

new system for paths on sportsgrounds and golf courses, will be launched.

Johnsons Seeds colourful stand (PCS 2/4-6) gives prominence to the wide selection of mixtures available in the 'J' range, the specialist Wembley mixtures and the turf perennial ryegrass Cartel. Johnsons 'J' range has six classifications: JL for landscaping, JT for turf growers, JF for flowery landscapes, JR for reclamation, JG for golf courses and the individual J range for overall sports and amenity applications.

The Wembley mixtures – Wembley Way, Twin Towers and Wembley International – are highlighted in a special display featuring a giant enlargement of Wembley Stadium and a simulated pitch, with turf of one of the mixtures. Cartel, now incorporated into several mixtures for hard wearing turf, is featured in another live display. All visitors are welcome to discuss individual requirements with the J team and Johnsons technical specialists.

New for IoG 1993 is **Vitax** Wulch, a 100% wool non-woven matting. Wulch is a totally new concept for landscape weed control using one of nature's oldest resources. Vitax Wulch biodegrades down over a one to two year period releasing nitrogen, sulphur, potassium



Vitax Wulch at a site in Sheffield prior to planting

and other trace elements into the soil. Wulch, being naturally hygroscopic, absorbs 40% of its own weight of water.

Easy to cut and install, Wulch provides the natural answer to everyone involved in landscape weed control and will be featured alongside the full Vitax Sport Amenity and Key Range products on stand number C78.

Lindum Turf (stand D88/91) are still to the forefront as suppliers of turf to major golf course projects and will be displaying their range of turf for greens, tees and surrounds. The recently opened Monarch's course at Gleanagles, the Much Hadham golf course near Bishops Stortford and the Hallgarth Country Hotel golf course near Darlington are all examples of large quantities of Lindum Turf being laid with confidence.

In many projects now the laying is being done by one of Lindum's team of expert turf layers, utilising both large and small rolls. A

visit to the Lindum stand will give greenkeepers and golf club secretaries the chance to discuss any turfing or seeding projects, large or small, with Stephen Fell or David Snowden.

Multi-Core Aerators Ltd (stand G39) are the importers of the Multi-Core range of equipment for the UK and Europe. There are four machines, two tractor-mounted aerators and two pedestrian machines. The versatile TM1500 1.5m wide tractor-mounted aerator is robust enough to handle greens and fairways alike and being fully sealed throughout it is almost maintenance free. Productivity up to 67000 sq. feet per hour makes it one of the fastest and most reliable in its class.

The TM100 is ideal on a compact tractor or for those with less horsepower, whilst for the best job on a golf course the steering Greenkeeper model with riding platform is ideal. A variety of different heads and tines will also be on display, so if you are considering purchasing an aerator, why not come and meet Ian Waddington.

Inturf Limited (Stand no K17/18) are growers and suppliers of purpose-grown, cultivated turf providing high quality natural surfaces for all applications. The total range is available harvested in conventional squares and the

RED VALIANT

This machine can apply up to 500 tonnes per day of sand and top dressing material from 5mm to 100mm in depth.



SPECIFICATIONS

Capacity 6 tonnes	Unladen weight 1300kg
Spreading width 2m 30cm	Max. gross weight 7500kg
Transport width 2m 50cm	P.T.O. 15 h.p.
Height 1m 70cm	Tyres 12.5/80 x 15.3 14 ply
Length 3m	Minimum tractor requirement 45 h.p.

4 tonne and 2 tonne versions are also available for use with the smaller compact tractors.

See us at the IoG Show

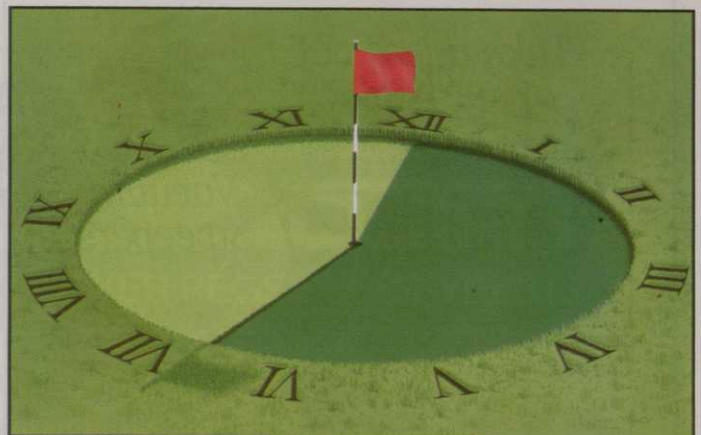
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AD REF 248

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GREENS TURF, GLENEAGLES MONARCH'S GOLF COURSE. "THE FINEST TURF IN SCOTLAND." (Pic. courtesy Gleneagles Golf Developments)



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AD REF 38

SEE LINDUM TURF ON STAND D88, 89, 90 AND 91 AT THE IOG SHOW

Take a leaf out of our book...



