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BTME and the Educational Seminar Programme is organised by the British and International Golf Greenkeepers Association, Aldwark Manor, Aldwark, Alne, York YO6 2NE. For more details, or for a copy of "The Learning Experience", call Ken Richardson, BIGGA's education officer, on 01347 838581.



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Christmas to
all our readers
and advertisers*

GREENKEEPER

International

DECEMBER 1995

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Striving for perfection

Phil Chiverton, pictured, is Course Manager at The Buckinghamshire and masterminds a policy of ensuring his course is kept at its Sunday best every single day of the year. We report on his progress at this, one of the UK's best new clubs.. **Pages 12-14**



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Hailed as the biggest and best yet, the 1996 BTME is now just a few short weeks away. We preview the week in Harrogate, rightly known as the event of the year **Pages 19-35**

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GREENKEEPER

International

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The common bonds of greenkeeping

This has been a very busy autumn in terms of fact finding on the future international role of BIGGA and how best we can serve the interests of our growing numbers of international members. During the course of a week, visits were made first to the German Greenkeepers Conference in Cologne and then the exhibition in Dublin of the newly named 'Golf Course Superintendents Association of Ireland', where for the second year BIGGA had a stand. Both visits proved most informative as the respective Associations seek to meet the needs of greenkeepers and move forward on a professional basis.

The German Conference was held for the first time in conjunction with the Areal Exhibition which takes place every two years and featured over 400 turf industry suppliers from 15 countries. The Greenkeepers Association of Germany (GVD) was formed in 1993 and currently has some 480 mem-



BIGGA in focus

BY NEIL THOMAS

bers. It enjoys close links with the Swiss Greenkeepers Association (SGA) and the Austrian Greenkeepers Association (IGO) with meetings held under the auspices of the International Greenkeepers Association which is constituted from delegates of the three Associations. The 'Greenkeepers Journal' is the official publication of the four bodies and is

the only German language greenkeepers specialised journal. Through the kind invitation of Claus-Detlef Ratjen, President of the GVD, I was invited to present a paper to the Association's AGM. This paper was translated into German by our Memberships Services Officer, Janet Adamson, who then had the daunting task of reading it to some 150 German greenkeepers. This she did expertly and we were made very welcome by the Association members and their President.

We made the point that BIGGA is actively seeking to develop international activities for the benefit of greenkeepers and the profession and that in our view it is essential that there is a close European cooperation, highlighting as a strong example the need for cooperation on environmental matters. However it was important to point out that it is not the wish of BIGGA to interfere in any way in the running of national greenkeepers associations. Indeed it is important that in each and every country in Europe where the profession is growing, strong and independent greenkeeping associations are established and developed. Within this context, BIGGA can and will offer support where needed through its established organisation and administration, albeit only on request. A brief visit but one which established a number of contacts and a basis for on-going dialogue and cooperation. Our thanks are extended to Claus-Detlef Ratjen, his officers and members for their welcome and hospitality. Membership of BIGGA in Germany currently stands at 62 and we benefited from meeting some of our own members during the visit and hearing their viewpoints.

So to Ireland. The timing of our visit was auspicious in the sense that it coincided with the announcement in October that the 'Irish Golf Greenkeepers Association' was no more, having been reconstituted as the 'Golf Course Superintendents Association of Ireland'. The new Association will be run on a twin level of regional and national. Four regions have been formed covering the South West, South East, North East and North West within which will be incorporated the 26 counties - two regions of seven and two of six. At present there are 255 registered Golfing

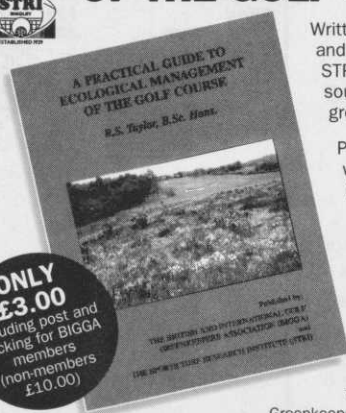
Union of Ireland clubs in the Republic of Ireland. The aim is for the regions to control the organising of events and recruitment of new members while encouraging their members to be active and support the Association at regional and national level. The Association will encompass all categories of greenkeeper. Education and training will be to the forefront as the Association's efforts are concentrated on developing one strong representative Association, better understood and recognised. A more professional approach to management is sort and closer links with the golfing media while working in conjunction with other relevant bodies for the general good of the industry.

