



are ideal for cutting and collecting on wild flower areas. Brushes are available for some models for sweeping paths and car parks and there are also scarifying units for large areas. By using these machines fully, savings can be made.

Turfcare equipment

In recent years a number of turfcare machines have appeared on the market using a single power source to which a variety of attachments or cassettes can be fitted. When considering this type of equipment the ease and speed of changing units is a factor that needs to be taken into account. One big advantage of this type of system is that it can be added to as and when required - thus spread-

ing the costs. It is also worth looking at existing equipment to see if there are any other attachments or optional reels available that will increase their output.

Hire

There is now a wider choice than ever before as more and more companies are offering comprehensive fleets of professional amenity equipment for hire. This is a sure-fire way of saving money on operations that do not justify the expense of buying specific machinery. Long and short-term hire schemes are available.

Fuel

Over the next few years, emission levels will have to be reduced and this has prompted several specialists to



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WORK HORSE



now offer conversions to Liquid Propane Gas (LPG). In addition to reducing all exhaust gases there is another major saving - the cost of fuel. Petrol and diesel prices are at present between 75p and 78 per litre - LPG is at least a third of this figure,

especially when bought in bulk.

Although there is an extra cost for the conversion plus a LPG storage tank, the indications are that the savings made will recoup this fairly quickly. Expert advice should be sought when considering LPG conversion - your local engine specialist will be able to advise.

Operating costs

Cutting costs in the golf course sector might be difficult because the operation is already highly streamlined. If you have been asked to reduce overheads it could be worth considering having a brainstorming exercise with your staff to explore if there are ways of keeping expenditure levels down. It is often surprising what comes out of this sort of session. Tweaking mowing cycles, especially on fairways, may make some timesaving. If carefully monitored, an extra day or two could be gained by increasing the cycles

between cuts. This would then release staff for other jobs.

Maintenance

The lack of regular maintenance has a considerable effect on running costs. Badly maintained equipment uses more fuel, takes longer to carry out the work, and the possibilities of a major breakdown are increased. If machinery has been well maintained and looked after it will also be reflected in its value when it comes to trade-in.

This is only a rough guide to some of the areas where possible savings might be made in the present climate. Each course will be different and dependent on the requirements of its management.

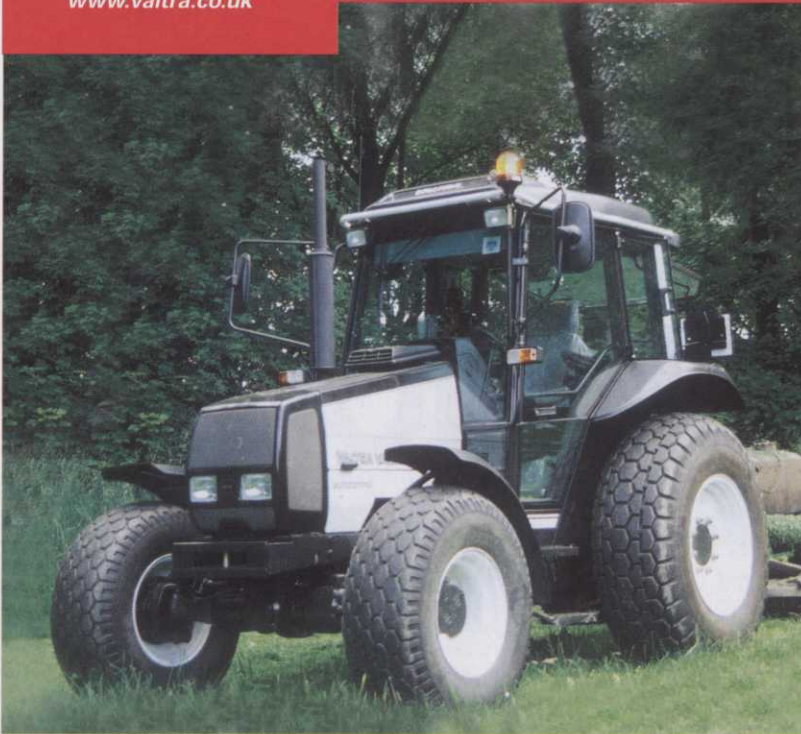
Let's hope it soon stops raining and warms up, especially at weekends, and any foot and mouth restrictions are lifted so golfers can appear in their droves and the revenue comes flooding into the coffers.



