

management



of *Poa annua*

there are no labels for such applications. The most effective way of controlling annual meadowgrass at this stage is through hand-weeding out the invasive plants as they appear. All other methods risk invasion and if the ultimate desire is to prevent meadowgrass, then cultural control such as hand-weeding is the most effective. This coupled with an actively growing healthy sward of fescue/bent or pure bent is the way to ensure meadowgrass-free greens. It is also important to remember that as greens are cut lower for the desire of faster greens, then the risks are increased proportionately for meadowgrass invasion.

2: LINKS/HEATHLAND GREENS

Traditionally these greens are associated with free-draining rootzones and sub-bases (ie sand

on links, gravel outwash on heathland) and therefore fescue/bent management should be possible. However, the reality is not so simple and these types of courses go through the same problems of controlling annual meadowgrass. By their very nature and length of time established, the majority of these courses have meadowgrass in the greens. This meadowgrass is most likely the perennial biotype because it will have gone through many years of cultural management and it is surviving because of its ability to adapt to the surrounding environment.

The reasons why meadowgrass would populate a links/heathland green are many and there was a period in the 1970s when fertilising and watering became popular, thus increasing the opportunity for meadowgrass to establish in such swards. Realising the errors

of our ways, the 1980s brought about policies of starvation and low water consumption with added aeration to eradicate the meadowgrass established in the 1970s. Perhaps this was too much too late because putting surfaces went through a bad period for smoothness and desirability. Great patience was required by golfers while the meadowgrass died and the fescues/bents were to fill in all the bare spaces created. This did not happen to any great degree of success and invariably meadowgrass colonised these areas again when some fertiliser was applied.

The reasons for the lack of success are many but in my opinion there are two factors that are rarely mentioned in this debate: a) height of cut and b) traffic.

The continual pressure to cut greens low for greater speed has stressed in particular the fescue

plants to the point where the meadowgrass becomes competitive and take-over occurs. The high volume of traffic that is so evident on our courses today compared to 25 years ago has an effect also. This is particularly true about winter and spring golf when bents and fescues are susceptible to wear and meadowgrass can easily invade surfaces in early spring. It is known that meadowgrass can grow at soil temperatures of 45°F while bentgrass needs 55°F to grow actively. These wear patterns also extend through the season. How often have you seen a green in late winter/early spring with the centre, where all the wear is, dominated with sickly-looking meadowgrass and the outer edges or contours, where the holes would not be placed, having fine fescues and bents present?

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The management of *Poa annua*

many courses and the dilemma facing the golf course manager is 'Do I fight it or live with it?' I think that decision should be based on the amount of meadowgrass present and the biotype present. There are many different strains of *Poa annua var reptans* and if the fine-leaved types are present in the greens it will be almost impossible to eradicate them through cultural methods, ie low fertility, low irrigation and continuous aeration. In such situations, meadowgrass can be stressed to the point of death and if this choice is taken then a few useful tips would be:

- Aerate greens through hollow-tining to remove any excess fibre built up by meadowgrass;
- Overseed the greens in these bare areas with a seed mix dominated by bentgrass but with fescues present;
- Have soil tests taken and fertilise to establish the new grasses with a balanced fertiliser containing nitrogen, phosphorous, potassium and trace elements;
- Keep wear away from weak areas by using the edges of greens until establishment is complete;
- Keep height of cut at 1/4in minimum while recovery is taking place.

In managing the greens to reduce meadowgrass, I think it is important to maintain good density of the fine grasses so that they compete for existence. It is also important to carry out renovation programmes based on good greenkeeping principles of aeration, topdressing, overseeding, prevention of insect and disease damage and adequate fertility based on soil and/or tissue analysis. Even with all the above, if putting surfaces are desired during a renovation programme, the approach should be gradual reduction of meadowgrass over several years. Therefore an element of meadowgrass management is required while striving to get rid of the plant longterm.

3: PARKLAND GREENS

Traditionally shaped from the end of the fairway or built up with existing soil with no real subsurface drainage present. Invariably these greens retain water during periods of high rainfall and most times temporary greens are required for winter play. Without generalising too much, and everyone can make their own individual assessment, these types of

greens will be dominated with the *Poa* species. As outlined in the first part of this article, there are two different types of meadowgrass. Old parkland courses will be populated by the perennial biotype of meadowgrass which, as discussed earlier, can be very difficult to eradicate.