We met with the officers of the new Association whom we feel we know from past meetings and friendships formed during Hayter Challenge Finals in recent years. One cannot fail to be impressed by their enthusiasm and determination to successfully establish the new Association. They recognise the task ahead and they are aware that they can call on the experience gained by BIGGA since 1987 whenever they feel in need of assistance. We wish them every success.

In updating readers on developments in Germany and Ireland one is moved to reflect on the common bonds of greenkeeping. Everywhere there is a thirst for education and training amongst those determined on a path of professional development. There is a recurring theme of concern on environmental matters as there is in terms of greenkeeper relationships with the Club and Green Committees. Rare within professions these days is the concern of man for his fellows but this is never more apparent than within the greenkeeping profession. It is something which knows no boundaries and is not hampered by differences of language and culture. Whatever the problem there is someone able and willing to give practical guidance and assistance. We can therefore find both strength and comfort in the international brotherhood of greenkeepers and move confidently forward to strengthen our relationships and secure an increasing recognition of the stature of the greenkeeping profession.



A PRACTICAL GUIDE TO ECOLOGICAL MANAGEMENT OF THE GOLF COURSE



Written by RS Taylor, STRI ecologist and published by BIGGA and the STRI, this new book is an invaluable source of reference for greenkeepers.

Presented in compact A5 format with 103 pages and full colour illustrations, this practical guide was put together after BIGGA identified the need to assist greenkeepers, golf club officials, especially chairmen of green and anyone interested in the ecology of golf courses.

BIGGA's contribution in co-publishing this vital guide, is thanks to members of BIGGA's

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Swedes discover delights of Scotland

A Study Trip taking in some of Scotland's finest golf courses was completed by 16 Swedish greenkeepers recently.

The group combined the educational element of the trip with the opportunity of playing some golf and visiting the Alfred Dunhill Cup in St Andrews.

Among the clubs they visited were Elie, where Head Greenkeeper Brian Lawrie gave them a tour of the course and led a discussion on all aspects of links maintenance; Gleneagles where the format was the same but the style of course completely different; Ladybank, where Head Greenkeeper Ian Menzies played host. They also visited Elmwood College to discuss greenkeeper education.

They were also welcomed by Scottish Regional Chairman Gordon Moir at St Andrews who gave them a tour of the Old Course and a look at the St Andrews sheds and Scottish Regional Administrator Elliott Small, who hosted the group at Tulliallan.

In addition to those courses they also squeezed in a game at Auchterarder, thanks to Head Greenkeeper Archie Dunn and the Jubilee Course at St Andrews.

German connections

BIGGA member Craig Smith has used his German golf club contacts to assist him with organising "Golf Tours to the Home of Golf".

In conjunction with a Scottish associate he has targeted Gleneagles, the St Andrews' courses, Turnberry, Royal Troon and Old Prestwick. "It could be a valuable and exciting experience for a group of greenkeepers and any interested parties can contact me in Germany (Tel/fax 06284 1799) or Doug Robertson in Scotland (Tel 01738 623668)," said Craig.

NEWS



Chairman Barry Heaney and Membership Services Officer Janet Adamson man the BIGGA stand at the GCSAI Turf Maintenance Exhibition at the RDS in Dublin.

Back on the mats again!

The artificial turf mats which were tried out for fairway play on the Old Course at St Andrews last winter have proved so successful their use is to be repeated.

This winter, however, the mats will only be in use for four months – December to March – compared with five months last year. The decision to re-introduce the mats which were originally brought in to protect the course for The Open Championship was taken by the Links Management Committee.

"For some time we have been evaluating the effects of the experiment of last winter," said Robert Burns, Chairman of the Links Management Committee. "The

impact of using the mats has been dramatic and the improvement in the course's condition has been apparent to all golfers."

It is estimated that the use of the artificial turf mats saved the Old Course from over 150,000 divots last year. The 10cm x 25cm mats are issued to golfers at the beginning of their round and handed in at the end for re-use. Their introduction last winter was as a result of seeing the effects of their use on other courses in Scotland.

As last year the green fee for a round on the Old Course while mats are in play will be discounted from the normal winter rate of £40 to £30.

