Ronnie Bunting gets a leg up

Keeping in touch

Wednesday is always the busiest day of the three and this year was no exception. With four halls in operation rather than the five in the alternate years the visitors are more compacted and it certainly helps to generate a superb atmosphere.

The day started with a contract signing involving John Pemberton, on behalf of BIGGA and Jerry Kilby, Chief Executive Officer of the Club Managers Association of Europe. The CMAE has agreed to open its door to BIGGA members to enable them taking the internationally recognised Certified Club Manager (CCM) qualification.

The day continued with more press briefings including a renewed challenge to the press from New Holland at cricket. Last summer the press, in controversial circumstances it must be said, clinched a last ball victory over the men from New Holland and it looks very much as though they won't rest until the result is reversed!

Jon Albutt, Chairman of the Amenity Forum, and Bob Joice, Secretary, gave a very valuable update on the latest vote from the European Parliament on pesticide usage and announced that they were both to be retiring from their prospective positions. Professor John Moverley OBE, former Principal at Myerscough College, takes over as Chairman with BALI handling the secretariat.

Billy Mitchell, Head Greenkeeper at Perranporth GC, was this year's Unsung Hero

The press take time out in the Media Centre

The Park & Ride proved to be a huge success again this year

The annual Terrain Aeration Unsung Hero Awards are always a joy and no more so than this year with Billy Mitchell, Head Greenkeeper at Perranporth Golf Club, in Cornwall, and Adrian Kay, Head Groundsman at York Racecourse, being recognised.

Billy was nominated by BIGGA Past Chairman, Richard Whyman,. Billy has been in greenkeeping for over 45 years and led Perranporth to be recognised as a true links course and a benchmark for clubs in the area. Passionate about greenkeeper education, he was involved at the start, helping Dutchy College to assess trainees, giving his time and travelling expenses free of charge and often providing reference books paid for out of his own pocket.

Billy was supported at the presentatiaon by a huge contingent from Devon and Cornwall. The winners received holiday vouchers and framed certificates from Terrain Aeration and cheques for £200 each presented by sponsors Pitchcare and The English Golf Union. BIGGA supplied the champagne which help to make the occasion special.

BIGGA's AGM was held in the late afternoon and it was the occasion when Kenny MacKay handed over the Chairmanship of the Association to Peter Todd. The meeting ran smoothly with the constitutional amendments going through unanimously.

Past Chairman, Billy McMillan, stepped down and Paul Worster came onto the Board as Vice Chairman, while Gary Cunningham replaced Gavin Robson as Board of Management member for the Midland Region.

Following the AGM it was a quick turn around before the Past Chairman's Dinner, in the Majestic Hotel. It was great to see so many familiar faces from within the Association and many from the wider industry. I sat with Gordon McKillop, of the STRI, Simon Elsworth, of Syngenta, and John Richards and Dave Saltman, of Pitchcare, for the very convivial evening.

Harrogate Thursdays are really enjoyable days. Much more relaxed, it is generally my only opportunity to walk the Halls and catch up with some of the exhibitors I hadn't already seen during the course of the week. This year was no exception and after a BIGGA press briefing where John Pemberton, Kenny Mackay and Peter Todd offered an overview of the week and Peter gave a background of his live and hopes for his year as Chairman, I made it to Hall M for the first time.

At 4pm Melissa and I packed up the Media Centre, loaded up the car and headed home. The newspapers, television and radio stations were still filled with doom and gloom, but we could not have been more pleased with the way Harrogate Week 2009 had gone.

During Harrogate Week, BIGGA signed an agreement with The Club Managers Association of Europe that could enable course managers to develop their careers and become club managers.

"This is a significant new opportunity for management development and another building block for greenkeepers aspiring to senior management and club manager positions," said John

"In today's job market, just being a good course manager isn't enough. CCM is an opportunity for greenkeepers to demonstrate their skills and professionalism in management and we welcome the signing of this agreement with the CMAE."

CMAE Chief Executive Officer, Jerry Kilby, said: "This is good news for qualified greenkeepers and Master Greenkeepers who have reached a point in their careers where they say, 'What next?'