See us on Stand M 27, 28, and 29 at loG

TRILO Vacuum Sweepers

The result of twenty years experience, the new Trilo SG 700 provides a combination of high power vacuum, brush, scarifier and wanderhose, giving the power and versatility to cope with leaves, thatch, cuttings, hollow cores and litter.



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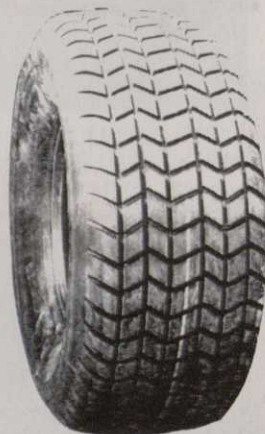
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more revolutionary big roll system. Appointed the official turf producers to Wembley Stadium and accredited with BS5750 total quality management, all turf supplies are backed up with full technical support as required.

The unique turf slabbing machine will also be on display, demonstrating the new Lay and Play turf tiles. Please visit our stand and meet our qualified personnel, who will be pleased to discuss our product range and services.

British Overhead Irrigation Ltd (BOIL) will be displaying a wide selection of equipment and system components used for the irrigation of all types of sports surfaces. Their exhibit is located at the open area near gate six.

New products for this year's show include – Hunter valve-in head, gear driven, pop-up sprinklers. BOIL 'Fairway' self travelling sprinkler, capable of watering an area 235m x 35m in one pass. – BOIL/Photron hand-held activator and 'smart' decoders for in-field remote operation of sections of sprinklers controlled by the popular CIC computerised irrigation programmer.

These items will be supported by BOIL's established product range, including Wizard 'Standard' and 'Junior' travelling sprinklers, Giant Water Square gear and impact-drive pop-up sprinklers, automatic control systems,

hand-move sprinklers, valves and fittings.

A selection of archive material from the 1950s will add interest to the display.

D&E Turf Maintenance Ltd (stand J54) are specialists in turf maintenance and have an extensive range of turf aeration equipment. They can offer greens and cricket pitch aeration using the Toro Hydroject and sports pitch and fairway hollow coring using the Toro Fairway aerator. Also available: Greens hollow coring using the Toro Greens aerator with plug pulverisation, Vertidrainage with either a 1.5m greens machine or 2.5m sportsfield/fairway machine, Trilo Parkland vacuum sweeper hire and Shelton supertrencher drainage installation and ash grooving.

You are invited to call for a competitive quotation or telephone 0388 608620 to discuss your turf maintenance problems with us – find the easy way to better playing surfaces. Working within BS5750 toward total quality.


Trilo Vacuum Sweepers (Stand M27-29). Drawing on more than 20 years experience, Trilo Manufacturing have produced the SG700 vacuum sweeper as the latest addition to the range. The combination of the powerful vacuum and 2m brush unit inside the floating head means that litter, leaves and grass cut-

tings can easily be collected. In addition the machine has two options: a 2m tripartite scarifier which enables greenkeepers to scarify and collect in one pass; and a 6m wander hose to enable those difficult to reach areas to be cleared.

Although multi-functional and with enormous 7m³ capacity, the SG700 weighs in at under 1300 kgs and if required can be supplied with extra wide 19x17 tyres. To see this and the rest of the range, visit our stand. A warm welcome awaits!

Tillers (stand D75-77) is the name behind Britain's top-rated turf. Our customers come back to us again and again for the following reasons: They know that only the highest rated cultivars on the STRI merit lists are used in the production of Tillers Turf; Because Tillers Turf is grown on sandy soil, they are sure of free drainage of rain and irrigation water into the rootzone below; They can rely on consistently high quality turf, day in, day out, month after month; They know that the turf will be delivered on time, enabling them to plan their work efficiently; They know that they cannot get better value for money anywhere else; They know that they have the choice of a wide range of turf, supplied on big or small rolls.