FLYING DIVOTS

■ Tim Yardley, Hayter's Marketing Manager, tragically died on Snowdonia in October. He was 30 and single. "Although he had only been with us for eight months he had become an integral and indispensable member of our team," said Kim Macfie, Sales and Marketing Director. "Seldom have I known anyone to settle in so quickly and so well to a new job and his tragic death has shocked us all at Spellbrook."

■ Ocmis Irrigation (Scotland) Ltd have moved to new larger premises offering increased storage and service facilities. The office, at Broad Meadow, Harburn, West Calder, West Lothian, Scotland EH55 8RT will work in conjunction with other offices throughout the UK.



■ Following the launch of the new business operation Miracle Professional (formerly ICI Professional

Products) to the Sports Amenity and Landscape industry, management changes have been announced. Roger Mossop, previously Marketing Manager, has been promoted to Business Manager assuming responsibility for both marketing and sales. He will respond directly to Chief Executive John Wilson, a main board member of Miracle Garden Care Ltd.

■ For the fourth year, Atterton & Ellis Ltd, main agents for Toro grass machinery in Suffolk and parts of Cambridgeshire, Bedfordshire and Hertfordshire, has supported the West Suffolk Greenkeepers Challenge.

The Challenge is played at four venues throughout the summer with the team's Stableford scores for all matches added together.

The winners once again were Gog Magog GC comprising Lyndon Upham, Julian Hill and Peter Mallows with a score of 371 beating Haverhill GC into second place by just six points. Newmarket GC finished third with Bury St Edmunds GC fourth. Alan Carter of Haverhill had the highest individual total of 137.

HMC Pro-Sport launched for the sports market

Hepworth Minerals and Chemicals Ltd has launched HMC Pro-Sport onto the Sports market.

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Courses are well received



Education Update

BY KEN
RICHARDSON



Ken Richardson bids farewell to greenkeepers and course managers from Module 3 of the Management Course at Aldwark Manor.

November has been Supervisory Management month with three of the four Supervisory modules and the first of the level 4 management modules taking place.

The courses have been well received by all of the delegates with comments such as "Long may it continue" and "Very helpful, I have learned a lot" appearing in the course evaluation questionnaires. However, each course was, on average, only half full. Does this mean that all greenkeepers are fully trained in management skills or that the golf course do not want their greenkeepers to be trained or are there other reasons? I would be interested to hear from anyone who has an idea on how to attract more greenkeepers to future courses.

Local Management Courses

Following the reasonably successful Supervisory Management two day course at Elmwood College in October, nine similar courses will be held throughout England and one course will be held in Killarney, southern Ireland. Full details can be found in the leaflet inserted with this magazine but if anyone needs further information then please contact me at Aldwark Manor. Applications are flowing in at a steady rate so if you want to attend one of the courses then apply NOW.

Miracle Professional Premier Greenkeeper of the Year

The final of the Miracle Professional Greenkeeper of the Year was due to be held at Aldwark Manor on 4 December. Full

details of prizewinners will appear in next month's magazine.

Library

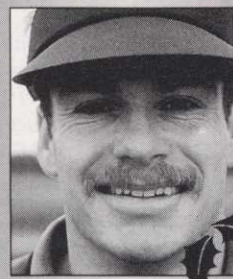
More books have been added to the list of BIGGA library books. Copies of the list are obtainable from BIGGA HQ or from Regional Administrators. Books can be borrowed by any BIGGA member for up to six weeks, at no cost to the borrower except return postage. Books can be requested by writing to me at Aldwark Manor.

The Learning Experience

The Learning Experience, in association with Ransomes, takes place in Harrogate from 22-26 January. Applications to attend the National Education Conference, Workshops and Seminars are arriving at Aldwark Manor in increasing numbers.

Make sure that you can attend the session of your choice by booking NOW.

WHAT I'D LIKE FOR CHRISTMAS



Owen Browne, Duke's Course St Andrews:

"A sign which reads: 'Every third rep will be shot. The last two just left!'"





FLYING DIVOTS

■ A Stihl Chainsaw mounted on a portable sawmill has set a world record by producing the longest plank of wood ever to be cut from a log. The plank measured 109 feet long (33.02 metres) and was cut from a five ton log.

The record sawing operation was achieved at the Jonkoping Fair for Forestry Products in Sweden by Bengt-Olov Brystrom, pictured below, who designed the 'Logosol' portable sawmill which, for the mammoth cut, was fitted with an 85cc Stihl 064 chainsaw.

