

long term hire and the full range will be on show at IoG. Details, brochures etc. Tel: 0204 309797.

Tildenet are exhibiting their full range of sports netting products, featuring the revolutionary (GPC) Germination Sheet. This product has been developed with the help and expertise of the STRI and is employed by test and county cricket grounds, world famous golf courses and soccer stadiums. During the past few years more and more greenkeepers have benefited from the year round capability of the product: faster germination and frost protection during the winter being notable successes.

A versatile range of perimeter and ball stopping netting suitable for a wide variety of sports activities will also be on display. Tildenet have also produced a video and slides, which are available for seminars etc Tel:0272 669684

Tillers Turf Company Ltd grow some of the best greens turf in the country on their sand farms. Green King has been specified on more than 250 golf courses in the past year and is supplied in both big and small rolls. Lawn King for tees and Arena for winter sports pitches will be on display. Arena has recently been laid in big rolls on two entire football pitches.

Hot off the press will be the official trial results from the STRI on the performance of Fibreturf on tees. Fibreturf is the reinforced rootzone system which protects grass from the twin evils of compaction and wear. Read about it in this issue of Greenkeeper International and see for yourself how it works by visiting stand H12-24.

Following the successful launch of the Grandsweep vacuum sweeper at Peterborough last year, **Rytec Industrial Equipment Ltd** will be displaying and demonstrating a much enlarged range this year.

A new dump tip Grandsweep will be on display based on the popular GS285, now able to tip into a skip, trailer or pick-up body. Water/dust suppression and gulley brush further enhance

the machine for a dual sweeping role on turf and hard surfaces.

Larger machines are in growing demand and the new 8 cubic metre Grandsweep caters for large areas- combining a more powerful suction unit and a range of full brush pick-up heads up to 4m in width.

Look also for the Grandsweep Hurricane debris blower with its powerful fan and unique construction which allows big machine capabilities when used with mid to large compact tractors.

"At least two decades supply of guaranteed finest quality Norfolk Fen Soil" is how Alan Bailey of **Bailey's of Norfolk** describes their millions of cubic feet of rich black soil.

Norfolk Fen Soil, (particularly when mixed with kiln dried Leighton Buzzard sand) is widely recognised as providing a superior quality for rootzone mixes and top dressings.

Bailey's supply many of the finest courses throughout the British Isles with rich, fertile dressings and rootzone mixes for that consistent growing profile, ease of application, soil aeration, percolation and water retention. The Olympian range has been tested and approved by the STRI. Bailey's of Norfolk will be found on stand PCSI 20.

During the '92 season **Allett Mowers** have been struggling to keep up with the success of their Buffalo contracting box mower, launched at last year's IoG. Demand for these and other Allett machines dictated a substantial increase in production which could only be achieved by altering the existing manufacturing techniques. This in itself has improved the finish and quality of their machines even further. Secondly, keen to exploit this new found success and production capability, the dealer network has been substantially strengthened and will be managed and supported by a sales/demonstration team. Although no new machinery has been announced for this year's IoG, those who know the company will not be surprised to see something new. Amongst the machinery displayed will be the improved



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B39 at the IoG

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**The
IOG
Show 1992
PREVIEW**

production Shaver/Tournament greens mowers, the Buffalo contract mower, and the evergreen 36RHE sportsfield mower. Allett welcome you to stand L54-55.

A major breakthrough in the field of tree moving in the UK, has been made by **Ruskins Tree Moving Ltd.** They have acquired a new tree-spade, the first of its kind in the UK, that will lift trees larger than any before, with unmatched survival rates.

The Stocker '8' Tree Spade is unlike any spade used presently in this country and Europe. It has been developed and manufactured by an American tree moving contractor with over 20 years experience. Particular attention has been paid to the specific needs of larger trees. Research has shown that the root structure of large trees with canopies anything up to 5m spread tends to be shallower and more widely spaced. Existing tree spades with their four blade configuration and narrow curvature are restricted to the root mass they surround and can experience difficulty when digging in rough terrain.

Agripower Limited (02406-6776) specialise in all aspects of sportsturf and amenity construction; land drainage; land restoration and reclamation; lake and pond construction; water supply landscaping; earthworks; road and car park construction and borehole soakaway installation. They have an extensive range of machinery and have recently added a stone picker and a Rotadairon stone burier. They undertake a full range of sportsturf maintenance work which includes Vertidrainning, overseeding, sand spreading and top dressing.

Maxwell Hart Ltd have been appointed the sole UK distributor to the sports and amenity turf market for the animal repellent Scuttle, by Fine Agrochemicals Limited.

Scuttle is approved by the Ministry of Agriculture for the control of browsing and grazing by deer, rabbits, hares and other mammals. Scuttle is based on naturally derived products and

offers a humane, safe and easy method of preventing animal damage to sports turf, trees and shrubs.

The browsing animals do not like the taste or smell of Scuttle and are deterred from browsing treated areas. Scuttle gives long lasting, cost effective control and can be used year round. Scuttle presents no hazards to wildlife, the user or the environment. See this and many other fine products on their stand.

Cleveland Sitesafe Ltd will be showing their complete range of movable all-steel secure storage units, for fuel, chemicals, tools and equipment, plus office, canteen and workshop facilities which can be combined to suit the customer's requirements.

Contact Irvine Weston on Stand D52-57. Tel: (0642) 475009/488328.

