



Working for the good of the fine turf industry

Promotions girls handed out leaflets directing visitors to examine the BIGGA merchandise on show; below, Barry Heaney dispenses with mere scissors for a much more macho way to cut the tape to open BTME. PHOTOGRAPHS BY SCOTT MacCALLUM and TIM MOAT



New top team looks ahead

The Annual General Meeting on Wednesday evening was a resounding success with the revised Constitution, which had been crafted by the Review 2000 committee over the last two years, being passed unanimously by the substantial number of members who attended.

The new Constitution saw Board of Management Members Robin Greaves, Gordon Moir and Chris Mardon stepping down and Guardians appointed in the shape of Bill Lawson and Brian Gilbert, representing the R&A.

Outgoing Chairman Barry Heaney helped his successor,

Dean Cleaver, Course Manager of Gay Hill GC in Birmingham, into his Chairman's Blazer (pictured below) and Dean then thanked Robin, Gordon and Chris for their work while on the Board of Management.

A new Vice Chairman will be appointed at the next Board of Management meeting in March.

VER



BTME is a rare occasion for Past Chairmen to meet up and 1996 was no exception. In addition to a Past Chairmen's Dinner on Tuesday night they gathered together at the Chairman's Lunch the following day. Pictured are five of the recent Past Chairmen, from left, John Millen, John Crawford, Roy Kates, George Malcolm and Ivor Scoones



Working for the good of the fine turf industry



Alec Davies of Didsbury Golf Club won the Mommersteeg Prize draw of a visit to the Mommersteeg Headquarters in Holland. BIGGA Chairman Dean Cleaver made the draw on the Friday of BTME 96.



Richard Whyman of Bude and North Cornwall Golf Club won the Vitax Draw made by BIGGA Chairman Dean Cleaver. Richard qualified for the draw having purchased the new Ultra Flow Diluter launched at the Show and he wins a £150 BIGGA voucher



It was rare for anyone to leave BTME empty-handed. Here, BIGGA's Neil Thomas (above) and John Pemberton (below) hand out vouchers to lucky visitors



Elected to greenkeeping's elite

John Wells, of Brockett Hall, and David Winterton, of Donnington Grove were each presented with their plaques and Master Greenkeeper blazers by outgoing BIGGA Chairman Barry Heaney.

John and David join the elite band of 11 Master Greenkeepers

throughout the world - Laurence Pithie, Gordon Irvine, David Whitaker, Kerran Daley, Anthony Davies from the UK and Richard McNab, Terry Buchan, Bob Maibusch and Bill Montague from the United States.

The award of Master Green-

keeper shows that the recipient has reached the highest standards of excellence within the profession and is based on experience, ability and education. John Wells is pictured left, with David Winterton on the right.



★ The three winners of the BIGGA BTME 96 competition run on three consecutive months of *Greenkeeper International* were welcomed to the show by Pat Murphy, Chairman of BIGGA's Education Sub-Committee. Paul Compton, Stephen Hartshorn and Mark Rankin, who each won trips to Harrogate and entry to seminar sessions.



Meeting the visitors and exhibitors: Lord Whitelaw on his trip around BTME



Barry Heaney's accident slowed him down but as Neil Thomas said, he'd be pushing to find another Chairman as good as Barry.

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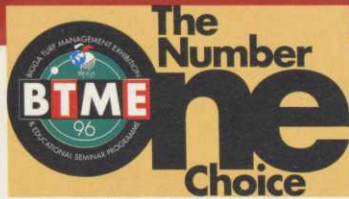


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S U P R E M E
M O W I N G



Working for the good of the fine turf industry

NEW PRODUCTS LAUNCHED AT BTME 96

The ideal showcase



Barenbrug has launched its 1996 Barenbrug Amenity Grass Seed Mixtures Handbook. It includes an improved at-a-glance mixture selection guide featuring 17 BAR range mixtures six of which have

been reformulated and enhanced for '96. It also includes two new cultivars which make their debut. Barlinda is a perennial ryegrass and sister to Barclay which is the hardest-wearing ryegrass available for groundsmen using fertiliser. It has a good resistance to leaf spot and good colour throughout the year. Barvictor is a smooth-stocked meadow grass whose colour blends well with ryegrass and fescues. It is ideal for golf tee use and inclusion in turf production mixtures.



The Grass Roots Trading Company

chose BTME 96 to launch GreenGrass, a permanent green pigment designed to restore colour to dormant or discoloured turf and not harm the turf in the process.

GreenGrass can also be pre-applied to divot mix to produce a natural green colour.

Available in five litre bottles GreenGrass is used diluted, the ratio of GreenGrass to water depending on the desired intensity of the colour. A single litre will, however, cover between 100-300 square metres.