Bengt-Olov said "It wouldn't surprise me if someone in a country with taller trees than Sweden tries to beat our record." In the meantime the next edition of The Guinness Book of Records will feature the Stihl cut 109 foot plank.



■ Preparations are well under way for the 1996 Grounds & Greens seminars organised by Sisis Equipment (Macclesfield) Ltd. Following two very successful events at Newmarket Race Course and Lancashire Country Cricket Club, Old Trafford, next year's event will take place on June 11 and 12 at Murrayfield Stadium in Edinburgh. Speakers will include Eddie Adams, Head Greenkeeper of the Old Course at St Andrews, Steve Isaac, STRI, Duncan McGilvray, Letchworth GC, David Lucas, Golf Course Consultant, Jay Dobson and David Rhodes, Myerscough College and Terry Robinson Haydock Park Race Course.

■ Fine Agrochemicals Ltd has appointed Steven Wilson as Technical Manager. Steven, who was formerly Technical Service Manager of Herbicides with Zeneca Crop Protection, will take responsibility for product development, technical service and quality management of Fine Agrochemicals' range of products.

Pebble Beach signs up with Ransomes

The Pebble Beach Company has selected Ransomes as its exclusive supplier of turf maintenance equipment.

The three-year rolling agreement with the world famous Pebble Beach resorts states that all new equipment for their golf courses and grounds maintenance will come from Ransomes/Cush-

man/Ryan product lines.

"The exclusive agreement to supply Pebble Beach is significant because it emphasises our company's leadership role in the turf maintenance industry," said Peter Wilson, Group Chief Executive of Ransomes plc.

Pebble Beach is recognised not only as one of the leading golf

courses in the world, but also one of the most beautiful. This agreement links two companies which have leading brand recognition and share a concern for, and give an industry lead in, environmental, safety and quality issues.

Pebble Beach considered all the leading turf machinery companies before reaching its decision.

Monty wins our vote to scoop top golfing title

The Johnnie Walker Golfer of the Month for October was chosen by a panel of five golf writers including your Editor Scott MacCallum.

Scott joined John Hopkins, golf correspondent of The Times; Colin Callander, Editor of Golf Monthly; broadcaster, John Fenton, and Chairman Renton Laidlaw, golf correspondent of the London Evening Standard at the Halcyon Hotel in London to select the player most deserving of the award.

There were several candidates in contention. Colin Montgomerie who helped Scotland to their first Alfred Dunhill Cup victory and finished runner-up in the Volvo Masters at Valderrama, playing the tough back nine in one under par to snatch the Volvo Order of Merit title from Sam Torrance by one shot.

Alexander Cejka, the young German, who birdie five of the final eight holes at the Volvo Masters to win his third tournament

of the year.

Scotland's Alfred Dunhill Cup team which in addition to Montgomerie included Sam Torrance, whose heroic final round in the Volvo Masters, two better than anyone else in the field, took him to within one shot of a first Volvo Order of Merit title in 24 years on Tour and Andrew Coltart, who became the first player to make a hole-in-one in the Alfred Dunhill Cup at the Old Course's 8th in the final. He now boasts an Alfred Dunhill Cup record of played eight won seven.

After each of the panel had outlined his thoughts to the others and the representatives of Johnnie Walker and the PGA European Tour who were also present a vote was held and Colin Montgomerie, carrying Scott's vote, emerged the winner.

He wins a trophy while the Golf Foundation and the PGA European Tour Benevolent Fund each receive £1000.



■ East Midlands section is the first in the country to make a contribution to the BIGGA Building Fund, set up to facilitate a move of Headquarters to a larger building.

Tim Allard, the newly elected Chairman of the section, is pictured presenting a cheque for £300 to Barry Heaney which, added to the association's initial transfer of £5000 out of the general fund, is an excellent boast on the way to the target figure of £250,000.

The section also made a donation to the Matthew Fell Appeal, which was highlighted in November's magazine.

NITROGEN facts

Arne van Amerongen sheds some light on nitrogen and the release characteristics of its various sources.

Nitrogen is a vital constituent of the chlorophyll molecule, amino acids, proteins, nucleic acids, enzymes and vitamins. Nitrogen has been shown to affect turfgrasses in several ways including colour, density, shoot growth, root growth, susceptibility to diseases and environmental stress, composition of the turfgrass swards, and recuperative ability.