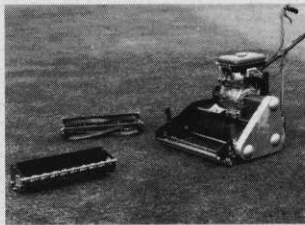
Rolawn Turf Growers will be celebrating ten years of their best-seller, Rolawn medallion and the success of their newer, exclusive, poa-free Advantage.

"Medallion is our most versatile and popular turf with millions of square yards sold every year," says Rachel Semlyen, Marketing Director, "the seed mix has always included the latest STRI rated dwarf creeping ryegrass cultivars making it a useful turf for any area receiving medium to heavy wear. Meanwhile, Advantage is proving its worth on hundreds of top golf courses where clean turf is a priority." All greenkeepers will receive a warm welcome on the Rolawn stand, PCSI 10-12.

Contact Rachel Semlyen or Guy Longbottom at Rolawn, Elvington, York YO2 5AR, telephone (0904) 608661.

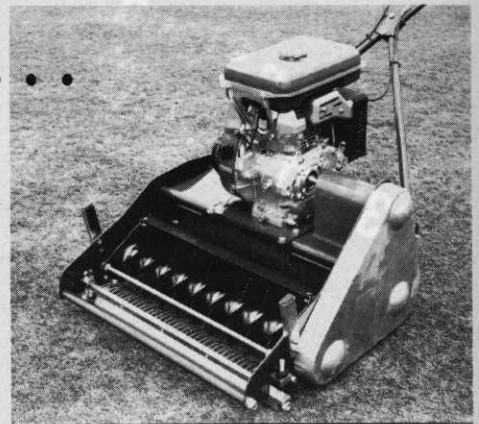
With greater awareness now being given to construction and maintenance material and with individual requirements varying greatly, **Rufford Top Dress** can offer customers every conceivable choice in top dressings at prices to suit available resources. The company's recently launched budget mix top dressing and other new products will be on show for the first

The new FT510.



... unrivalled for performance and versatility.

- Interchangeable cassettes removable in just 20 seconds
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 - 9 blade cylinder
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 - light or heavy scarifier
 - verti-cutter cassette
 - brush cassette
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time with their complete range which includes No. 1, No. 2 and No. 3 top dressings, bunker sands, soil, winter sports pitch construction and maintenance materials, golf green, tee and bowling green rootzones. Please accept our invitation to join us for refreshments and a chat on PCS2 Stand No. 23/24. Tel: 0925 232476.

The **Toro** company, through their UK distributor, **Lely (UK) Ltd**, will be exhibiting several new products this year at the IoG on Stand No. K53-58, 34-39.

Sand Pro 5000 is a 3WD premium quality bunker rake with improved performance and operator comfort.

Sand Pro 2000 is a 2WD lower cost alternative retaining many of the features of the 5000 such as hydraulic lift and hydrostatic drive.

The Reelmaster 5100D advances the standard of lightweight fairway mowing set by its predecessor, the RM223D. The RM 5100D uses automated control electronics. This enhanced system employs proven electronic technology to provide additional reliability and serviceability. The RM 5100D will automatically adjust the reel speed according to the mowing speed to provide the optimum quality of cut.

The Groundmaster 455D is a large 10.5 foot out front rotary mower that combines large scale productivity with the manoeuvrability of a trim mower. Available in 2WD or 4WD, the 455D features a patented weight transfer system which automatically transfers the deck weight to the traction wheels on demand.

The Toro Guardian 72" Recycler deck for the Groundmaster 300 series features special deflectors that cut and re-cut clippings, forcing them back into the turf, achieving an excellent after cut appearance without windrowing but with the safety of no discharge.

The Turbo Mower is a patented multi cutter representing a technological breakthrough in grass cutting and has been designed and manufactured in collaboration with the Turbo Mower Company of Canada and the Toro company. The versatility and strength of the Turbo mower makes it an ideal choice over a wide variety of applications.

Total turf care from **Ransomes** – the slogan that means Ransomes has machinery to meet all your needs, whatever your turf care requirements. At this year's IoG exhibition Ransomes will show a comprehensive range of grass cutting machinery, supplemented by a number of Cushman and Ryan turf maintenance products.

Visit stand C64-75 and see for yourself how Ransomes can provide products for your total turf care requirement.

Hayters' very large stand (M45-60) will reflect the importance the company places on the grasscare machinery market.

For golf courses, the T24, T44 and Articulator has proved very popular during 1992. The introduction of the T92 Triplex and the Beaver range of hydraulic gang mowers, put Hayters well and truly in the golf course sector.

Hayters will be introducing some exciting new additions to their range and popular demand has led to the re-launch of the Ambassador 20" cylinder mower, with added features.

Visitors to the **Barenbrug** stand B43-44 will be able to receive invaluable free advice from the country's foremost grass experts.

Robert Laycock, well known agronomist, consultant and writer, has been invited to join Barenbrug's panel of experts and share his 20 years of practical experience and scientific study as the host of the Barenbrug Turf Clinic.

Barenbrug is unique amongst seed suppliers in having outstanding varieties in every category of commercial importance.

Over many years, Barenbrug has bred superior strains which have been formulated into 15 mixtures carrying the BAR-prefix, each one tailored to meet the exacting standards set by different sectors of the amenity industry.

Huxleys are launching three new accessories for the Huxtruk Turf Maintenance Vehicle at this year's IoG on stand M19-24. The large capacity top-dresser spreads over the full width of the Huxtruk's wheels and is hydraulically controlled from the driver's seat. The 400 litre sprayer has a new low-profile design, balanced pressure control and clean water container. The Huxtruk weather cab is simple to fit or remove from the vehicle and has optional doors.