Discover the full range of turf on display and



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NEW VITAX GRO-COVER PEGS PLUS EYELETS

Vitax Gro-Cover, the microperforated polythene germination sheet with its unique funnel shaped perforations, was launched at the BTME 1990.

Hundreds of satisfied users have told us that it provides the most cost effective means for better and faster grass seed establishment.

Their only request: could we improve the means of anchoring the product down on windy and exposed sites? We always listen to the trade and we have solved the problem with the new Vitax Gro-Cover pegs plus eyelets.

SEE US ON STAND C78 AT THE IOG SHOW

Worm casts can be a real handicap

See us on
Stand
B70/71 at
the IoG
Show

NEW



Twister Flow works fast to control worm problems in turf

Apart from being unsightly, worm casts spoil turf surfaces by causing mud deposits. These form ideal sites for weed establishment – and interfere with the true roll of balls on playing surfaces.

Twister Flow contains 24% of the carbamate insecticide Carbaryl and controls casting worms in turf grass. Available in a 5 litre pack, it is a flowable formulation giving fast, contact action on all turf surfaces, including fine or semi-fine turf, and remains active in the soil for up to two months.

Worm casts also encourage the spread of turf disease and the presence of high worm populations in fine turf is likely to attract moles – with even more devastating effect!

So if you have problems with worm casts in turf, choose Twister Flow. It could be a master stroke!

 **RHÔNE-POULENC**

For further information call our HELPLINE (0277) 301114.

Rhône-Poulenc Environmental Products, Fyfield Road, Ongar, Essex CM5 0HW. Tel: 0277 301301 Fax: 0277 301119

TWISTER FLOW CONTAINS CARBARYL
READ THE LABEL BEFORE YOU BUY : USE PESTICIDES SAFELY

MAFF No. 05712

talk to Tim Fell, who will be happy to guide you toward a better understanding of turf quality.

Watermation, the British irrigation company will be showing some exciting new developments, both in their sprinkler and controller ranges. These will include sprinklers with built in valves, which will provide greater programme flexibility with individual head control. Their new small controller is a completely new concept in programming and can be set conventionally or be detached from the wall and hand-held for remote programming. This feature is a 'first' in the industry, is expandable from 6-12 stations – and like all Watermation products it is 100% British in design and manufacture.

John Deere (stand C42-44/6 -63). A tournament-quality finish is provided by the new John Deere 3215 and 3235 lightweight fairway mowers. These 28 and 32hp machines feature twice as much power to the reels as competitive makes. With a maximum ground pressure of 10 psi, one touch lifting and lowering of the reversible 22in wide cutting units, a one-step mowing/transport lever, power steering and two-pedal ground speed foot control, these new mowers feature an unrivalled specification for fast, efficient mowing on fairways and approaches to greens. Height of cut can be adjusted from 3/8 upward, with hydraulically operated reels to follow ground contours. Both mowers are optionally available with four-wheel drive and fairway groomer and verticut attachments.

The "Greenkeeper Sprayer" is a new multi-purpose liquid applicator from **Bowman Products Ltd.** The machine is derived from the company's successful "Line Laser Electric" Line Marking Machine, used extensively by DSOs and contractors for sports surface markings.

It consists of a high pressure electric pump, driven from a 12v battery, which is capable of supplying a constant, even flow of material to up to six spray heads suspended from a boom arm at the front of the machine. Nozzle tips, positioning and spray pressure are all adjustable to suit the application rate. The machine utilises pneumatic tyres to avoid damage to soft surfaces, and after use handle bars can be folded to fit into the boots of a car. Uses include application of liquid feeds, green-ups, pesticides, wetting agents and soil conditioners. The Greenkeeper Sprayer will be on our stand at the IoG. Details: 0706 882291.

The market leading Professional "Express Dual" will be on show at the **Atterton & Ellis** stand. It offers state-of-the-art grinding for nearly every modern day motor triple and gang type unit in both in-situ and separate cylinder forms.

In the in-situ form, the grinding cycle takes place without the usual strip-down and when the mower requires a full service, the separate cylinder method provides the same efficient accurate grind of the cutting unit.