These fine-leaved meadowgrasses when managed properly can produce a good, firm, fast putting surface. They are rarely in 100% complete dominance and often will have bentgrass mixed through the sward. The combination of these species can be managed to provide the necessary quality of surface desired. Control of meadowgrass on parkland greens would follow the same guidelines as that on the links/heathland condition described above. The meadowgrass is very competitive in parkland greens because of the water retentive qualities of soil-based greens. The amount of meadowgrass that tends to be around a parkland course other than on greens is vast, therefore the seeds are always blowing and populating fertile areas where other grass species fail.

It is possible to try to reduce meadowgrass on heavy parkland greens but to try and manage for complete eradication can be very challenging to say the least. I feel it is not sufficient to state that all meadowgrass should be eradicated no matter what the individual situations are and fescue/bent should be colonised. To achieve this on parkland courses where the fine-leaved meadowgrass is dominating is impossible culturally and the only way would be spraying out with a total weed-killer and reseeding with fescue/bent.

It is important to state that many course managers throughout Great Britain and Ireland manage their greens with meadowgrass present and produce excellent putting surfaces. The very thought of stressing that meadowgrass to the point of death with the obvious resulting bare and bumpy greens would not be attractive, in my opinion, to either the course manager or their memberships. It has been well documented over many years why this option of managing meadowgrass to form part of the green's surface should not be followed

and I will not go over it again. However, I will discuss methods of management that favour fine-leaved meadowgrass forming part of the putting surface on greens.

In managing meadowgrass, like any other grass, root structure is essential and therefore aeration is central to any management programme. The primary problem with meadowgrass is its ability to produce thatch and if this is not controlled, problems will always occur, from shallow rooting to excess disease like fusarium, and rapid drying out during drought conditions. To have any success with meadowgrass management, thatch must be controlled either through aggressive hollow-tining if it's present and/or aggressive scarifying/verti-cutting/grooming to help prevent its build-up. Aeration in the form of deep slit-tining and verti-draining is important in those soils that have hard pans or have water restrictions down to 300mm in the soil profiles. Unfortunately, on those greens that have deeper drainage problems it would be necessary to rebuild to modern drainage and sand-based rootzones to ensure year-round playability.

OTHER KEY AREAS IN MANAGING MEADOWGRASS ON PARKLAND GREENS

Fertility Proper applications of fertiliser to sustain growth and prevent die back of the plant. If the plant weakens due to poor fertility, it will invariably get anthracnose disease which hastens the decline of the plant. Base fertilisations on soil analysis but a little phosphorous is important in a spring feed and nitrogen and potassium can be utilised throughout the season to sustain growth. I am a convert of using seaweed liquid and meal type products for their conditioning of the soil and their benefits to root structure. Also, they can be used year-round to prevent meadowgrass from dying off and therefore good surfaces can be prepared early in the growing season. This is not over-fertilisation but rather spoon-feeding the grass to achieve the desired results without any harmful side effects.

Topdressing This is crucial to producing a consistent level surface and I favour frequent light sand topdressings to achieve this. Whatever topdressing material is to be selected for your

course, stay with it and do not chop and change as this can result in layering and eventually root restrictions.

Aeration This is discussed above and I would stress the importance of carrying out the correct type of aeration for your individual situation, ie there is not much point slit-tining and verti-draining if 2ins of thatch must be reduced - use hollow-tining.

Overseeding Even when managing meadowgrass, it is important to overseed with the fescues and bents to encourage these species to establish. In meadowgrass dominated greens, I see greater success with bent dominated seed mixes rather than fescue.