These new accessories complement the existing wide range of turf care attachments displayed by Huxleys for use with the Huxtruk or other turf vehicles and compact tractors.

Once again **Rigby Taylor** are pleased to welcome everyone to visit their stand L39 to view their range of products.

Work is always in progress to improve existing products and develop new

ones. This year a number of introductions to the range will be on display.

As well as regional representatives, Rigby Taylor's two agronomists will be on hand for specialised technical advice.

Atterton & Ellis are to show their Express Dual at the IoG Show. It is capable of not only conventional plain cylinder grinding with the cylinder removed, but also in-situ grinding of the cylinder when still mounted in the machine – a particularly useful feature when resharpening mid-season.

The Anglemaster heavy duty bottom blade will also be shown by the company and will include a power traverse feature.

All machines are well proven and carry the Atterton hallmark of quality and reliability and may be seen in use in many of the leading Golf Courses throughout the country as well as many other parts of the world.

More details from Atterton & Ellis on Stand I41-42. Contact them at Iron Works, Haverhill, Suffolk or call them on 0440 702312, (fax: 0440 712138).

There's great news from **Maxwell Hart** at the IoG Show – they will be introducing their new range of Easy Picker Golf Driving Range equipment along with the Ultimat, a range mat guaranteed for a year against rips, tears and de-lamination. This mat will be available for you to try out in a specially constructed golf enclosure. Supplementing this will be a new range of cost-effective golf flags and pins from Standard Golf, available from 1st October.

If you have problems with waterlogging or water retention, come along and see how Perk can solve your problems at a cost of less than £1.75 per 500 sq m. We look forward to meeting you on Stand H45-46.

As well as our range of cultivated turves, **Fairfield** will be exhibiting a new fine-textured "Salt Tolerant" turf.

"Speedlawn" is the new name "Big Roll" turf laying service from Fairfield, together with a high quality soil preparation service.

Fairfield Turf (Golf Construction) Ltd is the most recent service from Fairfield and offers a complete design and build service to prospective clients. This service includes the construction of cricket squares and bowling greens.

Fairfield will also be exhibiting a range of materials including mulches, soils, seeds and the Scotts range of slow release fertilisers.

SEE US ON STAND PCS1 49-50 AT I.O.G.

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THE BIGGEST GANG SHOW EVER

Match the biggest Kubota yet with the Ransome hydraulic gang units and you've got the ideal combination for mowing the big, open spaces of fairways and sports grounds.

The Kubota 59.5hp, 4WD, 5 cylinder direct injection engine has the power and lugging power that leads to efficient cutting of the largest areas. Its innovative 'Ever Clutch', the first to be guaranteed for 1500 hours, can be operated with only 10% of the effort required for conventional clutches. And yet the whole tractor weighs in at just 4200kg for minimal turf damage and a high power-to-weight ratio.

It provides the ideal match for the Ransome Hydraulic 5/7 gang mower - to cut large areas in double quick time. And because the gangs are quickly removable, you can make the most of the powerful versatility of the tractor, which includes a UK-designed integral low noise cab, a lift capacity of 1900kg, and hydraulic shuttle transmission which means it can be driven and reversed without using the clutch - an important benefit when using the tractor with a loader.

If you want the ultimate gang show, settle down with the Kubota L5450. Complete the coupon for the facts.



IOG STAND 52-54

Kubota

THE POWER THAT LEADS

Flexible. Budgetable. Available. Like all Kubota machines, the L5450 is available through Kubota Flexiplan, which offers low cost rentals from two to five years and which can include comprehensive maintenance plans, breakdown cover and replacement machines.

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GREENKEEPER

International

In times of imposed water restrictions and drought orders, the need for greenkeepers to practice water conservation is paramount. The following eminently sensible advice is taken from a current information leaflet published jointly by the British Turf and Landscape Irrigation Association (BTLIA) and the Sports Turf Research Institute (STRI), Bingley, W Yorks BD16 1AU.

The information will also serve as an additional guide for your green committee, the better that they may understand the problems water shortages present in undertaking intelligent golf course maintenance practices. Cut out this page and display in a prominent position.

WATER CRISIS

Good maintenance practices will encourage the development of a vigorous healthy sward with a deep rooting system, which will be able to withstand the effects of drought better than a weak sward.

It is essential that irrigation systems are properly maintained. Servicing and repairs should be carried out during the winter months so that the system is working efficiently on starting up in spring. Check for leaks. Ensure that efficient use is made of all available water sources on the course.

Whilst limited water is still available

- 1 Make sure your watering system is working efficiently. Check sprinkler arcs, nozzles, etc Water only essential areas.
- 2 Do not water during the day.
- 3 Reduce the frequency of watering and water more thoroughly each time, to get moisture well into the soil.
- 4 Do not allow puddles to form or surface run-off to occur.
- 5 Improve infiltration of water by spiking (not slitting) or with wetting agents, particularly where thatch is serious and on high spots. (High spots may require a hand-held hose, perhaps with attachment for wetting agent.)
- 6 Wetting agents are usually most effective

if first applied in late spring with additional applications through the growing season, according to the severity of the problem and water availability. Water in after application, to avoid scorch.

- 7 Raise the height of cut. Where appropriate, return clippings (cuffings) to help to act as a mulch.
- 8 Mow fine turf with pedestrian machines.
- 9 Reduce the frequency of mowing as growth slows down.
- 10 Spread light applications of compost top dressing on golf greens and similar fine turf areas, and work in gently with a mat.
- 11 Keep pin positions to the margins of golf greens.
- 12 Reduce wear on turf by varying position of pathways and closing off sensitive areas.