Many different sources of nitrogen are used currently in the turfgrass industry. The nitrogen sources vary considerably in their release characteristics, and these factors should be considered when fertiliser programmes are developed. The following survey describing each form of nitrogen-source will be a benefit to all turfgrass managers dealing with fertiliser programmes.

There are several ways in which nitrogen sources may be classified; however, the most widely accepted means is to classify nitrogen-sources as quickly available or slowly available fertilisers.

1. Quickly available nitrogen-sources

Quickly available nitrogen sources are often called quick release, water soluble, or farm grade fertilisers, and contain nitrogen in the NO_3 or NH_4 form. Nitrate-nitrogen is immediately available for plant uptake, but is also easily leached from the soil. Ammonium nitrogen is less prone to leaching but more prone to volatilisation. Nitrification of NH_4 to NO_3 is fairly rapid in most soil conditions, therefore the nitrogen from NH_4 fertilisers is also quickly used by turfgrass plants.

1a. Inorganic Salts

Inorganic salts commonly used for turfgrass fertilisation include $(\text{NH}_4)_2\text{SO}_4$, NH_4NO_3 , and several ammonium phosphates. These sources are water soluble and may be applied in dry form or liquid delivery systems. They are commonly used in turfgrass fertiliser formulations rather than alone. Application of inorganic salts to turfgrasses produced a rapid initial flush of growth of short duration. Inorganic salts have relatively high salt indexes, therefore the protection for foliar burning exists with these sources.

1b. Urea

Urea is produced by combining atmospheric nitrogen with methane to produce ammonia gas and CO_2 . The ammonia is then reacted with the CO_2 under high temperature and pressure to form urea, which contains 45-46% nitrogen. Urea has been evaluated on both warm and cool season turfgrasses. Characteristics of urea include a quick initial release rate of short duration. Urea nitrogen is prone to leaching and volatilisation losses. A urea based fertiliser programme must be based on several light applications through the growing season.

1c. Urea formaldehyde products

Urea formaldehyde (urea form, UF) is a generic name for several methylene urea polymers that are the condensation product of urea with formaldehyde. The initial reaction product of urea and formaldehyde is methyloleurea. Methyloleurea is a water-soluble form of chemically combined formaldehyde which in many respects is similar to formaldehyde; that is, it is a strong bactericide. Methyloleureas have been commercially available for turfgrass fertilisation as products containing about 50% of the nitrogen from methyloleurea and the rest from urea. Methyloleureas have produced turfgrass responses similar to other water-soluble sources; that is a rapid initial response of short duration.

2. Slowly available nitrogen-sources

Slowly available nitrogen-sources can also be called slow release, controlled release, or water insoluble fertilisers. Slowly available n sources include those that contain nitrogen either in an insoluble form or as a water-soluble source encapsulated in an impermeable coating. Release of nitrogen from slowly available sources may involve biological or physical processes. General characteristics of slowly available nitrogen sources include low water solubility, lower salt index, and slow initial turfgrass response of longer duration than quick release sources.

Slowly available nitrogen sources can be classified further as natural organics, synthetic organics, and coated materials.

2a. Natural organics

Prior to 1950 natural organics were the only slow release nitrogen sources available to turfgrass managers. Examples of natural organic nitrogen-sources include bone meal, dried blood and other waste products

of the food industries, activated sewage sludge, soy bean meal, and sottom seed meal. The n in natural organics is tied up in complex organic compounds that must be broken down by soil organisms before the nitrogen can become available to the turfgrass plants. Therefore environmental factors that influence microorganism activity such as soil pH, temperature, and moisture will govern nitrogen release from these materials.

2b. Synthetic organics

The synthetic organic class of slowly available n sources includes urea formaldehyde reaction products and IBDU. IBDU isobutylidene diurea is a synthetic organic slow release fertiliser, introduced in the mid 1960s from Japan. Isobutylidene diurea is the condensation product of the reaction of urea with isobutyraldehyde.

It is a white crystalline material that is marketed in two particle sizes: coarse, (0.7 -2.5mm) and fine (0.5-1.0mm). IBDU contains 31% n, of which 90% of the total n is water insoluble in the coarse material and 85% of the total nitrogen is water-insoluble in the fine material.

Nitrogen release from IBDU is influenced by temperature, moisture, particle size and soil pH.