On show will also be the "Anglemaster", a bottom blade grinder suitable for blades up to 42in long, the FH1 "Fastcut" for blades up to 24in long and the "Pilot" plain cylinder grinding machine,

designed for the domestic market with cylinders up to 24in.

Details are available on stand 42/43 or from David Smith at Atterton & Ellis Ltd on 0440 702312.

Rhône-Poulenc Environmental Products will be exhibiting at the IoG Show and will be featuring their new 5L CDA Spasor, Freeway and Rovral Gren.

In addition for those looking for an accurate way of applying granular products, look no further. Come along to Stand B 70/71 and try the Rotaspin, an innovate new granule applicator which Rhône-Poulenc will be launching at the show. For all your questions on weeds, pests and diseases Rhône-Poulenc staff will be available to discuss your needs and help solve your difficulties in turf management.

On show for this first time this year at the **Rufford Top Dress Supplies** stand (Avenue PCS2, no. 7/8) is Fibermaster. It's a revolutionary way to greatly improve rootzone stability and is just launched after two years of highly successful trials by a turfgras scientist of international repute, Dr Bill Adams.

Fibermaster is a purpose made synthetic fibre which is mixed with Rufford Rootzone and is a proven alternative to standard rootzones. Suitable for the following applications: golf tees, winter sports pitches, racecourses, golf trolley walkways, embankments, building surrounds (emergency access), overspill car park areas and grass verges.

Also new for 1993 is Super 1742, a top-dressing with the majority of its particles falling within the medium sand band.

Simple design and sophisticated performance and build means you will notice the difference when you put other triple greensmowers alongside a Lesco, say **Lockwood Grass Machinery**. There is no fancy body panels to remove to carry out routine maintenance, so what you see is what you get – real value for money. There is a choice of diesel or petrol engines and a three wheel drive option is also available. See Lockwood Grass Machinery at the IoG Show or call them on 0473 289158.

Patissons have

examples of everything they can supply for golf course care and management on show, under cover in their new marquee. Latest equipment includes a new design of hole cup, the swivel flag pin and easy fit Velcro tie flag, attractive and colourful custom made tee signs and the very best of winter tee mats and mounting frames.

All Patissons laes staff will be on site – ask about the special show deals. See us on Stand E36/37 or call us on 0582 597262.

At last year's IoG Show, **BLEC** presented their award to their top UK dealer Powershift Ltd, Dundee. Who will win this year? See us at IoG to find out! Blec will be demonstrating a full range of landscaping and turfcare machinery, including Multiscrapers, Rotary Stonerakers, Stoneburiers, Seeding Machines, Pedestrian and Tractor Mounted and Overseeding machines, Fertiliser Spreaders, Turf Brush, Landscape/Beach Rakes plus a new range of landscaping equipment from Landpride. For more details call us on 0778 342829.

Modus T will be exhibiting their full range at the IoG Show. Of particular interest will be the 'Titan' range of deep aerators, including the new ballasted version. New for the '93/94 season and developed by Modus T's sister company FW Engineering (Developments) Ltd is the Cougar 3 out-front cylinder mower.

MULTI-CORE

The superb TM1500 Greens/Fairway Aerator



- 1.5 metre coring width
- Variable spacing with a choice of tine sizes. Hollow or solid tine.
- Productivity. 67,000 square feet per hour at 2.6MPH.
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See us on Stand G39 at the IoG Show

AD REF 347

Update



1994 show already 'BIGGA' than 1993

ALMOST 100 exhibitors have already confirmed their stand spaces at BTME '94. However, the really interesting statistic to note at present is that with six months still to go before the event, more space has already been sold for '94 than was sold in total for 1993.

Visitors to the 1994 show will be visiting parts of Halls B and C never utilised before, with the real possibility of these halls being completely filled by next January – and particularly as the “flood” of bookings from new exhibitors to the event, reported in July's Update, shows no signs of abating. The seed company Mommersteeg is one of the latest “new” exhibitors to secure a stand for themselves.

It's becoming increasingly obvious that more and more companies are recognising the importance of the BTME in the turf industry. Multicore Aerators Ltd have exhibited at BTME for the last two years as Ian Waddington, their managing director explains: “In 1994 we will be increasing the size of our stand due to the overwhelming response from all sectors of the industry. To Multicore Aerators Ltd this exhibition sets in motion the groundwork for future sales and ongoing growth for our company.”

