that hold water, any surface ponding will normally be short lived. In the study 43% of greens had infiltration rates of 0.1 mm/hr and almost one third had values less than 5 mm/hr. This situation is far from ideal. It must be remembered however that half of the greens were deliberately selected as being amongst the worst on the course and poor drainage would have been one of the factors influencing greenkeepers' nominations of greens to study. Indeed infiltration rates were significantly higher on those greens classified as "good" by the greenkeeper, averaging 14 mm/hr compared to 8 mm/hr on greens classified as "poor".

The other noteworthy physical characteristic is the air-filled porosity. In the laboratory we measured air-filled porosity at two levels of suction: values measured at a water potential of -40 kPa are probably the most useful as this gives an indication of the amount of soil air present through much of the winter period. Using measurements from all the greens in the study, the air-filled porosity of the 10-90 mm depth averaged 5.0% and the corresponding figure for the 100-180 mm depth was 6.9%. This is below the figure of 10% air-filled pore space which is sometimes quoted as being a desirable minimum value. Indeed 41% of greens had values <5%. Again it must be remembered that the sample of greens was not fully representative as greenkeepers deliberately selected half the greens as being poorer ones from their course, nevertheless when taken in conjunction with the infiltration figures it does suggest that many greens have far from desirable soil physical characteristics.

SOIL: CHEMICAL PROPERTIES

Greenkeepers were asked to fill in a questionnaire on maintenance and this included information of the fertiliser that they had put on in the preceding twelve months. Most greens received between 75-225 kg/ha of nitrogen, which would seem satisfactory in view of the range of soils at different sites. There were however some cases where we calculated the rate to be over 300 kg/ha which is certainly on the high side even for a sand based green. No phosphate was added on 61% of greens and on 56% of greens no more than 40 kg/ha of potassium (as K₂O) was applied. Phosphate levels were very variable and there was no relationship between the amount of phosphate applied and measured values in the soil. This almost certainly reflects unnecessarily high levels of phosphate nutrition in the past and the lack of mobility of this element in the soil. In spite of the fact that no phosphate was applied on 61% of the greens, over half the greens had P₂O₅ levels >50 mg/l.

There was a significant, albeit relatively weak, relationship between the amount of potassium applied and levels recorded in the soil. For the main rooting depth (10-90mm) almost one third of the greens had potassium levels classified as very low and for the 100-180 mm depth half the greens had nutrient levels falling into this category.

Potassium is relatively mobile within the soil and normally between 60-150 kg/ha of K₂O should be added on an annual basis, depending mainly on the texture of the rootzone. In the light of the figures that were recorded it would appear that potassium is being under applied on a fairly high percentage of greens.
which Mike has developed and the high degree of record keeping which he feels went a long way to getting him the award.

"The management want accountability so they are making me learn new skills on the management side.

The club has a central administration department which comes up with a format for all the record keeping which is used throughout the club.

"We can account for every hour which is spent on the golf course. At first that's a little frightening - a bit like a time and motion study but it's not like that at all. There are a lot of benefits. For example this year I argued to get a new bunker raker but the club wasn't too keen. Through running the budget management we came up with a labour cost of 1114 hours of bunker raking by hand and that it accounted for 20% of our time. Once they heard that they realised the importance of it and it accounted for 20% of our time.

"Initially I felt that the time filling in forms would be better spent out on the course. I was a hands on person, 'let's get out and fill in forms would be better' but the club wasn't too keen. We got our new bunker raker.

"We have a weekly staff meeting which is very open and if it's something right they tell me. That goes right through the club, everyone is on first name terms, even the Managing Director, and it's a lovely atmosphere to work in.

"We're all cogs in a wheel and there is no 'Them and Us' attitude which a lot of greenkeepers at big clubs suffer from.

"If Mike's handicap had continued to fall he might have been rivalling Colin Montgomerie for the Golfer of the Year and not the Greenkeeper of the Year which is very open and if it's something right they tell me. That goes right through the club, everyone is on first name terms, even the Managing Director, and it's a lovely atmosphere to work in.

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South Wales
A Happy new year to you all.

Wales Annual Seminar held recently at STRI/WGU entitled "From the Wilderness to the Wildernesse". You know you can always count of Huw to be controversial and as, true to form, he was.

Huw's talk was based on the main differences between managing a golf course in the south of England compared to that of south Wales. Huw's talk provoked much feedback and audience participation and left us with much food for thought.

The following Wednesday the newly-developed Celtic Manor golf and country club hosted a jointly organised STRI/WGU seminar entitled "On course conservation, golf and nature in partnership" and an in depth assessment of management. Mr John Linnecar - "Golf Club Management" in his opinion. Dr Mike Canaway - a look at the continuing research work of the Spurfoot Research Institute. Dr Anne Maria Brennan, the EGU's practising Ecologist on: "On course conservation, golf and nature in partnership" and last but definitely not least Mr George Shiels - "The presentation of a golf course from an agronomists point of view".