2c. Oxamide

Oxamide is a synthetic organic nitrogen source still in the experimental stage of development. High production costs have hindered its commercial production, but a review of research results indicated that it has potential for use as an nitrogen source for turfgrass. A diamide of oxalic acid oxamide is white, non hygroscopic powder with a nitrogen content of 31.8% and very low water solubility. The release of nitrogen is the result of hydrolysis of oxamide in the presence of the enzyme amidase.

2d. Coated materials

Coated nitrogen sources are made by coating urea or soluble semi permeable coating. The coatings prevent the wetting of the soluble nitrogen sources so that the release of the nitrogen from the final product is delayed. The release of nitrogen may depend on the degradation of the coating, or controlled by the physical make up of the coating. The two most common forms of coated fertilisers include SCU and Resin coated urea (RCU). Sulphur coated urea is made by spraying atomised molten sulphur

on preheated urea granules or prills. The sulphur coating provides an insoluble barrier that prevents the immediate dissolution of urea. As the sulphur solidifies on the urea, however, pinholes, cracks and other defects occur in the coating. Usually the sulphur coating is then sealed with a thin coating of wax of a combination of polyethylene and heavy weight oil. A conditioner (diatomaceous earth) is added to the decrease stickiness and to make the product hydrophilic. The final product contains 32-38% n, 13-22% S, 2-3% sealant, and about 2% conditioner. The sealant and conditioner are absent from SCU. The slow release of nitrogen from SCU results from differences in the time periods required for individual granules to begin releasing urea through their pores.

2e. Resin-coated ureas (RCU)

Resin-coated ureas (RCU) are a class of nitrogen sources that include two product: Agriform and Escote. Agriform fertilisers are resin-coated fertiliser manufactured by Osmocote primarily for the nursery and greenhouse industries. Agriform fertilisers available for the turfgrass market have been evaluated for fertilisation of creeping bent grass turf.

2f. Escote RCU

Escote RCUs are made by spraying a thin plastic coating onto a urea prill. Talcum is added to the process to alter the physical characteristics of the coating. More specifically, the amount of talc added during production will influence the pore size and number on the coating. Therefore, RCUs of well defined and reproducible release rates may be made. The final product contains 41% nitrogen. The exact mechanism of release is not documented, but it has been suggested that the release of nitrogen is the result of a "controlled" osmosis of water into the pellet. The fertiliser pellet will swell until the internal pressure either causes the pellet to crack open, release the urea, or forces the urea solution back out through the pores.

References: Allen, S.E., and D.A. Mayas. 1971. *Sulphur-coated fertilisers for controlled release: Agronomic evaluation.* J. Agric. Food. Chem. 19:809-812.
Hummel, n.W., Jr., and D.V. Waddington. 1981. *Evaluation of slow-release nitrogen sources.* Soil Sci. Soc. Am. J. 45:966-970.

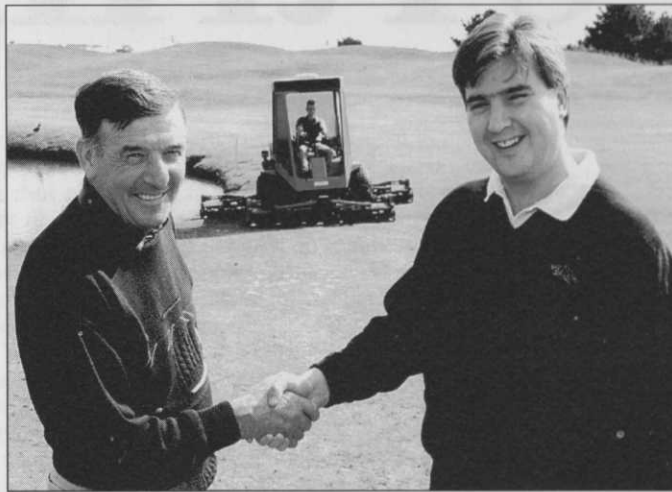
Robert takes top job at St Mellion

Roy Battishill, Head Greenkeeper at St Mellion for the last 18 years, has retired and handed over the reins to Robert Brewer, the former Assistant Course Manager of Sunningdale's Old Course.

Roy, a former agricultural contractor in the Tamar Valley area of Cornwall was offered a green-keeping job by St Mellion's owners, Hermon and Martin Bond, prior to the opening of the Old Course at St Mellion.