"The opportunity to take CCM, which is a globally recognised qualification, means that the step up to general manager level is now a realistic possibility and career ambition for greenkeepers and course managers."

A small number of senior greenkeepers have blazed a trail and risen to prominent club manager positions, including David Roy, at Crail Golfing Society in Scotland, while others have already expressed their desire to move into club management, viewing CCM as an opportunity to prove their professionalism and qualify for top jobs.

To sit the CCM exam, greenkeepers must first attain a minimum number of CCM credits, for which membership of BIGGA plus previous professional education courses automatically counts.

The Certified Club Manager qualification is open to suitably experienced managers and involves a two-day review and examination focusing on key club management disciplines. There are approximately 10,000 clubs with professional managers in Europe, half of which are golf clubs, the remainder being sports, leisure, health and fitness clubs, plus city and dining clubs.

For more information about CCM, entry requirements and to download the registration form, visit: http://www.cmaeurope.org

Safety Management System

RJ International Golf Course

The BIGGA/GCMA Safety Management System, sponsored by Ransomes Jacobsen, has been developed to:

- Make golf clubs safer
- Introduce best practice
- Standardise Health & Safety throughout golf
- Reduce costs for golf clubs

Why do you need a Safety Management System?

***Because*:**

- It incorporates all your legal requirements to comply with Health & Safety Legislation
- Clubs have responsibilities
- There are penalties for not complying – up to £20,000 fine and/or course closure
- Golf clubs are hazardous places to work

The Safety Management System contains help and guidance to enable golf clubs to:

- Set a Health & Safety Policy
- List hazards and assess risks
- Plan for the future
- Introduce audit and review procedures

The Safety Management System is accessed through the Members area of the BIGGA website (www.bigga.org.uk) and the GCMA website (www.gcma.org.uk)

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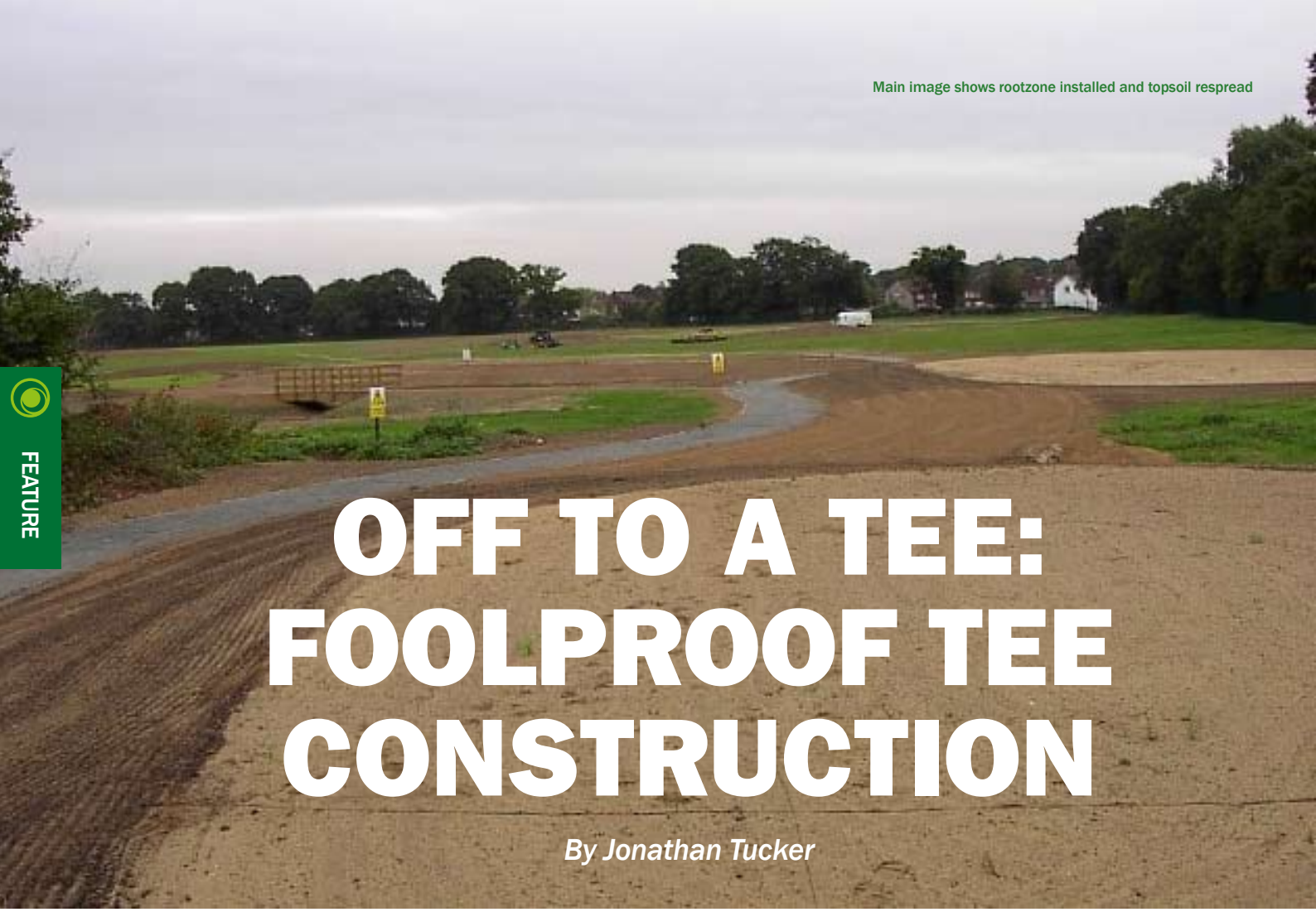