We will be announcing the VIP who will be opening the 1994 event shortly – so watch this space!

Stand space is becoming more limited all the time so if your company may be interested in exhibiting please contact Louise Lunn on 0347 838581 for more details and a BTME information pack.

Prize Competition – worth £600!

You could WIN your way to BTME '94, the star-spanned Exhibition and Education Seminar programme that's Number One in the industry!

Just answer this Big Question and keep your answer safe. In next month's magazine there'll be a final question and a form to fill in your carefully collected answers.

There are THREE BIG PRIZES to be won!

First prize: Return rail travel, three night's accommodation at a top hotel and entry into all the education seminar sessions. Value: £300.

Second prize: Return rail travel, two night's accommodation and entry to all seminar sessions. Value: £200.

Third prize: A single night's accommodation and entry to all seminar sessions. Value: £100.

THIS MONTH'S BIG QUESTION

★ Who is the managing director of Multicore Aerators?

Keep your answer to this month's Big Question – and the ones from previous months – in a safe place. There'll be a final question next month, together with full details of where to send your entry.

Note: competition not open to BIGGA staff. No cash alternatives. Full entry details in September 1993 edition of Greenkeeper International.

RAINSUITS

The IDEAL outdoor garment – designed exclusively for greenkeepers and made for BIGGA by top manufacturers ProQuip. Available in smart silver and navy, limited stocks remain at this incredible price. You'd better hurry – only XL (size 46-48") are still available!

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In stock to clear: Jade – 1 small; Navy – 1 small, 1 medium; Yellow – 1 small; White – 1 small
ONLY £12.75 including Post and Packing

Other colours available to order, any size, at £14.95: Ferrari red, Light yellow, Cream, Peach, Salmon, Strawberry, White, Burgundy, Eggshell, Camel, Helio, Plum, Shamrock, Jade, Bahama, Ciel blue, Ascat blue, Navy, Peacock, Black.

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In stock to clear: Crimson – 2 x 38", 3 x 40", 2 x 42", 1 x 44", 1 x 46"; Navy – 1 x 36", 1 x 40", 1 x 42"; Black – 3 x 42", 2 x 46"
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Other colours available to order, sizes from 36-50", at £28.95: Charcoal, Navy, Incomparable, Usher, Oyster, Ming, Helio, Peacock, Strawberry, Sapphire, Carmine, Claret, Bottle, Crimson, Firtree, White, Black, Slate blue, Royal blue, Buttermilk, Pansy.

POLO NECK LONG SLEEVED SWEATERS

In cotton/jersey mix. In stock to clear: White – 2 extra large; Pale Blue – 1 small, 1 large, 1 extra large; Red – 1 small
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Please supply..... My cheque for £..... is enclosed.
NAME:
ADDRESS:

Note: your cheque will not be cashed until your order is despatched.



Accurate IRRIGATION

Turf scientist COLIN SAINSBURY advocates an irrigation system which will put the thorny issue of water use well and truly in its place

Irrigation is one of the more notorious subjects in greenkeeping literature, with the appearance every summer of a number of articles about irrigation equipment and maintenance, water quality and conservation and so on – all of which fail to

address the main concern of greenkeepers, namely how much water to apply and how often to apply it, otherwise called irrigation scheduling. Further, it seems to me that many commentators highlight overwatering as the source of numerous greenkeeping

problems, whilst failing to substantiate their views with provision of any concrete figures and/or water management programmes.

At the London Golf Club we have undertaken a programme of research that encompasses ➔ 38

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WHEN? NOW, of course.



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Accurate IRRIGATION



Taking readings, two or three times a week, with a meter, plus thermometer placed at 6" depth in the green

37 → sprinkler performance, water use and monitoring, storage and catchment management, all of which are designed to use the system as efficiently as possible whilst obtaining the best agronomic results.

Despite strong efforts at self regulation of standards through the BTLIA, it would appear to me that the irrigation industry still has problems in ensuring that system designs will translate into properly working systems in the field, by this I mean the evenness of coverage across the surface, regardless of the brand of product.

I think there are two reasons for this. The first is that far too much reliance is put on manufacturers' statements regarding sprinkler performance, tests which are conducted in enclosed rooms using single non-moving heads. In reality the application rates can be badly distorted, even on a night when the conditions approach dead calm (<3 MPH).