BTME 96 saw the launch of the **Ransomes Fairway 305** – a dedicated fairway mower designed to build on the worldwide success of the Fairway 300. Changes to Ransomes' product development and production means that the Fairway 305 is the first of many machines which can be built simultaneously

at Ransomes' factories at Ipswich and Johnson Creek, Wisconsin in the USA. The principle standard features of the Ransomes Fairway 305 are a 2.94m (116in) cutting width, a 38hp (28kW) water-cooled diesel engine and full-time four-wheeled drive, with the ability to engage two-wheel drive for transport. The Fairway 305 will be available for demonstration from early Spring and will cost £28,090 with seven knife cutting reels and £28,190 with 11 knife units.



A new American-designed machine which claims to double your green's root mass made its UK debut at BTME 96. **SubAir** was developed by American Golf Course Superintendent Marsh Benson and features a blower which spreads air into the integral drainage system below the root zone of a USGA spec green. This oxygenates the root zone to increase root zone vigour and transfers water vapour to the root zone from the perched water table. Further information can be obtained from IPU Industrial Power Units in Wolverhampton Tel: 01902 452138.



Hardi International launched a new range of Hardi-Rogers Windfoil Boom assemblies to suit de-mount, mounted or trailed Hardi Amenity sprayers. The 4.5 metre boom is available in two versions the full hydraulic folding version which is ideal for large golf course complexes or the budget model with manual fold normally sold to traditional golf courses or local authorities.

Also launched was the new range of Hardi-Rogers Ecofoil and Greensfoil Walking Boom

units. Both are available in two sizes with one and two metre working widths.

Finally the new Hardi Amspread 300 which is a 250 litre tractor mounted spreader capable of applying most mixtures accurately in rate and width.

Hepworth Mineral and Chemicals Ltd

introduced a new product to its Pro-Sport range or root zones, silica sands and top dressings. Pro-Sport Green is a specially formulated divot mix for golf courses consisting of silica sand and sterilised soil to which a harmless green dye has been added. It is intended to fill divot marks and will allow grass to grow quickly through the mixture.

Pro-Sport Green is available to golf courses through the HMC national distribution network.

Monestone chose the show to launch its own range of liquid turf care products which includes liquid fertilisers, liquid blood and bone, sulphur based products, iron products, pH adjusters and a soil penetrating wetting agent.

British Seed Houses launched Lex 86 a new which germinates and establishes itself quickly to form a high density low-growing amenity ryegrass with a fine leaf texture and a consistent mid-green colour through both summer and winter. Other pluses of Lex 86 is its cleanness of cut, its good resistance to disease and its excellent winter hardiness and drought tolerance. It is also well suited for mixing with low-maintenance fine fescues.

British Seed Houses also launched its Grade A catalogue at the show.

Maxicrop International launched a new seaweed extract based plant growth stimulant/fertiliser formulation at the show. Maxicrop No 4 FineTurf Fertiliser combines the full benefits of Maxicrop Seaweed Extract with a zero phosphate fertiliser formulation. The company believes that it is an ideal, in-season turf stimulant with added nitrogen and potash.

Toro Commercial Products launched the industry's first 7-plex fairway mower – the Reelmaster 6700-D – at the show and showed three other turf maintenance machines that are new for the '96 season. The 6700-D is a powerful four-wheel drive fairway mower with seven cutting units and a cutting width of 133 inches designed to give a quality cut at high levels of productivity. It is being introduced to meet the need for producing a good-looking aftercut appearance to fairways by providing high quality cutting in tough thick or fast growing grass.

for the industry



A feature of the new mower is Toro's new L-I-N-K-S cutting unit suspension system which allows the cutting units to hug the turf and reduce bobbing. The three other machines new to the '96 season are the Reelmaster 6500-D, the Greensmaster 3200-D and the Reelmaster 2300-D.



The new **SISIS** Cultiseeder, a pto driven disc seeder with a working width of 1.2 m was launched at the Show. The coulters vibrate using a new patented system to ensure a clean deep cutting action without the weight often required by disc seeders. Compaction problems are therefore reduced. The discs can be preset to the required depth at 50mm spacings and are mounted on two independently floating units to follow ground contours.

Service Chemicals launched "alleviate" a treatment, based on tenside hydrophobe chemistry, for the specific treatment of dry patch and water repellent soils in turfgrass situations. It is unique and offers a completely different approach to the management of dry patch and is designed to complement the need for ordinary wetting agents. Alleviate should also be used preventatively to get the best results and is fully compatible with the Turfex traditional wetting and penetrating agent managed application.

Headland Amenity has expanded its Seamac growth stimulant with the addition of Seamac Pro-Turf specially formulated to stimulate grass development and colour. The free flowing, filtered liquid combines concentrated plant stimulants, derived from seaweed with the key nutrients associated with maintaining grass condition and colour - nitrogen (2.5%), iron (6%), sulphur (3.4%) and magnesium (2%). Available immediately Seamac Pro-Turf is £27.50 per 10 litre pack and is recommended for use at 35 litres/ha in 200 litres of water.