Main image shows rootzone installed and topsoil respread

FEATURE

OFF TO A TEE: FOOLPROOF TEE CONSTRUCTION

By Jonathan Tucker

Plenty has been written on green construction and the various methods commonly employed (most recently STRI Guidelines for Golf Green Construction in the United Kingdom), but for tee construction a standard method is more elusive. This is perhaps understandable given the tees' lesser status, and while high quality tees are a major asset on any golf course, the standard of the greens is, more often than not, the main focus of attention.

However, all would agree that nothing beats a firm, level, well grassed and maintained tee which provides a hard-wearing surface for year-round playability.

Size matters

Design of the teeing ground has a major influence on performance and a simple checklist would include the following requirements:

- Adequate size – around 400 m² for par 4 and 5 holes and 500-600 m² to cope with the ravages of play at par 3 holes. This will be partitioned between the various categories of tee depending on the weight of play expected. There is a trend towards a greater number of dedicated tees to cope with the broad spectrum of golfers and under these circumstances it would be sensible to increase the total tee surface area.
- Ease of access is very important and therefore surrounding banks need to be eased out to maximum 1:3 slope and preferably 1:4 to 1:6 where space and topography permit.

This may not always be possible but installation of steps should be avoided if at all practical as these focus wear and tear on localised sections of tee.

Importance of surface drainage

Tees should not be completely level but formed with a gradient to assist surface drainage. On reasonably level ground a front to back fall is preferred but the direction of slope should generally mirror the natural gradient of the land. Therefore, if tees are cut into a bank, the design slope will ensure that water is channelled away from the tee and not back into the toe of the bank!

The magnitude of the slope must be sufficient to get water moving across the surface but without being obvious to the golfer.

Generally, 1:70 to 1:80 provides a reasonable compromise with an absolute minimum of 1:100.

The need for good surface drainage can be partially linked to the permeability of the rootzone and construction method adopted; as with reduced permeability of the rootzone, the requirement for improved surface drainage and hence adequate slope increases.

Get the foundation right

The base of the tee must be adequately consolidated, shaped and trimmed to reflect the final surface slope. There are situations where tees need to be well elevated above surrounding ground, for example, where it is desirable to improve visibility of landing areas and in extreme terrain, greater fill may be needed to achieve a suitable tee platform. However, as a rule of thumb, high vertigo-inducing tees are more difficult to maintain and are literally a waste of space.

Where significant fill is required, imported subsoil material must be tracked and consolidated thoroughly in layers of no more than 225 mm. Do not incorporate organic materials such as old tree stumps which will rot and leave voids leading to settlement, and if there is significant large stone this must be covered by a minimum 300 mm depth of clean subsoil.