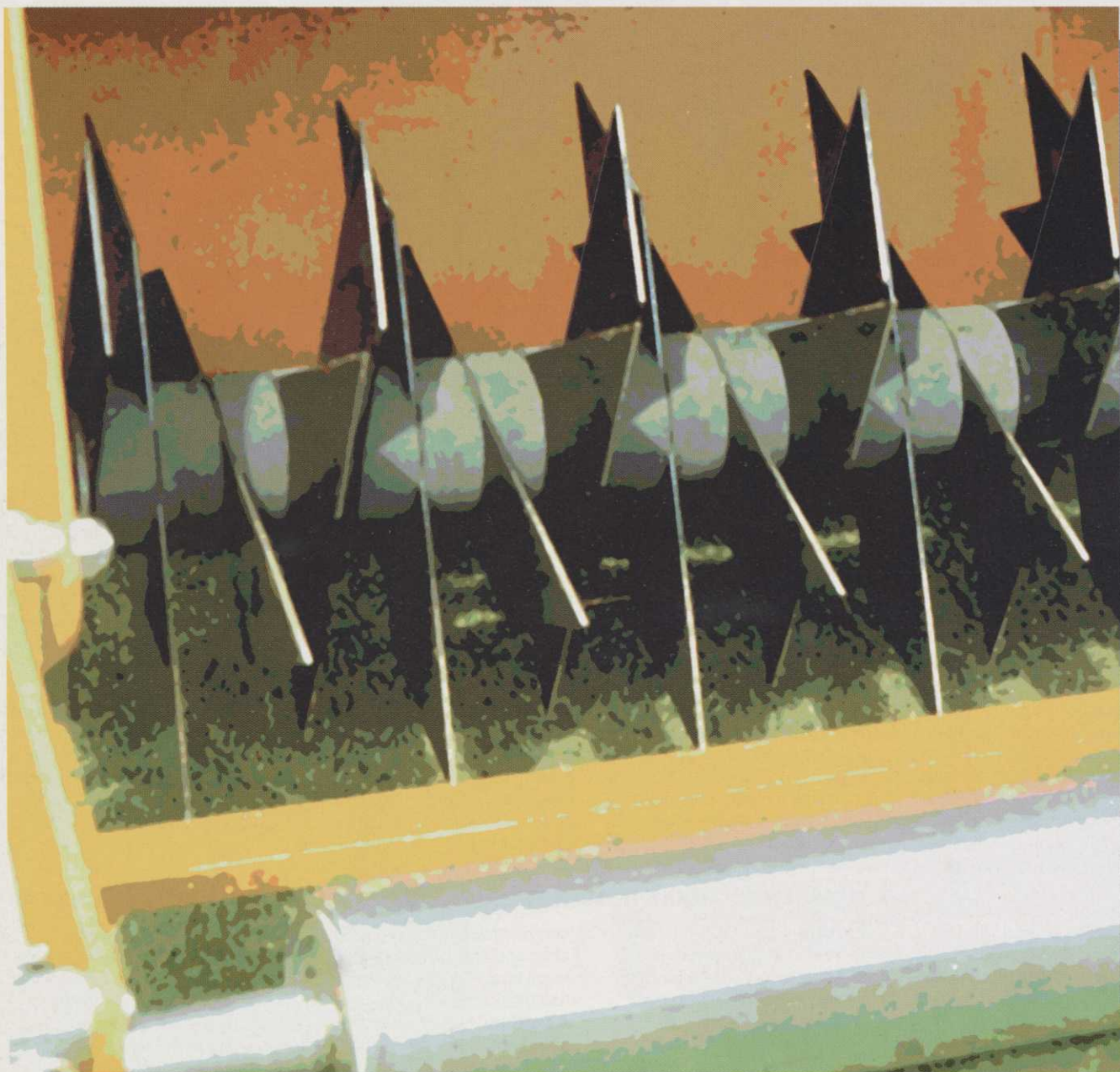
Pesticides Meadowgrass management needs careful monitoring for fusarium disease and the autumn of 1994 was a good example of greens growing late and disease attacking. Use of iron can be a big help in hardening off the grass but if the environmental conditions are such that fusarium outbreaks are common, then preventative

spraying is essential. I have witnessed two courses only three miles apart with almost identical soil and grass types and one is susceptible while the other rarely gets affected. The purists amongst us will say that fertilising after mid-August causes all the fusarium problems, but if the meadowgrass dies back in September/October, the greens are bumpy for the winter.

Therefore maintain the growth and prevent the disease for good winter greens conditions.

Irrigation Use only as determined by the weather conditions. Meadowgrass does not have to be over-watered, but a little when the plant is drying out will keep it alive.