No water available

When all watering is banned continue with points 7-12 as conditions dictate.

- 13 Do not apply pesticide or fertiliser.
- 14 Stop verticutting or grooming on golf greens and similar fine turf areas.
- 15 Do not carry out any aeration work.
- 16 On small areas of newly established seed or turf, use perforated plastic sheet or netting to conserve moisture (but beware heat stress under covers).

17 Be prepared to close golf greens or similar areas to avoid long-term damage which will require costly reinstatement.

After the drought

- 18 Reinstatement any severely damaged areas as soon as conditions and water availability will allow.
- 19 Wetting agents can be used to help with re-wetting of drought-damaged or water-repellent turf.
- 20 After the immediate problems have been dealt with it may be necessary to revise the management strategy, to minimise future problems. The following points should be considered:
 - Alleviate compaction to encourage deeper rooting and water infiltration.
 - Eliminate excessive thatch by a combination of scarifying, hollow tining and top dressing with sandy compost
 - If possible, manage turf to favour drought-tolerant species and to develop deep root systems.
 - Update the irrigation system to improve efficiency.
 - Investigate alternative water sources: it may be possible to intercept and store surface water to boost reserves
 - Increase the water storage capacity.

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As sure as night follows day, greenkeepers can expect those bare areas which have received harsh treatment in the latest of several drought summers – areas shredded by spiked shoes, slashed by hackers and pounded by pull-carts – to turn in winter to a sea of glutinous mud, taking merciless and seemingly irreparable extra punishment and, no matter how skillful the renovation, effectively transforming them into 'no-go' areas.

Of course, the pundits will tell you to re-route, to ban pull-carts, even dare to suggest the use of that dreaded golf apology – the temporary mat. But nothing short of dynamite will stop the lemmings, who will always follow the shortest route, pacing and posturing like pro's once they arrive. It is feet, clubs and wheels which cause golf course damage, aided and abetted by sun, wind, rain and burrowing animals. No course is totally immune.

Seeking remedies, I've turned to the wizards of modern technology for information of the ingenious systems which will provide more than mere temporary relief. Greenkeepers can be assured that help is at hand: there is a better answer than banning winter golf altogether!

To begin, I asked Tim Fell to expand on the use of Tillers Fibreturf, which I knew had won approval in the soccer world and which Walter Woods had specified on the Old Course at St Andrews. Tim commented:

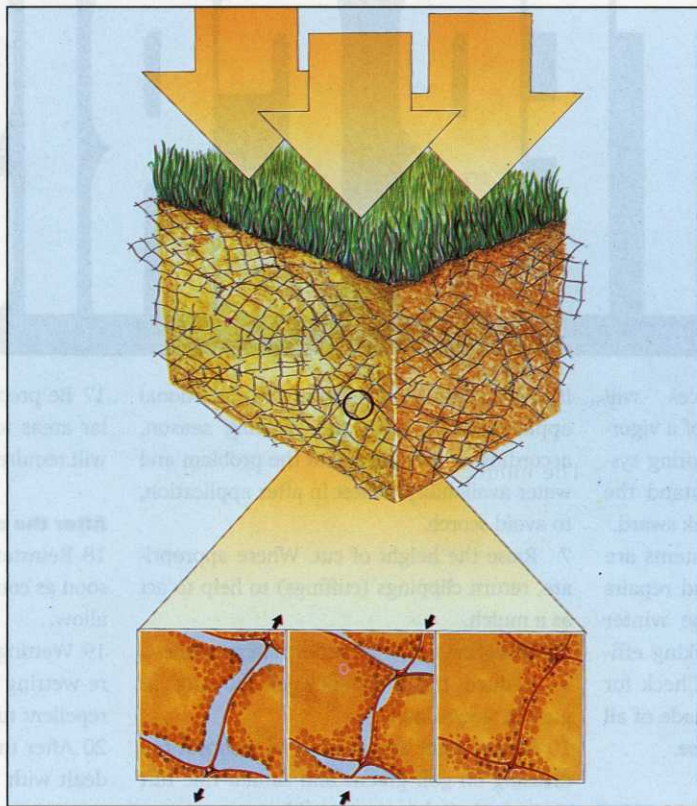
"Healthy roots are the key to healthy plants. Compaction and divoting are two common factors on golf courses which act to limit root growth, leading to poor quality turf-grass surfaces. The objective of rootzone reinforcement, as far as turfgrass quality on tees and aprons is concerned, is to reduce compaction and divoting. In other words, we're in the business of root protection.

Rootzone reinforcement will not prevent the temporary destruction of leaf on the surface under severe wear. What it will do is protect the root mass underneath and retain soil structure, so that regrowth is rapid. Roots will suffer when the rootzone is compacted because the air has been squashed out – and roots need air to survive. Divoting causes physical destruction of roots by shearing. Sports rootzone reinforcement systems should, therefore, aim to address these two problems.

In the development of Fibreturf we decided to copy nature by mixing polypropylene fibres (artificial roots) into the rootzone. The fibres themselves are 35mm long, and



Erosion problems at Sceptoft Golf Club. The pictures show the appalling state of a high wear area and VHAF carpet being installed below the surface, through which natural grass will grow. Photographs courtesy of Notts Turf



As the turf is trafficked, mesh elements flex to create and maintain air voids around the Netlon filaments. The flexing action ensures that the rootzone remains healthy and does not suffer from soil compaction

similar in diameter to grass roots. There are approximately 80 million fibres per cubic metre of rootzone. Polypropylene is not affected by rain, sun, fertiliser or herbicide, and is therefore rot resistant and very long lasting.