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Arnie Van Amerongen describes the construction of a new lined green in Switzerland which meets the country's stringent environmental constraints

Design considerations



These days, particularly here in Switzerland, golf course constructors and greenkeepers are operating under severe restrictions on the construction of golf courses imposed upon them by councils, ecologists and many other organisations.

These are aimed at preventing fertilisers, fungicides, herbicides and other chemicals ending up in the ground and ultimately in the main water supply as tapwater.

Here in the French part of Switzerland, in Sion, I am currently extending a 9-hole golf course to 18 holes.

The new nine holes are built on terrain which belongs to the municipality, and is close to the water reservoir for the city of Sion.

The greens are built out of two draining layers of gravel 100% sand on top of the gravel.

No.1	8-16 mm (round)	depth 20 cm
No.2	4-8 mm (round)	depth 5 cm
Sand	0-2 mm	depth 30 cm

As you will see this type of construction will give a very high infiltration and leaching effect, so you might ask where does all this water go from these greens? Well, we have to gather this water to respect special ecological requirements.

The answer is a liner. I will describe the construction of these types of green.

On photograph A, we can see the special constructed v-formed shaped shuffel for this type of drainage to a depth of the 30 cm.

When the drainage lines are finished and the stones are removed from the surface, we put on the surface of the subgrade, the protection sheet colour grey see photograph b, strong 500 gr/m.

After this we put the liner in the drainage lines on top of the protection sheet, the green coloured liner thick 1.2 mm - see on photograph B.

The drainage uses the herringbone system.

It is important for the welding of the liner that the outside temperatures needs to be higher than 5°C and the humidity needs to be lower than 75%.

If the drainlines are welded and the perforated drainage is in the drainlines they can be filled up with the gravel 8 - 16 mm (round).

All the perforated drains have the same size in diameter 110 mm.

If the drains are all connected to the main drain, we can start to fill up the drain lines with the gravel 8-16 mm.

It involves a lot of hand work at the beginning to fill up these drain lines - photograph C.

If the drainage lines are filled up with the gravel 8-16 mm, the rest of the big areas from the green can be welded.

On photograph D, we see the outlet of the green, from there the water will go into a concrete collector.

The drainage water from the green will go via transport drainage to a safe area where there will be no risk of pollution to the main ground water.

As we can see on photograph E., the green is completely welded and the rounded gravel 8 - 16 mm, can be transported in to the green. The wooden sticks are taped on the following heights 20 cm, 5 cm and 30 cm.

In my opinion the tractor with balloon tyres, driving in straight lines on 20 cm rounded gravel and wooden planks will not cause damage to the liner at all.

The rest of the procedure is identical to that of a normally constructed green.

Levelling the gravel 8-16 mm, after this levelling out the gravel 4-8 mm, topsoil around the green and starting bringing the sand on the green.

Here we can see on photograph F from the drive point the ending result of the construction, the sand is spread and levelled out and this year 2001, in spring, we are starting with the preparation for the seeding.

I hope that environmental organisations are not going too far and that they only remain with lining the greens and not to line a complete golf course, the work and the costs, if that were to be the case would be enormous!

The work which was carried out was supervised by the writer Arne Van Amerongen.



Scott MacCallum left the Association helicopter in the garage and drove down the M1 to visit BIGGA's latest Golden Key supporter - Stoke Park Club, the first golf club to become supporters of this extremely worthwhile programme



The Club with the

golden
key



In today's customer-focussed, competitive environment, where every effort is made to attract new visitors to golf clubs, you often find location maps issued giving directions and advice on the best way to get to the club by car, train and sometimes, at the bigger clubs, plane.