Choice of construction profile

While there are other derivatives, there are essentially three types of tee construction currently employed:

1. Topsoil over existing subsoil
2. Imported rootzone over a pipe drained base
3. Rootzone over a pipe drained base with gravel carpet

Option 1

This is the most economic but it is limited to sites where subsoil and topsoil drain naturally well (i.e. sandy loams), as well as there being sufficient reserves of topsoil to provide 200 mm firmed depth on completion. Links courses are obvious candidates for this approach, although even here natural topsoils are often augmented.

Option 2

The majority of golf courses unfortunately are not endowed with topsoil of sufficient quality or quantity to incorporate in tee construction. In these circumstances, rootzone is imported to ensure adequate drainage and provide a suitable foundation for cultivating a hard-wearing grass cover. It is rarely worthwhile making up a mix on site, obtaining a consistent product from a commercial supplier is invariably a wiser choice.

The formulation selected must provide a satisfactory balance between sufficient resistance to compaction and a reasonable degree of moisture retention. Where effective automatic irrigation is available a high sand rootzone can be employed. The physical characteristics of this material can be similar to a USGA green construction rootzone, but near to the lower end of the recommended limits. Therefore, a minimum of 60% particles would be expected in a medium to coarse sand fraction (0.25-1.00 mm) and maximum of 10% "fines" (very fine sand, silt and clay).

Where water is limited, it makes sense to increase the proportion of amendment (e.g. a stone-free sandy loam soil/fensoil or finely graded PAS100 compost) in relation to sand to make the rootzone more forgiving, but without compromising drainage or making it difficult to push a tee peg into the surface.

Regardless of material selected it still makes sense to test rootzones and implement quality control to ensure that the material selected conforms to the approved blend.

Install rootzone to sufficient depth to provide a layer of 200 mm following firming. For surrounds and banks, topsoil should be respread to 200 mm depth on completion of grading. On surround areas subject to intensive golf traffic, particularly on the main entry and exit points, there would be benefit from incorporating additional sandy loam or rootzone to enhance the durability of these vulnerable sections, particularly where existing topsoil is inadequate in quality and/or quantity.

If the base of the tee drains adequately and is not influenced by a fluctuating water table, pipe drainage may be surplus to requirements but usually internal pipe drainage is a pre-requisite.

A simple system can be installed at sub-formation stage, consisting of 80 mm diameter lateral perforated plastic pipe drains placed in trenches (minimum 350 mm depth) at 3.5-4.0 m centres with a gradient no less than 0.5% (1:200). Increase to 100 mm diameter for the main outfall drain along the low side of the tee.

Ensure that intercept drains are installed strategically to protect tees from run off from higher ground – bringing permeable backfill close to the surface to maximise effectiveness.

If it is difficult to achieve smooth, uniform drainage trenches, bed the pipes on a layer of gravel spread to 50 mm depth.

For simplicity, a 2-6 mm sized gravel provides a suitable material for backfilling of drainage trenches provided its physical characteristics are comparable to those outlined in Table 1 and is compatible, i.e. "bridges", with the rootzone to be used.

If it is impractical to secure a material at reasonable cost, the alternative is to backfill with a coarser gravel (5-10 mm gauge) blinded with 50 mm depth of a coarse sand or fine grit to formation surface level.

As with greens, surrounding environment has a major influence on tee performance. Narrow tees hemmed in by trees are unlikely to perform well regardless of construction method

In difficult terrain tee areas may need to be split up

Single Drainage Layer

When the intermediate blinding layer is not incorporated, the gravel must meet the following criteria:

Performance Factor		Recommendation
Bridging Factor	*	D15 (gravel) ≤ 8 x D85 (rootzone)
Permeability Factor	*	D15 (gravel) ≥ 5 x D15 (rootzone)
Uniformity Factors	*	D90 (gravel)/D15 (gravel) ≤ 3.0

Also:

* No particles greater than 12 mm
* Not more than 10% less than 2 mm
* Not more than 5% less than 1 mm

Rolls Royce versus Volvo
Option 3

This is similar in some respects to option 2 but drainage is effectively extended to encompass the entire base with introduction of an emptying drainage layer above the pipe drain network.