All in all a day, thoroughly educational, and all for £10. What more could you ask for? Perhaps a better audience from this side of the bridge!

Our thanks to Kevin M. Green for the use of their facilities, to Barenbrug for their support and sponsorship and to Gordon and Marion Child for their organisation of this seminar. Possibly the best yet.

You should have received a list of the winter evening lectures. If you haven't then contact me, but they are Pencarrow College on Wednesday evening commencing at 7pm. January 17 - Gordon Jaaback "Dispelling the myths in golf course drainage and oversowing a current golf club". February 14 - John Moseley of the National Rivers Authority "Quality control, abstraction and record keeping"; March 13 - Bob Scott of British Seed Houses "Golf course renovation".

It's good to see so many new members not only joining the section but participating in events. Let's hope we see a lot more of you throughout 1996. I hope Tony Bull is on his feet, Tony of the Clyne Golf Club recently underwent surgery to remove two toes.

Fixture cards again sponsored by TACIT will be with you shortly.

Don't forget the BTME 22-26 January at Harrogate. See you there?

Peter Lacey

South West
I once again have the opportunity to wish all section members a happy, if not belated, New Year. A warm welcome is also extended to several new members who have joined the section among them Steven Blackmore from Taunton Vale Golf Club, Robert Jordan from Puckpool Hall Golf Club and Kenneth Abraham from Isle of Wight Golf Club. The section are looking forward to your support at forthcoming section events, the first being at Stinchcombe Hill Golf Club on Wednesday February 28 where it is intended to have a guest speaker as well as playing the usual golf.

All members of the section will once again be able to keep track of the year's events thanks to the offer from T.H. White to produce a fixture card for 1996. Assistance in every respect is always appreciated from trade members and thanks are once again given to Pat Smith and T.H. White for their continued support.

The winter months there is more opportunity at section level for education with, once again, what will be a full coach from the South West going to the BTME exhibition at Harrogate on January 23.

A management course organised by Headquarters at a greatly subsidised price of £99 for the first 50 places. A hot pot supper and free raffle were provided. Many thanks to SISIS and Rhone Poulenc for the generous prizes.

It is the intention to run a Pesticide training course (PA1) in the near future with instruction being given by Noel Stevens formerly a senior lecturer from the Gloucester College of Agriculture, T.H. White. A venue and date are yet to be finalised but if interested in being included please contact me on 0117 9090127. It is worthwhile noting that a change in legislation now means that anybody wishing to use a knapsack sprayer now needs qualification to P6 standard as it is no longer covered by the PA2 certificate.

Continuing with education, a First Aid course held on Tuesday November 21 at Filton Golf Club was very well received and was well attended. A sincere thank you to Pat Smith and T.H. White for their support.

Finally I close by wishing you successful greenkeeping and good golf for the forthcoming year.

Kevin M. Green

North West
An evening lecture and AGM took place at West Derby Golf Club recently. Clive Heginbotham of Miracle Professor gave a very interesting talk on the role of weeds in ponds and waterways. Clive stressed the need to consult the National Rivers Authority before using any products to control aquatic growth. The cost includes not only the equipment but also the time and expert advice.

The AGM followed and once again we had a poor attendance with only 14 members. New Chairman Chris Sheehan presented his predecessor with an engraved hip flask recording a bumper 1995 of chairmanship.

The North West committee is Chairman, Chris Sheehan; Secretary, Bert Cross; Treasurer, Brian Moss; committeehow McAdy, Stephen Oultram, Bill Merritt, Alec Davies and Mike Davey.

The Scottish Region - North
The inaugural session dinner dance in Aberdeen was a great success with around 60 people attending and a good time was had by all. A special vote of thanks must go to Hughie McCall and Dougal Dinsdale for organising this event which we hope will become an annual affair.

Our latest new member is one Mike Rennison from the Innerleithen Golf Club. We are looking forward to seeing you at our next outing there!

As I mentioned last month the secre
Happy New Year to all members.

My aim in 1996 will be to continue to provide education and training opportunities for all greenkeepers by attempting to meet your needs. This year commences with The Learning Experience, in association with Ransomes, at Harrogate from 22 - 26 January. Details of speakers and their talks appear elsewhere this magazine.

BASIS CONTINUING PROFESSIONAL DEVELOPMENT POINTS

The Learning Experience, in association with Ransomes, is a must, not just because it offers the widest range of education and training to be found in Europe, but because it offers the widest range of education and training to be found in Europe, gives credits towards the Master Greenkeeper Certificate and provides evidence towards an NVQ qualification but also because BASIS has recognised the National Education Conference, Workshops and BTME seminars as meeting their requirement for awarding BASIS points. BASIS points will be awarded as follows:

- National Education Conference - 5 points
- Workshop 1 - 3 points
- Workshop 2 - 2 points
- BTME Seminars - 2 points per session

REGIONAL SUPERVISORY MANAGEMENT COURSES

In response to members' requests for more localised Supervisory Management Courses, I have arranged for two extra courses to be provided. These are Mildenhall on February 21/22 and Bedford on February 27/28. Please contact me for further details.