You know you are visiting somewhere a little bit special when that club also issues instructions as to how to get there by helicopter.

But Stoke Park Club - Helicopter Grid Reference O/S SU 970827 - is indeed a special place and the list of what makes it special is longer and more diverse than virtually any other establishment in the country.

Just as a taster, the Estate was mentioned in the Doomsday Book in 1066; Elizabeth I once owned the Estate; it was the home of the guy who coined the phrase "An Englishman's home is his Castle"; it was also owned by the Penn family after whom Pennsylvania is named; it was the base for the famous Corinthian Sporting Club; Capability Brown designed the lakes on the Estate; Harry Colt designed the course; the most famous par-3 in golf - the 12th at Augusta National - was model on the 7th at Stoke Park; the most famous golf scene in all cinema - James Bond and Goldfinger battling it out both inside and outside the rules - was filmed at the course, while, more recently, scenes from Bridget Jones' Diary were filmed at Stoke Park.

Undoubtedly however, most significantly of all for BIGGA members everywhere Stoke Park has become the first golf club to become Golden Key supporters of the Association.

"We were amazed to learn that you didn't have any golf clubs as Golden Key supporters," said Stoke Park Club Marketing Director, David Fardon.

"We see ourselves as one of the leading clubs in Britain and felt that by taking this opportunity to be the first club to invest in greenkeeper education and training through the Golden Key programme we would be showing leadership. Hopefully it will lead to other golf clubs doing the same. After all, by investing in the people who look after our golf courses it can only benefit the game as a whole," explained David.

Estate Director, Alex Millar, a member of one of the premier greenkeeping families in the country, was quick to add his endorsement to the move.

"One of our main thoughts was to put something back into greenkeeping," said Alex.

The King family (who own Stoke Park Club) do like to invest in people and many of the people who come and work for them do so for a long time. They also feel that by taking out Golden Key membership it will make the greens staff more aware of BIGGA and the work that the Association does for the greenkeeping industry," said Alex, who has been at Stoke Park Club for 13 years.

He also admitted that with 10 golf courses within five miles of the club finding good green staff was not always easy.

"Stoke Park Club is a great name to have on a CV and we want people to want to work here. As Golden Key supporters and being seen to give good in-house training and encouragement to greenkeeper education, ideally we should have a waiting list of people wanting to work here.



While everything at Stoke Park Club from the Hotel, which is a member of the Leading Hotels of the World, to the golf course and the new £9 million Spa, Health and Racquets Pavilion due to open next year is of the highest possible standard, the staff and members of the club are all part of an inclusive environment.

"The greens staff are a key part of making this club what it is today and we make sure they, and everyone else, are treated in the same way," said David.

The point is hammered home by Alex when he says that the quality and condition of the golf course wouldn't happen but for the way everyone is treated by the Board of the Club.

"People just won't produce the

goods to the same way if they are not being looked after," he said.

Stoke Park Club's arrival as a Golden Key supporter was welcomed by BIGGA's Executive Director, Neil Thomas.

"I am delighted to welcome Stoke Park Club as a Golden Key member of BIGGA. Their initiative in supporting greenkeeper education in this way is to be applauded and we hope that more golf clubs will follow their example and thereby boost the monies available to enable us to provide first class training opportunities for BIGGA members," said Neil.