As a consequence, pipe distances can be relaxed to 5 m and depth of installation of the lateral drains reduced to 250 mm to invert (minimum).

This type of construction is most appropriate where a high quality surface is demanded for maximum year-round playability, or for dedicated winter tees where provision of a firm, dry, natural grass surface is a prerequisite.

While this method provides rapid removal of water through gravitational flow in "saturated" conditions it also serves to retain moisture ("capillary") in unsaturated conditions, i.e. a "perched" or "suspended" water table.

Therefore, depth of rootzone may have to be increased from 200 mm to 225-300 mm depending on the moisture release characteristics of the rootzone selected. This applies to high sand rootzones, but for topsoil-based mixes, which rely more on the structural properties of the topsoil for good drainage, allied to mechanical aeration to bypass the topsoil, this phenomenon is less pronounced.

A 2-6 mm stone carpet of 100 mm depth is again simpler to install and usually cheaper than a 2-layer system of coarser gravel with intermediate blinding layer. Compatibility with the rootzone above must, however, be proven.

Finishing it off

Appropriate establishment of the tee can make or break the finished product.

Seeding is the preferred method if time permits, but if this is not practical, turfing is the only option. Grass species composition is related to intensity of play and degree of damage expected, size of tee and management issues.

A blend of fescue and bent grasses provides a top-class playing surface but incorporation of fine-leaved, dense cultivars or perennial ryegrass and smooth-stalked meadow-grass confers greater wear tolerance.

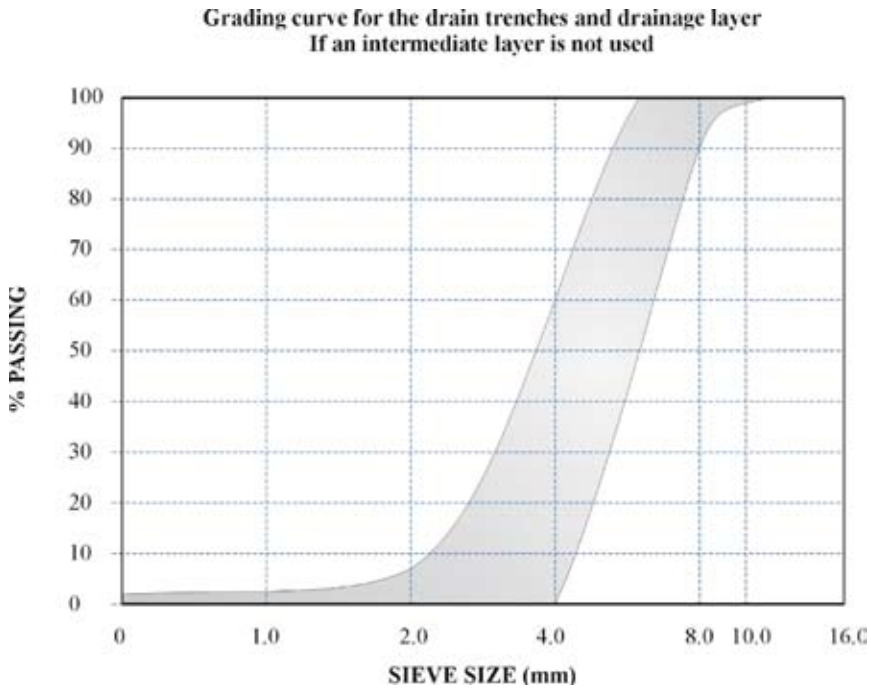
Apart from the obvious requirement for a clean vigorous and dense grass cover, the composition of the turf base, i.e. what it has been grown in, must also be checked.

Turf cultivated in exceedingly fine, silt/clay or organic rich soils should be rejected. The objective should be to try and match the rootzone under the tee with the turf foundation.

The ideal in this regard is a custom grown or "rootzone" turf which is grown on the same rootzone or rootzone sand to that used in the construction.