"It has been tremendous being part of the Bond brothers' dream to make St Mellion International one of the world's top golf complexes and I feel very proud of their achievements," said Roy.

Roy began his association with the course by landscaping bunkers, greens and tees and took over as Head Greenkeeper when Jim Rowland retired.



Roy Battishill, left, welcomes Robert Brewer to St Mellion

He went on to look after the Nicklaus Course which hosted the Benson and Hedges International Open until earlier this year. As part of his training he

spent a year in the United States with the Nicklaus Organisation.

Robert also has extensive tournament experience having prepared Sunningdale for two European Opens and two PGA European Tour Seniors Championships.

He is a keen golfer playing off a 12 handicap and holds a private pilot's licence.

General Manager Ken Hunt said, "Robert is one of the country's top course managers with a wealth of experience and we're delighted he has agreed to come to St Mellion International."

Austin Davies has been appointed to the post of Rhône-Poulenc Environmental Products Business Manager. Austin moves to the position from Product Stewardship, he previously had worked in Environmental Products as Account Manager and as a Product Manager.

Jonathan Hill has taken up the

newly created post of Market Development Manager for Environmental Products within the Rhône-Poulenc Agriculture Ltd organisation.

The network of Regional Managers and office staff remain unchanged and continue Rhône-Poulenc's commitment to high standards of customer service.

FLYING DIVOTS

Service helps take it easy

As of January 1 BIGGA will be providing members with a stress counselling helpline which will provide a range of practical help and advice for relieving stress related symptoms, as well as offering a friendly ear.

There is no such thing as a "pressure free job", every job has its demands and some pressures can be beneficial – the challenges which keep us motivated – but when demands become excessive this can have a potential for causing stress related problems. These may take the form of physical and emotional symptoms affecting work and home life, for example, an increase in alcohol consumption and smoking or feeling more irritable or tense.

The stress counselling helpline will help clarify and define areas of stress and advise on ways on ways of dealing with these problems. The service is available 24 hours a day, 365 days of the year and is staffed by qualified nurses offering a caring professional service.

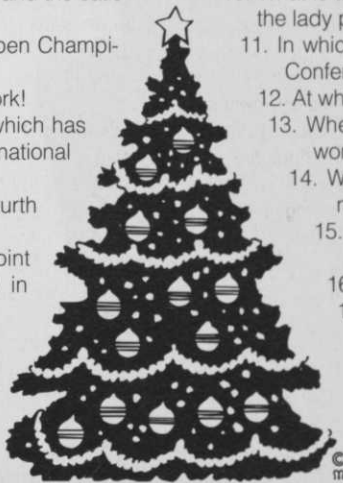
The number – which will be open from January 1 – is 01206 871614.

Greenkeepers' Christmas Quiz

Test your knowledge in our fun competition!

You all work on golf courses but how much do you know about the great game of golf? Like some of the greatest golf events in the world – the Ryder Cup, the Amateur Championship, the Walker and Curtis Cups – there is nothing to win but pride and the satisfaction of competing to the best of your ability!

- Who was the last man to win back to back Open Championships?
- MAD LANK ROAR – A famous building near York!
- Who designed the famous St Mellion course which has played host to the Benson and Hedges International Open for several years?
- Name the greenkeeper who produced his fourth Open Championship course this year.
- Who was the Irishman whose winning point sealed Europe's famous Ryder Cup victory in September?
- Name the two players who had holes-in-one in the Ryder Cup this year.
- How many bunkers did the BIGGA Green-keeping Support Team rake at St Andrews this year? To the nearest 50.
- Who was the first British player to win the US



Masters?

- Colin Montgomerie's father is the secretary of which Open Championship course?
- What is the name of the cup played for every other year by the lady professionals of Europe and the United States?
- In which US city is next year's GCSAA Trade Show and Conference being held?
- At which course will the 1997 Ryder Cup be held?
- Where was this year's Walker Cup played and who won.
- Who will become the new Chairman of BIGGA at next year's AGM?
- Who did Ernie Els defeat in a play-off to win the 1994 US Open?
- Over which course was it played?
- Which golf course was the most recent to be added to the Open Championship rota?
- Who is Course Manager at that course?
- From which county does BIGGA Chairman Barry Heaney come?
- Where is next year's Open Championship to be played? *Answers on Page 50*

WORKING

The interaction of maintenance operations, by Steve Isaac, Regional Turfgrass Agronomist (Scotland), STRI

Every action has a reaction

The well trained greenkeeper knows all about golf course maintenance operations. He has a sound understanding of the need for mowing, scarification, aeration, feeding, watering and top dressing. This is very important, but how much thought is given to the way in which each of these individual operations affect any of the others? Every action has a reaction and the way in which works are carried out and, just as important, the timing of treatments will have implications for the rest of the management programme.