The Millar clan is one of the strongest in greenkeeping with at least half a dozen of them head men at clubs in the UK - along with Alex's father, also Alex, from Denholm GC,



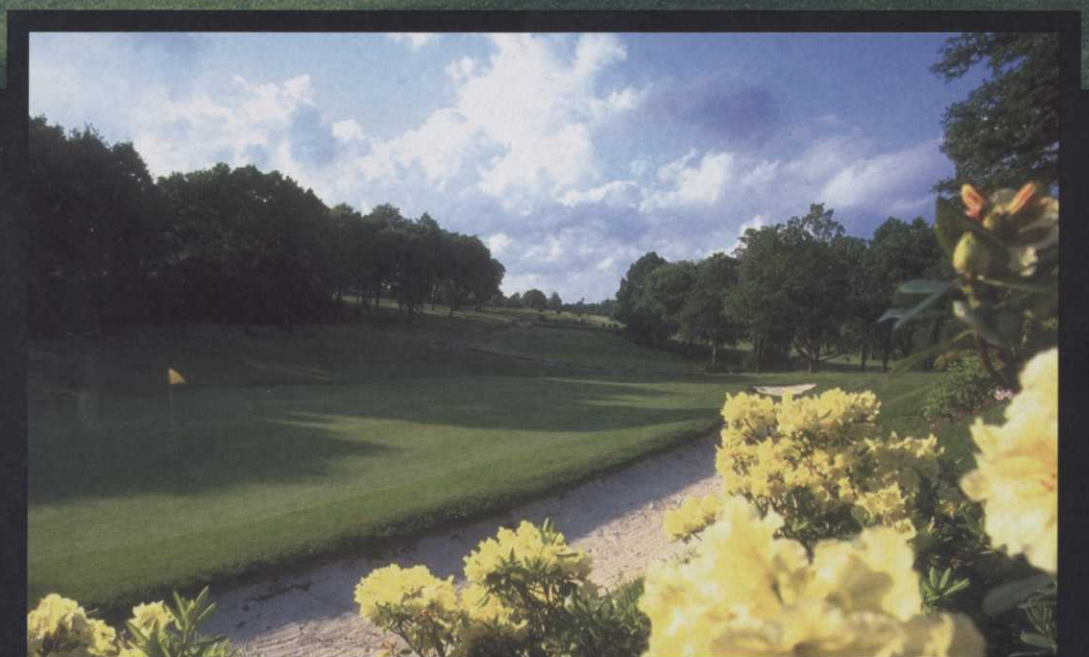


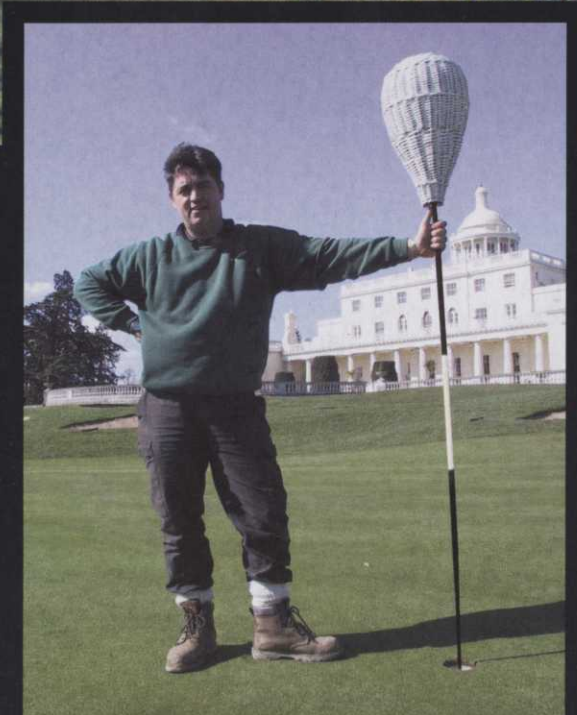
and Jock, from Burnham and Berrow GC, both of whom are now retired - and another in Cairns, Australia. It isn't a surprise to learn that Alex fell in love with Stoke Park at the age of 14.

"I played golf here with the Artisans as a 14 year old and I knew that I was going to be a greenkeeping and that this was where I was going to be head man," said Alex.

He started his greenkeeping career as an apprentice under his father and in nine years rose to First Assistant before being offered the job of Head Greenkeeper at the club.

"I was lucky as it was a case of right place right time. I played golf to county standard - he still plays off 2 - and one of the county officials was quite high up here and thought I might be





suited to taking on the task of improving the course," explained Alex, although he had no idea of how his job would grow over the intervening years.