From a practical and financial viewpoint, a turf grown in a good sandy topsoil usually does the job with appropriate aftercare notably where less free draining rootzones are employed with higher fines content.

Turf grown on compatible rootzone eases future maintenance



The choice of roll size is less important than ensuring that the turf is cut uniformly and thatch depth does not exceed 6 mm. Raking and heeling still provides the best method of preparing a uniformly firm and level seed or turf bed. Finally, a pre-turfing fertiliser will provide an early kick-start to establishment.

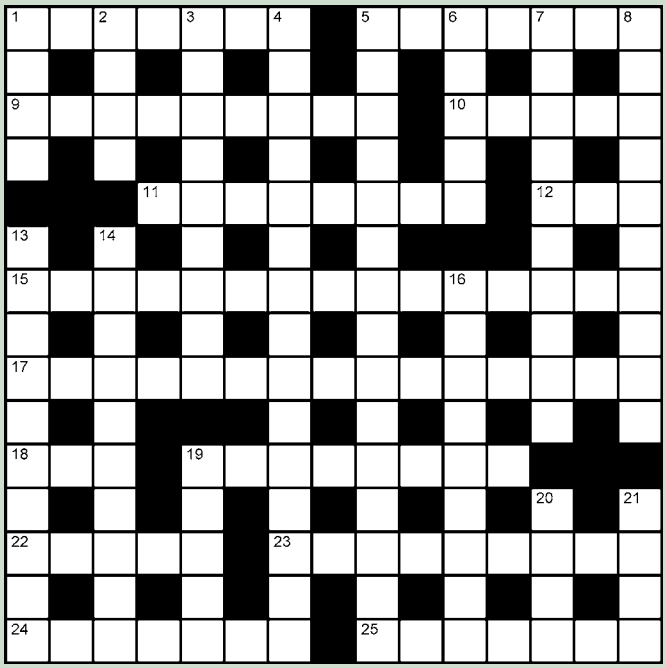
A light rolling treatment can help to settle the turf after laying and, thereafter, further light top dressing will be required to perfect the final surface.

About the Author

Jonathan Tucker is Golf Course Architect & Head of Golf Development Services at the STRI

In the Shed

Greenkeeper International brings you 'In the Shed', a puzzle page to keep you entertained when the weather forces you in or for when times are slow.



Across

1 Welsh city, birthplace of Roald Dahl (7)
5 Vocal apparatus of the larynx (7)
9 Plot (9)
10 In Middle Eastern culture, any spirit lesser than an Angel (5)
11 Discipline of pure mathematics (8)
12 Equipment (3)
15 1973 Jean Poiret play turned into a Broadway musical in 1983 (2,4,3,6)
17 Fairytale character who destroys himself when his name is correctly guessed (15)
18 Tavern (3)
19 Jumped off tracks (8)
22 Gaudy, tastelessly showy (5)
23 In a forbidding or sinister manner (9)
24 British military rank immediately below brigadier (7)
25 Apotheosis, paragon (7)
19 Senior group member (5)
20 Eldest son of Isaac (OT) (4)
21 Traditional story such as Ragnarok or Gotterdammerung (4)

Down

1 In architecture, the point formed by two intersecting arcs (4)
2 Chesspiece which can only move parallel to the sides of the board (4)
3 8-member conference of US sporting bodies (3,6)
4 Any method regardless of morality (4,5,2,4)
5 Hyde Park event of October 1851 (5,10)
6 In a peculiar way (5)
7 What great minds reputedly do (5,5)
8 Making more acceptable by removing potentially offensive elements (10)
13 Selfless (10)
14 Aimed at promoting religious unity (10)
16 Musical featuring the song New York, New York (2,3,4)
19 Senior group member (5)
20 Eldest son of Isaac (OT) (4)
21 Traditional story such as Ragnarok or Gotterdammerung (4)

QUICK NINE-HOLE QUIZ

1. Which was the earliest of the English classic horse races?
2. In darts, what is the maximum check-out score?
3. Who has won most international soccer caps for England?
4. Which TV sports quiz show was hosted by Nick Hancock?
5. What nationality is tennis player Michael Chang?
6. For what sport is Ellery Hanley famous?
7. Who was the first man to do the 100-metre breaststroke in under a minute?
8. Which twisting circuit on the Grand Prix calendar is only 1.95 miles long?
9. Which boxer used to enter the ring to Tina Turner's 'Simply The Best'?