MIRACLES DO STILL HAPPEN

Well almost. At a meeting held at Aldwark Manor on December 5, the day following the very successful Miracle Premier Greenkeeper of the Year Competition 1995, it was decided that the competition would continue for at least another year. Roger Mossop and Richard Minton, from Miracle, were very impressed not only by the quality of the five finalists but also by the standard of all the entries, which have continued to improve through the years.

As one of the original aims of the competition was to encourage greenkeepers to better themselves, through education and training, and therefore to improve the standards of playing surfaces, they felt that the competition was achieving its aims and, therefore, worth saving. The rules of the competition for 1996 and the prizes awarded will be very similar to 1995's and are:

1. Entries may be submitted by Head Greenkeepers/Managers, club officials, club members and greenkeepers who feel that their head man and consequently their golf course, is achieving its aims and, therefore, worth saving.

2. The competition will be held in two stages:
   - First stage: Regional Finals
   - Second stage: National Final

3. All entries must arrive at Aldwark Manor by 31 May 1996.

4. The Regional Finals will take place in June/July and will consist of a fact finding visit (course evaluation) by a Regional evaluator who will be accompanied by a previous Premier Greenkeeper Finalist. They will select their Region's representative to progress to the National Finals.

5. The five finalists will have their courses evaluated by a member of the BIGGA board, accompanied by a representative of Miracle Professional, during August/September 1996 prior to the final interviews taking place on December 8/9.

The prizes for the Competition will be:

- Miracle Professional Premier Greenkeeper will receive a plaque, will be offered the chance to attend the Golf Course Superintendents Association of America Conference and Show in Las Vegas in February 1997 and will be presented with a cheque for £500 for his greenkeeping team.

- The runner-up will receive a plaque and an all expenses paid London Weekend Break, for two, which includes the chance to see a West End show.

- Third place will receive a plaque and an all expenses paid London Weekend Break for two. Fourth and fifth will both receive a plaque.

Remember, your course does not necessarily need to be another Augusta National. The judges are looking to see that you are getting the best out of your course, your staff and your machinery, given a set amount of resources. Give it a try, you might even win.

LATEST BIGGA TRAINING VIDEO ON SALE AT BTME

The latest BIGGA training video titled 'Golf Green Reconstruction' will be on sale at BTME. The video shows some of the problems that may occur with greens, discusses some remedies and concentrates on green replacement. At £14.95 for members and £29.95 for non-members, this 15 minute video represents superb value and should not be missed.
The Pythium scare

It must be understood that there is emphatically no recorded incidence of an attack of Pythium blight (caused by the fungi P. aphanidermatum or P. ultimitum) in northern temperate Europe, with only isolated suspect cases in the Mediterranean area. This disease which causes serious problems in the very hot, very humid states of the USA is not to be confused with seedling damping-off diseases caused by other Pythium species. It should be noted that even in the most susceptible areas of the south eastern States in America, it needs long periods of very hot, very humid weather for the disease to strike. When it does it strikes very quickly indeed, giving little chance for curative or corrective treatment.

While it is rash to deny the first appearance of anything, whether it be a rare bird never before seen in Britain or a new disease one must say that pigs are more likely to fly than for a disease suddenly to appear in circumstances vastly different from those pertaining to where it is a real problem. It is significant that reports of the disease are coming from all over Britain and Ireland - clearly a scare on the lines of BSE in cattle! This would not matter if it were not for the fact that this wrong diagnosis may prevent action being taken against the real cause of the symptoms being reported as Pythium blight and in consequence needless damage is accepted as inevitable.

One can safely say that the fungal disease attacking the Royal Porthcawl greens at the time of the Walker Cup was not Pythium blight. Had it been, there would have been no greens on four successive weeks! The susceptability of bentgrass to Pythium blight and in consequence needless damage is accepted as inevitable. It has been described as a disease which you can actually see spreading - it is so quick. Furthermore, the symptoms seen by many were not those of Pythium blight. this first shows as characteristic spots, before it spreads like wildfire. In the words of the leading American mycologist Professor Var- gan:...if you notice large irregular dead patches without having seen spots first, the problem is not Pythium blight and you must look for a different cause.”

The fact that the greens affected were not those where root zones had been changed - these were free - indicates that the problem was a soil-borne disease, and Pythium is air-borne. Stress was, probably an aggravating factor rather than a cause.