Soils become weak when they are wet. Weak soils are prone to compaction, and that is why a free-draining rootzone is essential to maintain sportsturf quality. The use of high proportions of graded sand in rootzone mixtures gives the required drainage characteristics, but sand has the inherent disadvantage of lacking structural strength. You only have to grab a handful of

dry sand to see what I mean. The result of this structural weakness is most easily seen on short hole tees where divot damage from irons can be severe. The three-dimensional structural effect of the fibres further enhances the ability of the rootzone to resist compaction.

The fibres in Fibreturf physically prevent the club blade digging into the tee surface and chopping out deep divots. By retaining the root crowns near the surface of the rootzone, regrowth from surface scarring is rapid.

Rootzone reinforcement generally gives a very firm surface, even under wet conditions, and load

bearing characteristics are greatly increased. This feature is being used to good effect on heavily used paths and tracks on golf courses. Fibreturf is currently being installed on the pathways between greens and tees at the new Moatlands Golf Club, Kent.

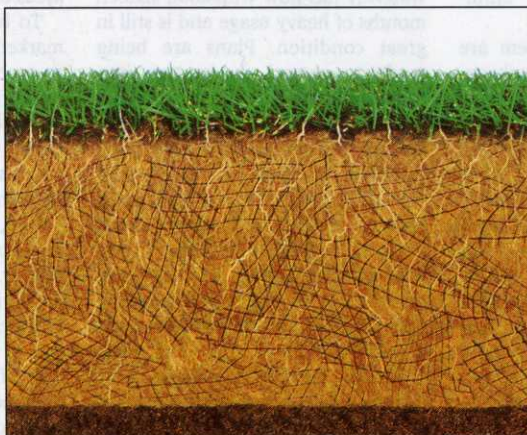
Fibreturf has proved itself in football goal mouths – probably an area of sportsturf that gets more wear and tear than anywhere else. Alan Ferguson, grounds manager at Ranger's Ibrox stadium, has found that Fibreturf has given him flat, dry and clean goal mouths throughout the season. For a town that gets 40" of rain per year, most of which falls in the football season, Alan feels that Fibreturf has performed exceptionally well. By the nature of reinforced rootzones, they are more difficult to handle than normal rootzones. In particular, getting a good level on tee surfaces can take a long time. I have always felt that the use of these materials would be restricted until an easier way to handle them had been found. It is, therefore, good news that we have found that the BLEC rotary sander gives an excellent finish to the tee surface in a very short time".

I well remembered the enthusiasm Woburn's Neil Whitaker displayed when showing me his Netlon tees last January. I'd also seen a very convincing demo at Stoneleigh, so to get the technical low-down I turned to Gordon Rolph, Netlon's national sales manager. He provided this information:

Netlon Advanced Turf is a patented rootzone system which gives vastly improved resilience, durability and health to natural grass. It consists of thousands of small pieces of polypropylene mesh, the size of playing cards, randomly blended with a selected rootzone media to form a deep, anchored root system. This stabilises and reinforces natural turf, leading to

Netlon Advanced Turf

For healthier, more durable turf



1

INCREASES
LOAD BEARING
BY UP TO
500%

2

INCREASES THE
RATE OF
DRAINAGE BY
UP TO 20%

3

REDUCES DIVOT
SIZE AND
RECOVERY TIME
BY UP TO 50%

4

INCREASES
BALL BOUNCE
CONSISTENCY
BY UP TO 400%

5

INCREASES
RETAINED
MOISTURE
CONTENT
BY UP TO 40%

Netlon Advanced Turf is a rootzone system bringing unrivalled resilience, stability, durability and health to natural grass.

The unique reinforced rootzone allows the natural turf areas to withstand far greater use than ordinary turf.

Already in use in many golf courses, Netlon Advanced Turf gives a better wearing, more attractive surface. All forms of deep aeration techniques can be virtually eliminated as Netlon Advanced Turf's self-cultivating action ensures that the rootzone resists soil compaction and remains healthy.

Suitable for tees, greens and walkways, Netlon Advanced Turf means lower maintenance costs and greater course usage – saving money whilst generating additional revenue.

Netlon Advanced Turf – happier golfers, contented greenskeepers.

For your colour brochure ring Emma Burns on 0800 585012 or return the coupon.

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reduced divoting and a much greater resistance to heavy usage, whilst damage recovery time is halved. As a result, a top quality playing surface is possible year round. The unique properties of the mesh elements resist soil compaction. Problems such as black layer and poor infiltration are significantly reduced and the need for deep aeration is virtually eliminated.

The benefits of this system are being acknowledged by greenkeepers worldwide – particularly in the USA. Indeed, it was here in 1984 that the potential for the mesh system was first recognised by Dr James Beard of Texas A&M University. Dr Beard's studies commenced in 1985 and identified a number of important properties, including damage resistance, accelerated damage recovery, increased infiltration which is maintained long-term, enhanced moisture retention and greater ball bounce consistency. After four years of monitoring plots, Dr Beard identified the 'self-cultivation' action unique to Netlon Advanced Turf rootzones. He found that when the turf is compressed, the mesh elements act as thousands of springs. This flexing resists compaction of the soil and ensures aeration to the full depth of the rootzone – leading to a healthier, more resilient turf. The research at Texas A&M has been continuous over a seven year period and the latest work has demonstrated the benefits of mesh elements in a wider range of rootzones.

The improved playing qualities and enhanced infiltration rates have been confirmed by studies carried out by Mike Canaway of the STRI. Netlon are currently funding further research by STRI, specifically related to golf applications.