MONSTER SUDOKU

Fill in the grid so that every row, every column and every 4x4 box contains the numbers 1 to 9 and the letters A,B and C.

	A	9		F				D		E			2		C
		7		D	0		A	2			C		8		
						1				8	4			7	F
	C					6		A			0	1			9
1		5	7		9			6	3						
		A			E		7				F	3	0		8
	E			3		F			B				1	4	
2		C							5	9	A				
				9	3	7							D		2
	3	B				4			7		E			F	
6		2	C	1				3		B			E		
						E	2			F		C	A		0
7			9	E			B		A					1	
A	5			4	8				E						
		1		7			9	F		4	5		3		
F		E			6		3				1		C	9	

	7	8	9	4				6
					5		4	
	1		6					
5	3			9				
7		1				2		9
				1			6	5
					9		3	
	8		7					
2				8	4	9	7	

IN THE SHED ANSWERS can be found on page 58

WET OR DRY, DRAINAGE REMAINS VITAL TO GOOD TURF HEALTH

By James de Havilland

Such are the vagaries of the weather these days it seems we either tend to have too much water or, think back a couple of summers, too little.

One point that has not altered, however, is the beneficial effect good drainage has on the overall 'health' of sports turf. Mentioning drought when looking at drainage may seem a bit odd, but it is worth repeating.

Well aerated and drained soils are typically better at supporting plant growth. So it follows that all types of sports turf will not just play better when grown on a well drained soil, it will be better able to cope with climate extremes too.

When looking at drainage in general, a key point that is often overlooked is that an existing primary drainage system may not be functioning as well as it could. Blocked, collapsed and silted up main drains cannot be expected to cope. If these drains feed into open ditches, it also follows that water needs to be able to get away. Overgrown ditches with silt running at the same level as a drainage outlet compromise water flow.

So, job one when looking at any drainage issue is to make sure the primary drainage system is in good shape. Many systems will date back to 1980s or even earlier and by now most of these will be in need of some attention.

This is something that seems to be broadly overlooked. In agriculture, many farms will have field drains water 'jet' cleaned every five years or so. This is particularly relevant where silt and ochre build up within the drainage pipe - it is a recurring problem.

Mastenbroek developed specialist drainage kit for sports turf back in the 1980s, this coinciding with a decline in agricultural drainage due to subsidy removal back in 1984. Although now best known among specialists for its self-propelled trenchers and straight leg pipe laying kit, the company continues to make specialist drain jetting equipment.

In very broad outline, these tractor mounted tools comprise a pto driven pump, with the water thrust from the jetter nozzle pulling the hose up the drainage pipe.

This is fine for agricultural field drains. This type of equipment is not widely used for sports

Ochre is a particularly common sediment found in primary drainage systems in certain parts of the country; note the rusty brown deposits flushed from the pipe pictured. Mastenbroek jetters are typically used for agricultural field drains, but there is no reason why they cannot be employed in sports turf drainage.

primary drain cleaning, but there is absolutely no reason why it could not form a valuable aid to getting a chocked system running again.

Assuming the primary drainage system is in good order, secondary drainage is the component that speeds the passage surface water from the playing surface and into the piped drains.

The key familiar systems will include sand and 'gravel' band drainage, modern systems now including everything from a purpose cut trench through to a sand filled slit of assorted depths and spacing.

It is secondary drainage that most turf professionals will consider doing for themselves. Although it is dangerous to generalise, there are two key approaches; slits and trenches. Slit based systems are the broadest group.

At the 'shallower' working end of the spectrum there is equipment that includes the Imants Sandcat, from Campey Turfcare, and the BLEC Sandmaster machines to include the Vibra Sand Injector.

These units create a slit into which sand or other drainage medium is placed. The Sandcat works to depths of 150mm, the Vibra Sand Injector to between 50 and 250mm depending upon model.