He took over a course for which the term "sleeping giant" could easily have been coined having lost its pre-eminent place near the top, alongside the Wentworths and the Sunningdales, during the two wars. Part of the course was given over to the war effort to plant potatoes, and in the subsequent years there was not the investment to haul it back into the Premier League.

"Up until the mid 80s the profile of the club was still fairly high but after the Ryder Cup victory in '85 the golf boom really started and investment kicked in and Stoke Park was left behind."

Alex and the team worked hard on the course - he was faced with 70 mil of thatch and grass coverage of around 25% on each green - until yet another significant moment in the history of the club when the King family bought it in 1993 with a vision for what they wanted the club to become.

"That vision was to create a Championship course to the standard Colt had laid out but to make the most of the Capability Brown landscaping around it. It was the dream ticket," recalled Alex.

That point is reiterated by David. "The King family goal is to take the Estate back to the standards of the original Stoke Park Club in 1908 with a world class golf course; world class tennis facilities - three indoor, four all-weather and five grass courts as



STOKE PARK CLUB

**Stoke Park Club
Notable Dates**

1666 Stoke Park Estate mentioned in the Doomsday Book

1581-1603 Owned by Queen Elizabeth 1

1603-1644 Owned by Sir Edward Coke who coined the phrase "An Englishman's home is his castle"

1760-1848 Owned by the Penn family whose name gave rise the state of Pennsylvania

1750 Capability Brown designed the lakes on the Estate

1792 Humphry Repton designed the landscaping of the Estate

1908 "Pa" Lane Jackson bought Stoke Park and turned it into the Corinthian Sporting Club, the last amateur team to win the FA Cup and a name still synonymous with fair play and sport for sport's sake

1908 Harry Colt designed the golf course including the 7th hole upon which the 12th at Augusta National was modelled

1964 Stoke Park used as location for James Bond's famous golf scene with Goldfinger

1993 Stoke Park bought by the King family and plans put in place to restore it to its former glory

2001 Stoke Park used as location for Bridget Jones' Diary

2001 Stoke Park becomes the first golf club to become a BIGGA Golden Key Supporter

scale of the project when they set out. "The job just got bigger as we moved on. We'd cleared areas and more views of monuments would become apparent from the house and that would encourage us to do more. You can actually see Windsor Castle from the house now.

"We were told by conservation experts that it was not forests that were threatened in this country but parkland and that we were actually putting back what was supposed to be in place and now we've got much more wildlife on the Estate than we've ever had," said Alex, who added that he reckoned they'd ripped out as much as three times more scrub than anyone else before or since.

The other major project was the rebunkering of the entire course.

"We had to take the modern game into account when redoing the bunkers and we almost had to imagine how Harry Colt would have built them if he had had a JCB. A Colt bunker always had a tongue on it, always had a face and nine times out of ten you could see the danger from the tee or the second shot. They had a flattish bottom but always ran in from both front and back," said Alex, who researched the bunkers by playing and visiting many of the Colt courses in the south east.

"This is Colt country round here and it was a case of playing them, studying photographs and looking at what we already had. Sometimes we'd go to a bunker and know that we wouldn't have to do very much to it but about 95% of them we just flattened and started again."

They also picked up on the favourite Colt idea of a bunker in the middle of the fairway about 100 yards short of the green.

"I used to think that they wouldn't have caught anyone even when they were built but then I realised that the purpose of them was to throw your eye out. You learn these things and slowly get the feeling what Colt intended us to get from his golf courses," recalled Alex who added that as their skills developed they went back and redid some of those they had done earlier.

Although still on-going the bulk of the work was completed three years ago around the same time as an additional Donald Steele nine holes were opened, giving 27 holes - the holes are numbered 1-27 - of "Colt-style" golf to enjoy. They have also reinstated 10 acres of the 15 acres of gardens.