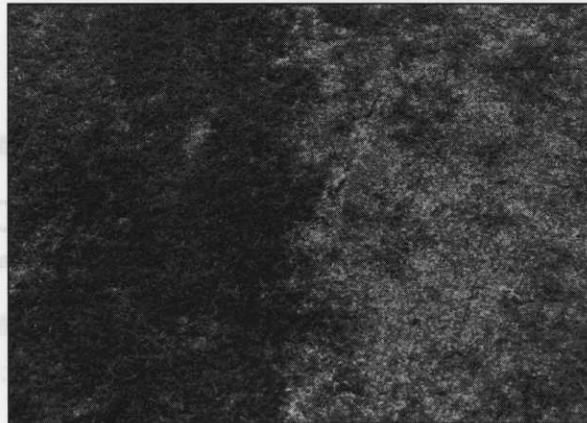
Meanwhile, a three year research project at the University of Strathclyde found that Netlon Advanced Turf's reinforced rootzone greatly improves load-bearing capacity. The increased strength was shown to be due to the interlocking of soil particles into the mesh apertures to form a composite reinforced soil. A full range of tests showed that the system can successfully support heavy loads, such as large vehicles; and resists deformation such as rutting. The research is continuing, investigating the damage resistance of various constructions which incorporate Netlon mesh elements in a USGA rootzone soil.

Many courses in the UK have already installed Netlon Advanced Turf on tees, pathways and greens. Apart from offering a consistent playing surface, it is proving particu-

larly useful on problem areas which receive heavy usage or are in the shade.

For example, at King's Norton, a badly worn walkway between the first green and the second tee had become an eyesore. After it had failed to respond to re-turfing, draining and spiking, Netlon Advanced Turf was installed. The walkway has now withstood sixteen months of heavy usage and is still in great condition. Plans are being made to extend the system into other worn areas.

Meanwhile, at Barnham Broom, Netlon Advanced Turf has been installed on four of its hardest worked tees. "Wear has been reduced and recovery time is much quicker," reports Brian Lemon. "My staff no longer have to spend time on spiking, slitting and tining the relaid tees. Members have also commented on how the tees have remained level and easy to drive from, despite heavy wear throughout the winter."



Snow mould and general distress coming to an abrupt end where Tildenet has been laid

Netlon Advanced Turf is clearly a very effective system. In the words of Dr Beard: "The bottom line is better turf rooting, more healthy turf".

The more I looked into the field of turf reinforcement and erosion control materials, the more optimistic I became. For more than a decade greenkeepers have tried laying down PVC matting that looked like green chain-link fencing, on or just beneath the surface of hard-pressed areas, with minimal success. It was, if anything, only marginally better than nothing at all and did little to convince the greenkeeper to continue with such products. But as has already been seen, hi-tech is on their side and one such new development is the Notts Turf VHAF patented system, an erosion control system that has brought forth enthusiastic endorsements. Here are T H (Bert) Patrick's comments, along with some interesting statistics:

Several products have been introduced into the golf course business,

but as yet none has caught the imagination of the game to the extent that Clubs are prepared to tackle the problem by investing hard cash. A number of British companies have spent large sums on R&D during the past decade into soil stabilisation, though the golf world has been slow to take these products on board compared to other sports and areas of environmental importance.

To fully understand the need for market research in golf with regard to problems of erosion, particularly over-trafficking, it is necessary to see how the game is developing. Unlike most other sports, golf attracts a wide spectrum of players, all with different requirements.

Golf, contrary to the image that it is a game for the better-off and the elderly, now caters to an age group averaging out at 26.6 years, which is much younger than the former age of the regular golfing population of 40.2. Much of the present demand comes from the new, inexperienced golfer. One can identify

League Pitches Committee gave consideration to a variety of products and asked the STRI to carry out trials. Jeff Perris, the Institute's assistant director, believes that whilst there have been significant improvements during the past 25 years, there are problems of goal mouth and centre spot erosion, along with linesmen's tracks. Of the products tested by STRI, Perris has told the League Committee that the Notts product, VHAF, was ahead of others. Notts Sport VHAF was installed at Luton Town's pitch when the synthetic grass was taken out last summer. It has been used on the heavily eroded Pennine Way and around the whole of Stonehenge. Unfortunately, golf has been much slower in getting its act together despite erosion problems and the example of successful applications outside the golf course.

Practically every course in the country is showing ugly patches of heavy wear and soil erosion. Bob Moreton of The Berkshire says that from his experience heathland and links courses in particular suffer badly from erosion – "Once golfers have cracked the surface you immediately start to lose soil", he explained. Derek Ganning of The Belfry admitted there are areas on his two courses that always create a problem through heavy traffic and use. "The ground reinforcement materials offer an interesting way of repairing these areas", he said.

VHAF is a patented system that stabilises soil and sand particles using a fabric manufactured by the needlepunch process. This provides a three dimensional material which is flat on one side and the pile structure on the other. The direction of the fibres is vertical, horizontal and angular, hence the name VHAF. In turf culture VHAF can be described as a method of stabilising particles, particularly soils and sands, enabling a grass plant to grow within a medium which is supported by fibres. It offers protection to the lower portion of the plant, protects the root system from direct foot and other traffic and in certain situations it helps to conserve moisture below the structure. Above all, it stabilises particles.

Its greatest property is its ability to preserve an even surface which makes it suitable for a wide range of applications on golf courses. The system can be installed on level or undulating ground as well as banks.