■ **In conclusion, each golf course is individual and I do not intend this article to challenge anybody's personal management policies. I hope I have put across that there are alternative methods of management and indeed I have only scratched the surface, but hopefully this will generate discussion which ultimately leads to solutions.**



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Hard life or easy life? Municipal course or exclusive private golf club? Greenkeeper International explores the working practices of two greenkeepers at each end of the course maintenance scale. We start with Ian Holoran at Middlesbrough Municipal Golf Centre



Ian Holoran near the par 3 6th. All the greenstaff are issued with high-visibility jackets, safety shoes and crash helmets

For greenkeeper, read entertainer

“We actually class ourselves as entertainers, rather than greenkeepers,” says Middlesbrough Municipal Golf Centre’s Ian Holoran. “We entertain 80,000 people a year, which isn’t bad going.”

His employers don’t call him a greenkeeper either. His official job title is foreman, although his job description would apply to most course managers and head greenkeep-

ers. And his team of three permanent staff are labelled ‘craftsmen/gardeners’, although they are all qualified in greenkeeping *and* horticulture, and all have spraying certificates.

This is just one of the differences I discovered during my visit to this municipal course.

Many golfers view municipal courses as “scruffy, badly-maintained eyesores,” according to BBC Golf. But, as the magazine goes on

to point out, many of Britain’s public courses offer “challenging golf, great scenery, good facilities and deliciously low green fees”.

Middlesbrough Municipal is one of these. Opened in 1978 on farmland three miles from the town centre, it is among BBC Golf’s list of the 18 finest public courses in the country.

Writer Mike Cable says it has been designed to cope efficiently with heavy traffic. “The

'When you come to tender for your own job every three years you know exactly how much you spend on materials, machinery and labour'

front nine holes are wide open, with broad fairways and big greens to help keep play moving on steadily, while the back nine holes are much more of a challenge, requiring shots into and across the prevailing wind and over becks."

Different

Ian, 39, says working on a municipal course is no worse or better than working on a private course, it's just different. In some ways the municipal course can teach top private clubs a thing or two, especially when it comes to health and safety, training and looking after staff. For example, Ian has monthly meetings regarding health and safety. He recently went to one to discuss the dangers of needlestick injury. Many greenkeepers should be aware of the dangers of catching Hepatitis B and C and HIV from hypodermic needles discarded in woods and copses.

They also have verbal/physical abuse forms to fill in if club members have a go at them. They simply fill in the pink form and the club committee deal with the member. "They only do it once. Troublesome members are slung out," says Ian, chairman of BIGGA's Northern Region. They also have an impressive internal training programme. Among the courses on offer through Middlesbrough Borough Council are: time management, stress awareness, effective report writing, dealing with aggression, skills in communication, computer literacy, fire extinguishers, Health and Safety at Work Act, manual handling, identifying hazards, preparing for retirement and first aid. First-aid training is especially important because about 40% of the people playing the John Hamilton-Stutt course are retired.

This high standard of training and attention to detail has helped Middlesbrough Municipal Golf Centre achieve registration under BS5750, a coveted quality assurance standard. It means the golf course promises to deliver a certain standard of service, ie, that on any given day a certain number of staff will be on site and that at least one of them will be qualified in first-aid, that the clubhouse will be open for specified hours (8am-11.30pm), that the greens will be cut by a certain time (10.30am), that bunkers will be raked three or four times a week, and members will be told in advance that the course will be sprayed on such and such day with such and such chemical if the weather conditions prevail. In other words, there has to be good communication with the golfers.

If members have a problem or a question, they fill in a 'feedback card' and Ian has to have a written answer back to them within seven working days. The questions and answers are also displayed on a noticeboard in the clubhouse.

"It's worth everyone going for BS5750 registration because it means you're accepting a minimum standard," says Ian. "You have to



set a standard you can achieve rather than a vague wish. You have to set out everything, for example your criteria for closing the course." (see panel on Page 19).

Inspectors can come and check that standards are being maintained anytime without warning.

Budgeting

Another major difference between Middlesbrough Municipal and private courses is the budgeting system. Everything – yes, everything – has a price. Moving the tee markers 156 times a year costs £2,987 and transplanting 681 trees took 93.3 hours and cost £536 in labour.

"You soon get used to this way of doing things," says Ian. "And when you come to tender for your own job every three years you know exactly how much you spend on materials, machinery and labour."

