It needed to spend more and more on maintenance, yet, inexorably, the condition of the course declined.

"It was a very real problem for us and one for which there was no easy cure", Gunn said. "It takes time to turn things round and you have to be prepared to face an awful lot of criticism along the way".

They had found, at the outset in particular, that they had to endure the wrath of their members - particularly when conditions first seemed to deteriorate rather than improve. Gunn

John Ross, Course Manager at Laleham Golf Club, took time to comment on the article

Concerning the achievements of Temple Golf Club

The journalist rightly is very complimentary about the policies of the Course Manager and the benefits that they are bringing to the golf course. The courage shown by Martin Gunn and those who stood by him is highly commendable and worthy of acknowledgement.

However the article made some generalisations, which were inaccurate and highly offensive to our profession, and these need highlighting. First, Temple did not win the environmental award because of an aeration programme, and cutting down on the use of water and fertiliser - if this were the case the award would be of little merit and many other clubs would also be able to claim the award. But because Temple has adopted a host of policies aimed at improving the natural qualities of their golfing environment. Because of this the award is a prized one and Temple is obviously a worthy winner.

Golf course conditions have not deteriorated over the last 20 years. In my experience

greenkeepers are now more educated than ever before, have available to them more machinery and resources than ever before, and have to cope with far greater volumes of traffic, and year round golf in a way never experienced before. The implication that golf was once a 12 month a year sport, and is no longer, is patently inaccurate.

Wide wheeled trolleys, large lightweight umbrellas, Gore-Tex suits and waterproof shoes (all relatively recent innovations) have led to an increase in the amount of winter golf played. Not to mention milder winters (certainly in the south). A statement like "Where once we would consider ourselves unfortunate to encounter temporary tees and winter greens even in the most inclement conditions, now they are common place for

almost three months of the year" is dangerous and has to be qualified. This statement sounds to me like a romantic vision of one's youth, which we all have from time to time, despite the austerity that may have been suffered. It is not fair on other Course Managers, in different situations to make generalisations like this in a widely read public newspaper. In fact it is irresponsible.

Green is great and the infestation of poa annua is not an advent of the last 20 years as intimated in the article. In fact Jim Arthur in Practical Greenkeeping states that the practice of over fertilising goes back as far as 1892. As for irrigation, yes this has only been around for the last 20 to 30, but only for summer use. And even a bent fescue green has a need of water in the summer. The primary benefit of irrigation has been to make poa manageable, and it has saved many greenkeepers their jobs

that did not have the luxury of the top-level support Martin Gunn has at Temple..

The article did seem to suggest that Temple had discovered a new formula for success, and not the application of fundamental greenkeeping principles as advocated by the vast majority of the industry. It did not mention that distinguished servants of our profession had been advocating these principles for decades. The paper also neglected to mention that the main source of pressure in the chase for over watered, lush surfaces (not just greens, but tees and fairways too) is golfers, often against the advice of qualified professionals like Course Managers and independent consultants. The paper also neglected to mention that when these policies (the golfers ones that is) result in diseased, saturated turf, temporary greens, and often closed courses, the person who pays the price is usually the individ-