There are perhaps two centres where accurate identification of the Pythium species can be made and these do not get samples. All those who have spent years looking down microscopes know when to discount what they see. Charitably, what was seen was a secondary saprophytic growth of mould developed in transit!

If this disease has never been seen in Europe by not only ourselves but all leading golf course agronomists who have discussed this with us, then one can safely say that it is unlikely to attack your greens. In fact we would suggest that there is more probability of someone winning the National Lottery jackpot on four successive weeks!

Finally a word of warning to mycologists working in unfamiliar country! Never diagnose a disease on the basis of what you see under the microscope alone, but look at least at pictures or descriptions of the field symptoms, there are very few serious fungal diseases affecting golf grasses in this country so do not make the mistake of thinking we are going to be invaded from the States or Mars. You will all have seen Pythium but not Pythium blight. The Pythium you see is that growing on a mouldy crust of bread and that will not kill turf.

We can learn, however, from this scare - and not just to get accurate examinations. Grass in greenkeeping is increasingly under stress, but that situation is best handled by sensible sound greenkeeping, which will protect turf naturally. Cronic “fus”, it is always claimed, is a sign of bad greenkeeping, but the mistakes many well have been perpetrated by past greenkeepers, who have bequeathed unhappy legacies by past over-feeding and over-watering. Even so, disasters do have a habit of occurring at the most inconvenient times and sympathy must be extended to the sufferers, the chief among whom is the man on the spot. Nevertheless parallel disasters in the past have been diagnosed accurately, but whether we can learn and prevent their repetition is another matter!

We must also hope that Pythium blight never reaches these shores because although there are effective fungicides in the States, if applied in anticipation, they certainly could not be used here because they have no approval for use on turf.

Jim Arthur and George Sheils Golf Course Agronomists

Pythium facts

Infection begins at about 18°C and foliar blighting develops most rapidly when air temperatures are in the 29-35°C range.

Things to watch out for: Daytime air temperatures of 30° or more, nighttime temperatures of 20° or above, combined with a relative humidity of 90% or higher. The susceptibility of bentgrass to Pythium aphanidermatum increases significantly when grass is being grown at high salinity, outbreaks of Pythium can occur at temperatures and humidities much lower than those thought to be favourable for disease development (Rasmussen and Stanghellini, 1988)

Pythium Zoospores are very small, and move rapidly in free water, and may spread the fungus through a drainage pattern. The pathogen spreads from leaf to leaf by rapid growth of mycelium. Mycelium infected plant tissues move into surrounding healthy tissue. The disease may become more severe in alkaline soils than in acid soils.

Management practices to reduce the incidence of Pythium include the removal of dew and guttation water. Leaf wetness can also be reduced by two to four hours when the irrigation system is set to begin at least three hours after sunset and completed before sunrise.

Detection is paramount, therefore consider investing in a microscope so that a diagnosis can be made early. This is achieved by examination of grass leaves for Pythium hyphae.

Also if your irrigation has an on-site weather station this can aid in monitoring temperatures and humidity.

References: Diseases of Turfgrasses by Houston B. Couch. Compendium of Turfgrass Diseases (second edition). Disease Diagnosy by Patricia L. Sanders. Seve Schmitz, Course Manager Schloss Myllendonk, Germany

Montpellier or bust

The Scots Golf Symposium was acclaimed by all to be a great success on several counts. It was a fruitful opportunity to meet greenkeepers from so many different countries – France, UK, Ireland, Spain, Germany, Sweden, Italy, Slovinia, Israel and Denmark providing a very relaxed environment with a European feel to it for exchanging ideas and information and generally getting to know one another. The presence of Dr James Beare was an added bonus to many of us, having read his books it was a pleasure to meet the man in person. So to the golf tournament on the picturesque but tricky Fontcaude course. Due to time restraints we only played nine holes but everyone enjoyed themselves putting on fast greens which some of us had long forgotten since the summer. The back nine proved to be the French greenkeepers’ trumpo card, taking the top three places with over 20 points each. Those who took part in the golf clinic enjoyed practising on the driving range or perfecting their putting in short sleeves and 24°.

From the three days there still remain two unanswered questions. 1. Did the French players really play from the ladies’ tees? 2. Where is Sun City? See you next year!

Nic Davies Germany

Editor. Can’t help with the first question but Sun City is in Bophuthatswara, which I believe is an independent state within the borders of South Africa.

Thanks for a Miracle

I would just like to congratulate Mike Goodhind on his victory in the Miracle Professional Greenkeeper of the Year competition.

I would also like to convey my sincere thanks to all the people involved in the Awards as they made sure that all the contestants were treated well and made to feel very important. Can I also say a very big thank you to Miracle Professional for running such an award as I have had a great time participating in it. I think it’s a great opportunity to have a good time and to try and achieve a great award. I will certainly be encouraging people to have a go.

Don Wilson Course Manager, Dytham Park County Club