The second reason is that because of several underlying factors the cost of good irrigation systems are very expensive when compared with the USA and Australia. The result is that many clubs are forced to accept inferior systems which still require exten-

Irrigation precipitation rates for May, June and early July

	GREENS	TEES	FAIRWAY	APPROACH	NIGHTLY TOTAL
Original design estimate (mm)	4.0	3.0	2.5	3.0	1181m ³ (260,000 gallons)
Peak demand 23.06-08.07 (mm)	2.8	2.3	2.0	2.5	940m ³ (207,000 gallons)
Average May-June (mm)	1.7	1.2	1.0	1.2	479m ³ (106,000 gallons)

sive hand watering to make good the inadequacy of say a £50,000 green and tee system. As a clear case of this, on the installation at this course the club saved over £30,000 by purchasing the equivalent quantity of a higher class of pipe from the U.S., rather than using that which was available from suppliers in Britain.

At the London Golf Club we have established a programme that will determine the performance of the Rainbird heads presently installed, as well as testing other major brands under various windspeeds, pressures and

patterns of placement, this in order that we may be as well informed as possible about future purchases.

To monitor our water demand we use a simple weather station, the main elements of which are a home-made evaporation pan and soil thermometers. The use of the first is obvious, but the thermometer is also fairly useful because a moist soil will be roughly the same temperature as the air, whilst dry soils or excessively wet soils will be several degrees cooler.

To provide feedback on the

accuracy of our watering applications we have installed a gypsum resistance block (cost £8) into every green at a depth of 6"-7". Any resistance meter can then be used, with a little self calibration, to determine the range of readings, e.g. from dry to field capacity.

With this background work completed we have begun to use estimates of the percentage of evaporation from the pan to determine the sprinkler run times. After some initial over-watering, we had the best possible test of water demand during the hot, windy and dry period from 23 June-8 July, a period which was finally broken with 10mm of rain on 9 July.

To illustrate our water use, it is worth comparing the figures provided by the engineer (Rainbird Europe) in the design of our system, figures which I see as fairly typical of those provided by irrigation installers for use in southern and eastern England.

During the highest demand period we applied 44.8mm of water on the greens against a total measured evaporation of 106.3mm, a ratio of 0.42. We can confirm that this amount of water seemed sufficient because the greens continued to maintain

their colour and vigour, and the moisture cores gave consistent readings, showing that water was not accumulating. These particular greens are of a bent/fescue mix on a USGA rootzone mix. They have been established for nine months, with good root density observed at six to eight inches.

During the peak demand period mentioned the greens were cut three times per week at 6mm with the weight of cuttings averaging 22lbs/cut over 650m² of green surface.

Looking at the table again, two other important issues are thrown into the spotlight. The estimated run time for our irrigation system to apply the engineer's demand figures is ten hours and this is similar to many green/tee and approach system run times in Britain. However, our highest demand figures would shave several hours off the irrigation cycle, resulting in more time being available for surface water to percolate to depth and thus reduce the risk of compaction from machinery as well as lowering the effect on play.

The other issue is obviously the amount of water used. The aver-



Close up of an evaporation pan

age water use figures are less than half the estimated water use on which both our own and many other water storages are planned. This affects cost (and also the feasibility that projects can go ahead)

because of this perceived limitation of water supply.

By next summer our greens should occupy the full depth of rootzone, i.e. 0.3m, though it remains to be seen how the lower

demand of deep roots and lower cutting heights will be offset by the increase in water demand brought about by play.

Moreover we will see how well the turf stands up against a watering programme based on an application every third day, which is the practical compromise between the need to water long enough to re-charge the whole rootzone, whilst not leaving the surface too saturated.

The hot, dry periods of the past four years have confirmed my belief that no course is sustainable without an irrigation system, and it is timely then to suggest that the greenkeeping industry should really examine the issue of water use and finally put the sabre rattlers with their empty comments to rest.

I also believe that the skills requirement of greenkeepers should be further extended to include the installation, repair and operation of the sort of greens, tees and approach irrigation systems most common to British courses.

● The author, Australian turf scientist Colin Sainsbury, B.Sc., is responsible for the test laboratory facilities at the new Jack Nicklaus designed London Golf Club in Kent.



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GRASS

Last month we dealt with the triumvirate of those mainstays of good golf and good greenkeeping – bents, fescues and the meadow grasses. The latter, though less than ideal, is sadly the dominant grass on many of our older courses. Now we come to the rest – which it is helpful to identify if only to pin-point management or ecological problems.