This system came into operation in 1989 with the introduction of Compulsory Competitive Tendering (CTT). Ian, who has been in the greenkeeping and horticulture business for 22 years and started at the municipal golf course in 1986 as first assistant, is now employed by the Direct Service Organisation, which is contracted by the Client Section (the paymasters) who are answerable to the local council.

This change not only had a big impact on the organisation and admin of the greenstaff but also their maintenance practices.

"One thing Compulsory Competitive Tendering has done is focus councillors to look at the products being used and to question – especially with chemicals – whether it's the right thing to use, if it's environmentally friendly, if it's safe for the user and the customer and what are its effects? They also look at machinery and say 'You don't need two greens machines, one will do – it will just take you that little bit longer to do the job. Once you've cut all 18 greens you've finished with the machine and it's stood there doing nothing most of the day.'"

After peering inside what many greenkeepers would call a "lack of" equipment shed, I saw for myself how much Ian had been forced to streamline his machinery. There was a Jacobsen Greens King, a Ransomes GT, a Ransomes multi-mower, a Hydromain with topdresser and other accessories, an International tractor, a trailer and two sets of gang mowers.

"It's not a lot, but it's all we need," said Ian dismissively. "We have a better back-up service than most golf courses. We can borrow equipment from the parks department. They have nine tractors and six sets of gangs."

With three permanent staff, three extra summer workers and this arsenal, Ian has to counteract the effect of more than 80,000 pairs of feet trampling around the 6,333-yard par 71 course. Demand is high because the course is within a five iron of two housing estates, within a drive of another, and many

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'Yes, it would be nice to have sand-based greens but as someone said, you can't grow grass in a desert'

of the big local employers, including British Steel and ICI, have been creating more 'leisure time' for the local workforce. Also, as BBC Golf said, the green fees are "deliciously low". Rounds cost £7.75 weekdays and £9.75 at weekends. Season ticket charges are £240 for adults, £160 for senior citizens and £95 for juniors

Clay soil

Middlesbrough Municipal doesn't even have the luxury of sand greens to cope with this traffic. The 18 greens are based on clay soil and were built in the early '70s when 30,000 rounds a year seemed a lot.

No wonder the greens are 100% annual meadowgrass, while the tees, fairways and rough are ryegrass.

Ian's maintenance programme is similar to that used by many parkland course managers. He aims to fertilise the greens at the end of April – the exact timing is dependent on a rise in soil temperature. His staff will hollow-tine, followed by a fairly heavy topdressing with two tons per green brushed in.

Ian would like to have fast greens but it's not possible. He never cuts lower than 3/16ths and for some of the summer he raises the height of cut. "When we get more play, usually in and around British Open time, we raise the height of cut to 1/4 to protect the greens and we also feed three weeks prior to the championship."

During the 1989 Ryder Cup they raised the height of cut to 5/16ths to save the greens from the sudden upsurge in demand from people who "weren't really golfers," Ian said, choosing his words very carefully.

The greens are cut daily during the growing season and scarified once a week during the summer to keep the speed up and to maintain growth through the whole year.

The holes are changed at least three times a week during the winter and four or five times a week during the summer.

They are played all year except when it's frosty, but as an insurance the winter greens are maintained all year, treating them the same as tees by cutting them at 1/4, topdressing them three times a year, fertilising them frequently and spiking regularly.

As at most golf clubs, a tee extension programme is in operation to cope with the increased levels of play. But with only three winter staff and a lot of trees to tidy up in the winter, only one or two new tees are constructed each year, using turf from the golf centre's own 2,000sq m turf nursery. "With such a small staff we have to set ourselves targets we know we can achieve."

New tees are built to the same spec as the old ones, so they are not out of character with the rest of the course. Ian admits not all his colleagues agree with him over this, but he

Middlesbrough Municipal's report on golf course closure due to inclement weather

INTRODUCTION

The most contentious issue during severe weather conditions is the closure of the course, from a Leisure Management stance because of lost income and from season ticket holding players because of reduced leisure pursuits. This in turn has the effect of placing greenkeeping staff under considerable pressure and often in an impossible position.

BACKGROUND

In recent years figures from the National Environmental Research Council show that from the end of 1988, for a four year period, partial drought conditions prevailed, allowing almost uninterrupted winter play. Poor weather during the autumn/winter of 1992/3 further deteriorated throughout the year culminating in the wettest autumn for 30 years. This has now continued into 1995 giving record monthly rainfalls.