Although a Sandcat and a BLEC Sandmaster/ Sand Injector appear do a similar job, they work differently. What they have in common is that they are 'user friendly' and designed to be owner - as well as contractor - operated.

Next up are powered disc slitters. These range from small units that can be mounted on the rear linkage of a small compact tractor, such as the Auger Torque 250 models. These can produce a trench width of between 50-90mm and work down to a depth of 250mm or 300mm.

Integral hopper and discharge conveyor slitters are the more sophisticated next step up, with Shelton Sports Drainage Solutions offering a comprehensive range of kit that can be used to install both primary and secondary drainage systems.

AF Trenchers also offer slitting wheel units, to include its high output Wizz Wheel 75 for tractors in the 90-160hp power bracket through to its dual application AFT 45 model. This can be used with a chain trencher, the same driveline also accommodating a slitting wheel.

Trenchers can be used to create broad sand or more typically gravel filled 'French' drains, with a range of pedestrian trencher models to include units from Lewis, Predator Manufacturing, Tracmaster, Vermeer, Kanga Loaders being available. These smaller trenchers are often available for hire, so are worth looking into when you just want to create a small drainage trench.

Although you would not want to use one on fine turf, a mole drain can be useful in helping to divert run-off water from a playing surface. Small tractor mounted units, such as the M01 and M02 from Kubota will form a 28mm channel at a depth of up to 300mm.

As a broad rule, slit drainage techniques are best carried out in moist soils, trenchers working best in dry soils. It is important to appreciate too that draining sports turf is not as simple as the wide variety of equipment on offer may at first make it seem.

The laying of primary drainage systems, for example, needs to be carefully planned to ensure drained water can subsequently get away. No point installing a system that subsequently runs below the local table.

Secondary drainage is well within the scope of grounds staff but again the system needs to be carefully planned and executed. In some instances it can be more cost effective to call in a drainage contractor, particularly on a larger project.

There is also the option of 'partnership' working as offered by companies who include Shelton Sports Drainage Solutions. This allows you to hire in specialist equipment and expertise, with you providing additional labour and equipment. Working in this way can be a considerable saving over direct contracting.

One final point. When running a trailer or dumper alongside any drainage tool to remove spoil, think tyres. The amount of damage a heavily laden trailer or hired in dump truck can do should never be under estimated. Soft, broad shouldered tractor and trailer tyres, running at a low inflation pressure, can make a huge difference to both the effectiveness and longevity of a secondary drainage system.

AFT Trenchers offer a broad range of both trenchers and slit wheel units. Of equal importance, take a look at the purpose designed sand discharge trailer. The 'hopper' body swivels to allow the unit to discharge to the side or rear and runs on a four-wheel trailer. Transport of materials to and from a drainage site is often overlooked.

(above) Auger Torque Europe produces three point linkage trenchers and disc trenchers. A slitter unit's price will depend upon the type of blade fitted, but is base form prices will be under £2,500. Although primary uses will be restricted by the units 50-90mm cutting width and 250mm or, as an option 300mm cutting depth, a 'slitter'; like this is simple to use, making it easy to lay underground pipes, cables or buried fence runs.

(right) Shelton Sports Drainage Solutions offer not just a range of specialist kit but also a service that enables you to hire in specialist expertise too. Note the use of a four-wheel axle on the dump trailer.

(below left) BLEC Sand Injector and Sandmaster can de-compact and sand slit in a single pass. Ground Breaker tines form the slit for the following coulters. The rear tyre press consolidates the ground. The BLEC Sand Injector also has an integral rear roll, a useful addition that can help in difficult conditions.

(below right) The Imants Sandcat from Campey Turf Care Systems is designed to work with kiln dried sand. The 8mm thick rotary tines that look like those fitted to a Shockwave decompactors but those of the Sandcat are modified to produce a slit. Metered sand falls from the integral hopper into slits spaced at 150mm and 150mm deep.

North Staffs Irrigation – Tel: 01785 812706 Turfdry – Tel: 01283 551417 Duncan Ross – Tel: 01257 255321
Meiklem Drainage – Tel:01383 830217 Philip Dixon Contractors Ltd Est – Tel:01772 877289
(For further information, see page 70)