Of course there are many more than three grass species found on golf greens, let alone fairways. There are also, however, some very undesirable species. Luckily, where they do occur, they are easy to identify, though less easy to eradicate. The first undesirable is perennial ryegrass (*Lolium perenne*). Its dark green leaves, with very shiny, polished, glossy, undersides and the red basal leaf sheaths, often (but confusingly not invariably) visible when the lower leaves are pulled back, makes identification easy. In passing, there are two other grasses with polished undersides to leaves and maroon basal leaf sheaths. These are the annual (biennial) Italian ryegrass and perennial meadow fescue (*Festuca pratensis*) – a tall 'arable' grass not the least bit like the small and wiry red fescues. Neither will bother you, since they are never found in close mown turf, though I did once find a practice ground growing a silage crop of meadow fescue, supplied by an agricultural seeds merchant as a bent/fescue mix!

Another grass, which can be confused with ryegrass, is crested dogstail (*Cynosurus cristatus*), again with stiff fibrous dark green



Agronomist JIM ARTHUR gets back to basics in part two of his report on the benefits of grass identification

leaves with very shiny undersides. The chief identification point is that the leaves come off at right angles to the stems and the leaf base is a deep golden yellow. Both these species, but especially dogstail, have such tough fibrous leaves that they are difficult to mow cleanly and often strip between blade and sole plate, leaving very characteristic skinned or shredded, discoloured, ragged-ended leaf blades. Dogstail and ryegrass incidentally are now less common 'contaminants' of golf greens, but on older courses, past overseeding or 'head' patching (even divotting) with ryegrass (because it was cheap) left a legacy of disaster. Walter Woods at St. Andrews has spent many years plugging and even turfing areas of the Old Course greens which were so contaminated in the 1920s and 30s, though such heinous practices have long since been stopped.

Crested dogstail was sometimes included in fairway seeds mixtures but the difficulty in mowing and the resultant crop of wiry stems (whinnel straws) soon discouraged that idea.

There is, in fact, no place for ryegrass or dogstail on any golf course, certainly not greens or fairways. Yet on one course built recently, the inexperienced architect, having ploughed in the ryegrass-dominant grassland of the old farm land, sowed the new fairways with a ryegrass mixture! Will some architects and seedsmen ever learn?

Claims made for the virtues of so called dwarf ryegrasses need to be treated with great caution. The problem in using ryegrass on tees is that one almost always ends up with tufty patches or individual plants of ryegrass contrasting with lower growing annual meadow grass growing between them.

Another grass which is often common and disfiguring but very easy to identify is Yorkshire fog (*Holcus lanatus*). This bleaches with frost, giving quite whitish patches in winter. The leaf sheaths are striped lengthways, mauve and pale green, and the leaves are very hairy and prostrate. It is this feature which makes it easy to control, as the plants picks up more than their fair share of selective weedkiller (or sulphate of iron) and so full strength herbicidal treatment will usually eliminate it – plus verticutting, which penalises the broad prostrate leaves more than it does bents and fescues. I have even found spot-treating patches

with an aerosol herbicide spray very effective.

There are many other grasses, some with agricultural value such as the pale flat stemmed cocksfoot and others native to less fertile areas and moorland, which can be found on golf course fairways, while the rough can be a veritable grass museum. It will only confuse the beginner to try to cover all these species, though I would recommend an excellent Pan book of photographs of all the grasses by Roger Philips on Grasses, Ferns, Mosses and Lichens, which will help identification through flowering heads.

There are a few 'golf course' species, however, which can cause confusion. The first is early hair grass (*Aira praecox*). This is a very short lived ephemeral, seeding and then dying – very early – even in March and surviving droughty summers as seed. It has fine needle leaves and many a greenkeeper has been misled into thinking that thin, droughted greens were filling in, in the autumn, with self-seeded fescues when the mass of fine leaved plantlets were in fact *Aira praecox*, doomed to set seed and die early the next year.

As a matter of interest, not all grasses survive summer stress or perpetuate themselves through seed. One of these is another short lived native of thin linksland in the south east, viz *Poa bulbosa*, which produces little bulbils at the base of the stems, and when the plant dies in drought the bulbils survive in dormancy until the autumn rains. Similarly, another grass,

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