The golf course is ever evolving. Seasonal change is fairly obvious but there is also variation imposed by maintenance. Let us consider a few management scenarios and how individual operations affect the rest of the package of treatments.

Irrigation is not just watering

Irrigation is a good place to start, particularly after such a dry summer. Watering has many benefits and pitfalls. Sensible irrigation can sustain growth and quality surfaces enabling other treatments to perfect the green, eg. routine mowing and verticutting. As water encourages growth at a time when without it there would be none there is a fertiliser implication. If the irrigation is to be truly effective in retaining root development through dry summers when the natural growth pattern is

for a return of roots towards the surface then complementary aeration and wetting agent applications are called for. If there is irrigation to teeing grounds; and tees possibly have a greater need for automatic watering than do greens, it allows for enhanced recovery from play and makes divoting with seed a sensible practice. Watering and seeding can only do so much, however, and to get the best result from repairs a package of measures has to be undertaken to relieve compaction and to get the seed into the soil.

The damage done to putting greens from over-watering has been well publicised – to such a degree that there are a few greenkeepers so afraid of the consequences that they deliberately under water to the detriment of summer surfaces. The action: Reaction principle is never more clear than with over-watering. Stimulating lush growth and thatch will demand an increase in mechanical operations, i.e. scarification and aeration, and a larger amount set aside in the budget for fungicide.

Building up headaches with top dressing?

One maintenance procedure where the long term evolution of greens and its effect on other practices is often overlooked is top dressing. Firm, dry surfaces are vitally important to the possibility of year round golf in this country. For years clubs have been using high sand content top dressings to produce such greens. Many have not anticipated the need to adjust other practices to cope with improved drainage and firmness. Subtle changes to irrigation and fertiliser may well be necessary in relation to timing rather than quantity.

Indeed, with a deeper rooted turf there may be a requirement for less water and feed but in such a situation greens may warm up earlier in the year giving an opportunity to promote faster growing bent with judicious spring feeding.

We are seeing more variety in fungal activity to golf greens these days. The demise of mercury fungicides has been suggested as a cause but the accumulation of sandy dressing to former soil-based surfaces could well be a contributing factor. Fairy rings are far more common on sandy greens. Anthracnose is always reported as a pathogen favoured by compaction yet we see it frequently on compaction-free greens. Anthracnose is a disease that attacks weak annual meadow-grass and is becoming more prevalent on sandy greens where moisture and nitrogen availability are greater influences in susceptibility to this disease than is compaction.

The build up of a few inches of sand will also have an effect on pH and all that entails with regard nutrient availability. The incoming sand may have a different pH to the native soil and the lack of buffering capacity within the accumulated depth of sandy dressing can mean less stability of pH than was previously the case. Sand profiles growing turf fed with sulphate of ammonia tend to become increasingly acidic. It is often said that the pH you have is the best with which to work. This may be true provided that pH is stable but it is feasible that heavy programmes of top dressing, say combined with coring to get on top of thatch, may create unstable chemical conditions.

Punching holes in the maintenance programme

Aeration is generally regarded as an essential element of any maintenance package but what of the consequences of aeration? The simple solution to thatchy greens is to core them, slit them, Verti-Drain them and so on. Is any consideration given to the turf that has grown quite happily on the thatchy ground, albeit most likely dominated by annual meadow-grass? It must be like being thrown out of a home full of luxurious comfort, the grass pampered by the retention of water and nutrients within the thatch hardly having to exert itself to enjoy an easy living. All of a sudden you are out on the streets and it is a battle to obtain enough to keep you going. Stressed turf is prone to disease and lacks durability under wear. The consequences can well be imagined but may have to be suffered, within reason, if the maintenance regime is to tip the balance away from annual meadow-grass in favour of bent and fescue.

On a grander scale, well aerated greens tend to be the driest, firmest place on the golf