"What I like to feel we have here is a 100 year old golf course with a history and maturity to it which is maintained by the most modern technology available - they have a new million pound Toro irrigation system - and managed to the highest possible standards," said Alex.

He is always keen to restore the links to golfing history and one of these will come to fruition this month when the restores the lobster pots which acted as flags in the early days.

"Many people will know them from Merion Golf Club in the States but they took the idea from Stoke Park Club having visited us on a tour. It was originally an idea Colt brought down from the west coast of Scotland where lobster pots were used in preference to flags which would become ripped in the wind. The feeling about them was that golfers wouldn't receive any 'outside assistance' in the shape of clues to the direction of the wind from the way the flags were fluttering. It is a tradition I was keen to bring back and we're doing so with different colours of pots for each of the three nines."

The lobster pots are yet another example of Stoke Park's rich history and by bringing them back it merely helps to trumpet how the club has influenced the rest of the game.

Stoke Park Club is a very special place, whether you arrive by helicopter or any other means of transport, and by being the first to become Golden Key Supporters the Club is setting a trend which others may follow.

well as the Health Spa, fishing, croquet and other facilities.

"We will be looking to hold top quality high profile golf and tennis events in the near future and really pushing to get the Stoke Park brand known throughout the world of sport," said David, as we sat in one of the beautifully appointed reading rooms within the 20 room hotel.

It was with that picture firmly in the front of Alex's mind that he set to work on bringing the golf course and garden side of this equation to reality.

"We went in and got rid of 95% of the scrub on the 350 acres estate, the majority of which we did in-house only bringing in contractors for the major tree work," he explained.

It would be fair to say that Alex and his team had little inclination of the

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For further information on joining the Golden or Silver Key Circle of Supporters, please call Neil Thomas, Executive Director, BIGGA on 01347 833800 or visit www.bigga.org.uk

TALKING

Six of the country's top men give their views on how they cope with the winter weather

Coping with winter

Compiled by Malcolm Huntington MBE



Name: Sandy Bulloch
Course: Fereneze GC, Barrhead, Glasgow
Region: Scotland
Course Type: Heathland
Staff: Course Manager plus three



Name: Graham Chambers
Course: Longhirst Hall GC, Morpeth, Northumberland
Region: Northern
Course Type: Parkland (27 holes)
Staff: Course Manager plus seven, plus mechanic



Name: Gavin Robson
Course: Lingdale GC, Woodhouse, Leicestershire
Region: Midland
Course Type: Parkland
Staff: Head Greenkeeper plus five.



Name: Adrian Archer
Course: Broadstone GC, Poole, Dorset
Region: South West and South Wales
Course Type: Heathland
Staff: Course Manager plus six



Name: Ray Day
Course: Sundridge Park, Bromley, Kent
Region: South East
Course Type: Parkland (36 holes)
Staff: Course Manager plus ten, plus one mechanic



Name: Allison Sloan
Course: Ballymena GC, Northern Ireland
Region: Northern Ireland
Course Type: Parkland
Staff: Head GK plus three, plus one apprentice

1

Following the worst winter in most people's memories what particular difficulties have you encountered preparing your course for the new season?

Our winter hasn't been too bad so we have had no real difficulties. However, it has been cold in March and April so the growth is a bit behind. We haven't had much rain at all.

It has held back the fertilising programme and we are a month behind schedule. Because we are well drained we have had a lot of visitors in winter and therefore we have compaction to deal with.

We have had problems just getting out on the course to cut. Fertilising is ok but spraying is behind schedule and greens growth is six weeks behind.

We haven't been able to get out on the course to do many jobs and with competitions and societies using the course we have had to work round them. We are about a month behind with most things and need to do more aeration on the fairways as we have a build up of thatch.

Just getting on to the ground. We have hilly courses and have discovered new springs coming out of the hillside which leads to flooding so we need to work on the drainage.

It's been very cold and wet so the growing season has been delayed considerably. Cutting hasn't started as we speak on May 1. I would say we are a month behind schedule.