CURRENT SITUATION

Subsequent monitoring and site inspections by Landscape Management staff in recent weeks has confirmed that the closure of the course by greenkeeping staff has been justified. Due to standing water, waterlogged ground or frost and snow conditions, any attempt to play under these conditions would be very short sighted as considerable damage will occur even if used for only a very short period.

The current problems associated with high rainfall are magnified to a large extent by poor drainage and ground compaction. Because these are known problems, all short- and long-term improvements are aimed at improving soil-water dispersal, but

if play were to continue unabated all this would be for nothing.

Allowing play when the grass sward is waterlogged will lead to further compaction, further preventing water penetrating the soil surface. Player traffic – normal movement or trailed trolleys – moving over saturated turf will lead to:

- further soil compaction – compression of soil structure;
- loss of grass cover – mud smeared on greens will quickly lead to die out, increasing weed invasion and the likelihood of disease;
- exaggerated wear and tear;
- disrupted levels;
- deterioration of playing quality

A prime example of deteriorating play quality can be observed at the driving range. Conditions have rapidly declined along with income and the operator is now making claims for lost income. In my opinion, open play on the course would result very quickly in a similar situation.

Play during frost or snow conditions also causes damage to the grass sward. When plants are under stress, normal walking action can damage the cell structure, resulting in death or die back, and at the same time break off surface vegetation from the root mass. This is a particular problem with fine grass species associated with tees, aprons and greens.

CONCLUSION

Continue with the proposed short- and long-term improvements, increase spiking or introduce verti-draining when ground conditions allow but, most of all, resist pressure to play when conditions are unsuitable.

replies: "We can't change

165 acres into a championship course, we've got to manage the course as it is."

This goes for the greens, too. "If we made one sand green there would not be the consistent playing surface of the other 17. Yes, it would be nice to have sand-based greens but as someone else said, 'You can't grow grass in a desert'. So you need the water, and in years to come water will be more scarce, and you need to feed them more, so the maintenance will be more costly."

Fairways

Fairways are cut once a week in the growing season at 1/4in. "It usually takes two days to get round," says Ian. The rough, which has been likened to a cricket outfield, is also cut once a week to keep it down to a ball-finding 1in. That takes one man about four days.

As well as maintaining the 18-hole parkland course, the Middlesbrough greenstaff also look after a driving range and two spring meadows.

Nature Conser-

vancy, who make two visits a year, advise them on the maintenance of these meadows. Ian also takes advice from British Seed Houses and the Sports Turf Research Institute.

One of the biggest problems with the course is the drainage. Some localised drainage has been installed in the worst areas, and more work is planned but there isn't the budget to do the whole course. Regular spiking of the fairways, hiring a Verti-drain once a year (in the spring), and laying pathways is the answer in the meantime.

"We believe that the expected improvements will further enhance the facilities," says golf centre manager Maurice Gormley.

The trouble is, if they make it more appealing, they will attract even more golfers. Being busy from dawn to dusk most days of the year should be enough for any course – and certainly for any greenkeeper, foreman, entertainer or whatever he's called.

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| Spraying ✓ | Aggregates ✓ | Machinery Hire ✓ |
| Secondhand Machinery Sales ✓ | Computers ✓ | Storage ✓ Sands ✓ |
| Animal Repellant ✓ | Flaming ✓ | Soil Analysis ✓ |
| Servicing ✓ Tools ✓ | Maintenance ✓ | Shrubs ✓ Spares ✓ |
| Health & Safety ✓ | Cleaning ✓ | Lubricants ✓ |
| Fuels ✓ Netting ✓ | Seeds ✓ | Line Marking ✓ |
| Books ✓ Clothing ✓ | Course ✓ | Dressings ✓ |
| Course Accessories ✓ | Measurement ✓ | Drainage ✓ Help ✓ |
| Construction ✓ | Casual Staff ✓ | Pathway Materials ✓ |
| Soils ✓ Trees ✓ | Irrigation ✓ | Tools ✓ Tanks ✓ |
| | | Line Marking ✓ |

"FOR ALL YOUR TURFCARE NEEDS"

Quality ✓ Value ✓ Choice ✓ Availability ✓ Service ✓
Operating hours Monday to Saturday 7am-9pm

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