It is best laid onto a prepared seed bed and after further seeding and top dressing, a healthy sward can be established. With the root system now protected by the fabric, most of the grass will recover after

around 4 million potential users of pay and play courses - those you will spend £10-15 per round. Even if only 20% of these were to play 20 rounds per year, that would fill a further 320 courses to capacity, assuming that one course can only cater for around 1000 regular players.

Many local authority planning committees are dealing with an avalanche of planning requests for golf facilities, of which a good percentage are on hold because of the recession and high capital costs of development. This is placing great extra strain on existing facilities and thus a major reason for erosion deterioration on heavily trafficked areas by golfers. No one likes to walk a course which is littered with erosion black spots.

In football there has been much press comment on the state of some pitches, which mid season resembled mud heaps and obviously give concern to the authorities. The

damage, thus reducing maintenance by the green staff. Normal maintenance is required and the ground reinforcement material can be cut and spiked in the same way as unprotected grass.

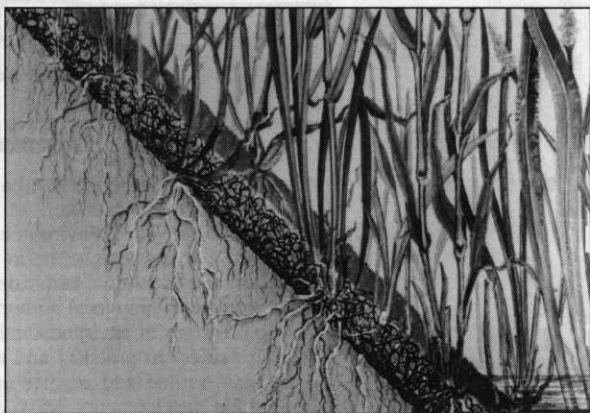
VHAF can be used either with a natural grass sward or as a synthetic turf, which ever best suits the particular need. Used as a reinforcement material, a grass sward is cultivated in the fabric creating a natural appearance. On the other hand, used as a synthetic turf, routine maintenance is eliminated which makes it ideal for replacing materials used on pathways or steps. In each case the VHAF fabric distributes the load caused by golfers over the soil structure below, enabling a true surface to be maintained even in the highest used areas.

Of course, all golf courses have their own peculiar attractions and problems and one such course, Golf du Pont d'Arbois in Megeve, spectacularly situated in the French Alps, has a reverse side to its coin, which is that the course, and more importantly the greens, are skied over each winter, taking months to recover from the damage.

The main agents of destruction are the tracks of the piste-bashers, the effects of compaction of snow under the constant pressure of skis, and, not least, snow-mould, a disease which damages grass, leaving unsightly bare patches.

After such punishment re-seeding is often needed, for until new grass has been grown, the course is unusable. This was a situation with which the Bristol-based company Tildenet found itself ideally equipped to cope:

Tildenet's products are used in a wide variety of ways. In sport they have been found particularly valuable in protecting playing surfaces against frost – the majority of Scottish Premier League soccer clubs use it successfully, as do Leeds United, Chelsea and West Ham, while the



Detail showing bonding of Enkamat to the soil with the vegetation's root system

Rugby League now recommends it.

An equally important use is as an accelerator of seed germination. In this area cricket groundsmen, whose pitches take a tremendous hammering from spiked boots, have found Tildenet a vital ally, among them Mick Hunt and Roy MacLaren, head groundsmen at Lord's and Worcester respectively.

When Golf du Pont d'Arbois agreed to a demo of their product on the golf course itself Tildenet recognised the size of the challenge. The versatility and all-round capability of the matting would be under the microscope: its ability to protect turf from frost, snow and regular pounding from skiers and piste bashers; followed by proof of its power to accelerate germination significantly. The results of the test were extremely impressive.

Tildenet use matting of specific gauge and weave which not only doubles the speed of germination but also ensures evenness of growth by protecting newly-seeded areas from the effects of wind and the attention of birds.

With the recovery period now reduced by up to two months, Alpine clubs can expect significant financial gain, for possible playing and earning capacity has been increased by 25%.

The problems confronting Tildenet at Bidford-on-Avon, where a new course is being constructed, were very different. Here, difficulties were being caused by a combination of light, sand-based soil and prevalent strong winds. Though the greens were sown last autumn, there was scarcely any growth, due to the wind which continually

whisked away seed and soil together. In this case the dual qualities of Tildenet Germination Sheets were immensely effective. The laying of the mat over the seeded area provided vital protection against the effect of the wind and predators. At the same time the periods of germination was being greatly reduced, helping to make up time lost over the winter. Head greenkeeper, Dave Hemming informed that the period between sowing and first mowing was only 10 days.

Successful as these operations have been, Tildenet seek to improve and modify their range of products, and to this end they work closely with the STRI, whose confirmation of the efficiency of different types of matting by scientific testing has proved invaluable.

Finally, I talked to Mike Cooper of MMG Civil Engineering Systems Ltd, a company which specialises in reinforcing 'difficult' areas such as steep slopes, ponds and river banks. I was reminded of the collapsing tee at Muirfield, caused by rabbits burrowing. Mike talked of the specific use of geotextiles in golf by saying:

"Geotextiles specially developed for turf reinforcement offer greenkeepers plenty of opportunities to use environmentally acceptable products to overcome many of their soil erosion problems in a cost effective and often very straightforward manner.

When light duty turf reinforcement is called for, perhaps on steep slopes, road bunkers or in ponds or watercourses experiencing low flow velocities, Enkamat three-dimensional polyamide matting can be used. Enkamat is designed to

encourage strong grass growth and together with the roots it acts as a permanent and natural protection against erosion.

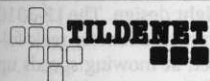
In locations where grass establishment may prove difficult, or where a Club may prefer an immediate natural green appearance, pre-grown Enkamat reinforced turf - Enkazon - can be installed. Since Enkazon is grown to order it gives the greenkeeper the opportunity to be involved with the selection of the grass seed mixture best suited to his application.

Banks of rivers, lakes and watercourses that experience strong water action can best be safeguarded with heavy duty Enkamat A. This is a special matting that is factory filled with bitumen bound gravel, thus giving good protection both below and above the waterline. Surfaces are pre-seeded before the installation of the matting and a full natural grass growth is readily achieved through this permeable material.

Most geotextiles are light, clean and easily to handle and installation is very simple using unskilled labour and readily available tools. The Enkamat has no nutritive value and its tangled structure is unpleasant to small mammals, therefore, areas of reinforced turf will act as a strong deterrent to burrowing animals and rodents who, in themselves, can often cause extensive damage.

The stabilisation of steep slopes, cliffs or earth walls can also be achieved using various different geotextiles and the suppliers of Enkamat, MMG Civil Engineering Systems Ltd., complement its product range with design advice and field support to maximise the benefits of their geosynthetics".

● **The editor acknowledges assistance in preparing this feature from Tillers FibreTurf (0652 650555), Nettleton Limited (0254 262431), Notts Sport (0533 720222), Tildenet (0272 669684) and MMG Civil Engineering Systems Ltd (0553 617791).**



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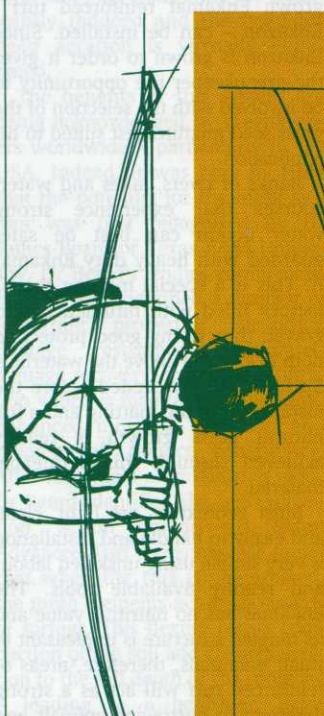
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TRADE TOPICS

■ A specialist advisory service has been launched by Nomix-Chipman, designed for those carrying out amenity weed control programmes. Known as the Nomix Environmental Weed Control Advisory Service (NEWCAS), it has been set up in the light of growing uncertainty over the future use of residual herbicides.

Established to help local authorities and businesses balance the competing pressures of environmental protection, budgetary limitation and operator safety in practical and effective programmes, it comprises a telephone hotline and regular updates on legislative, herbicide and application developments. NEWCAS also offers tailor-made weed control programmes and NPTC training courses.

Particular advice on the replacement of triazine mixtures as the preferred choice for controlling weeds on hard surfaces is currently available, with several alternative options being recommended. Tel 0272 574574.

■ British Seed Houses Ltd have produced a new catalogue covering amenity grass seed mixtures, fertilisers and wild flora conservation mixtures. The BSH Wild Flora Brochure carries full details on seed bed preparation, sowing and management. For the golf course, the company offers a 'Cornfield' mixture suitable for sowing on golf roughs and containing low growing species which will enhance the appearance of the rough, the ideal place for encouraging wild flora and fauna. For catalogues 'phone 0925 54411.

■ The Amenity Grass Marketing Association (AGMA) has produced an expanded edition of its Grass Variety Merit Rating List for 1992. The recommendations are based on the suitability of different cultivars to specific end users, with the varieties grouped under typical application headings. The information will be updated annually and the performance data will include reliable trial information from both the UK and relevant continental sources where similar climate and usages apply. AGMA say this will not only broaden the range of information on cultivar performances but also introduce a measure of stability in assessments. Free copies from AGMA, PO Box 14, Boston, Lincs PE21 7QL.

■ Rhone-Poulenc have just updated their product manual. Details on their complete range of controlled droplet application products (no dilution with water prior to use) are included for the first time.

Equipment, such as the Lancelot spray has been included along with Datachem, a computer programme containing all the information on calibration, legal aspects, record keeping, product usage, disease identification etc.

The product manual is available from Rhone-Poulenc distributors or contact their helpline: 0277 301114.



■ Jacobsen is introducing its new LF-mower, (above) combining high productivity with a superior cut, all in a lightweight design. The LF-3810 delivers a wide 115 inch cut. Its 10-blade, seven inch diameter reels follow undulations precisely to as low as 3/8", even at mowing speeds up to 7.5 mph. The mower's exclusive SynchroLift™ cross-cutting feature quickly raises all five reels with one pull of the reel control levers, for easier, faster cross-cutting of fairways. A 38 hp diesel engine powers the LF-3810. The engine is isolation mounted between the front drive wheels. The frame and engine configuration allows easy access to the center reel. The LF-3810's combination of horsepower, high torque reel motors and large reels cuts the heaviest growth easily, with more than enough power for scalping or verticutting operations.

The LF-3810's entire operator's platform lifts for access to engine and components. Power steering, tilt steering wheel, adjustable suspension seat, drink holder and storage compartment keep the operator comfortable. Full instrumentation keeps the operator informed on vital engine and mower functions. The LF-3810 comes with GreenSentry™ Oil System Monitor as standard equipment. This protects turf by alerting the operator to the loss of hydraulic oil.