The new 1900 series Tri-Kings from **Jacobsen** has been launched for '96. Among the new features are the three piece



hood assembly which folds back smoothly and the rear cutting unit which slides back to allow total access and ease of maintenance. There is also a major upgrading of the hydraulic drive system incorporating heavy duty wheel motors and automatic 3WD which cuts in when mowing and out when downhill. Power steering is standard and the new Tri-King is available for five or 10 blade reels with a seven blade unit scheduled for introduction later this year.

The T44 5-cylinder mower from **Hayter** is the most powerful and versatile in the Hayter range. It has a 3500 mm (11'6") cutting width and is ideally suited to golf course fairways, sports grounds and other amenity areas. Available with fixed or floating heads for heavy or fine turf areas the high output mower has fully hydrostatic two and four wheel drive with a 48hp Kubota engine. It can also be supplied with a hydraulic tilt kit for use in conjunction with the fully floating cutting heads.

A new larger pack of **Levington Turfclear**, the dual fine turf fungicide and worm cast control product based on carbendazim was launched at the Show. Sales of the Turfclear have increased dramatically over the past three years and as a consequence the company has introduced the five litre size.



New Chairman Dean Cleaver was delighted to meet a satisfied BTME 96 exhibitor in the shape of **Kim Macfie** of Hayter's who had clinched another sale.



A low cost portable backlapping machine has been introduced by Ransomes' company, **Supreme Mowing Ltd.** Known as the Ecolap the new unit is suitable to anyone wishing to restore a keen edge quickly and economically to mowing cylinders between major regrinds. The Ecolap is ideal for backlapping cutting cylinders of 4in to 10in and has a quarter horsepower single-phase electric motor giving a fixed lapping speed of 140rpm. Supplied with a universal joint and drive adapter, three different cylinder drive sleeves and 500gm of lapping compound the Supreme Ecolap costs £375.

Green Link International and Farmura Ltd have produced BIGGA's first Official Desk Planner for all

Head Greenkeepers.

Printed in full colour and headed by the BIGGA logo the planner has been designed to provide greenkeepers with a useful work

It's showtime!



The Karaoke night was a big hit with the star of the show Joe Vargas, pictured below, who gave fuel to the rumour that "There's a guy talks down the conference claims he's Elvis." Also making a bid for stardom were the BIGGA Girls and the Miracle Boys, pictured above and left. Photographs by Scott "Paparazzi" MacCallum



Following in the successful steps of Linda Nolan and Tom O'Connor last year Lyn Paul and Stan Boardman were given the task of ensuring the Banquet guests were whipped into a frenzy of enjoyment and hilarity. They were both up the job and ensured the continued soaring success of the Banquet Evenings. Stan Boardman got on so well with the German guest sitting nearest to the stage that by the end he had been bought a drink to cement the friendship.



Machinery maintenance

Roland Taylor offers some useful advice on machinery maintenance and getting the most out of your equipment.

There are three good reasons for having a maintenance programme in 1996.

The first is, of course, safety.

The Health and Safety Provision and Use of Work Equipment regulations 1992 states the following under section 6 (Maintenance).

1. Every employer shall ensure that work equipment is maintained in an efficient state, working order and good repair.

Where machinery has a maintenance log this will be kept up to date.

The word "efficient" relates to how the condition of equipment could affect health and safety and not to its actual productivity.

The document stresses the

importance of machinery being maintained so that its performance does not deteriorate to a level where people's safety is at risk.

Under the sub-section entitled "Routine Maintenance", it states that periodic lubrication, inspection and testing as recommended by the manufacturer, plus any specific legal requirements should be carried out. Any components that are found to have failed, or are showing signs of possible failure before the next scheduled service should be repaired or replaced.

In addition to the safety aspect and keeping the machine operational, routine maintenance should be looked upon as a preventative exercise that will help to provide early warning signs of possible future breakdowns.

2. Caring for the environment. A major component of any powered equipment is the engine and

regardless whether it is petrol or diesel it is a potential source of pollution. Manufacturers have made great strides in recent years to reduce the amounts of emissions that their power units produce, but the fact still remains that the levels of pollutants emitted are governed by the carburettor settings and the general condition of the engine.

Noise and vibration are two other factors that need to be taken into consideration. That hole in the exhaust will increase the decibel rating considerably. A badly balanced or damaged blade is not only dangerous it also sets up vibration throughout the machine.

3. Preventative measures. Any maintenance programme should include an overall inspection of the machine to identify any possible area for potential problems. Nuts and bolts sometimes become loosened. Belts or chains

wear and become loose, these will require adjusting or renewing. Rotary blades and flails showing any signs of damage or excessive wear need replacing immediately. Cylinder damage will generally have already been identified in the deteriorating quality of cut.

By carrying out a general inspection of the whole machine every time it is in for an oil change, little things can be dealt with before they become big breakdowns.

Any machines used on a golf course will at sometime be working in a fairly hostile environment. It is subjected to high levels of dust, dirt, grass clippings, sand and chemicals so keeping it clean should be part of any programme. Regular removal of these deposits reduces the possibility of:

- Engine damage
- Poor performance



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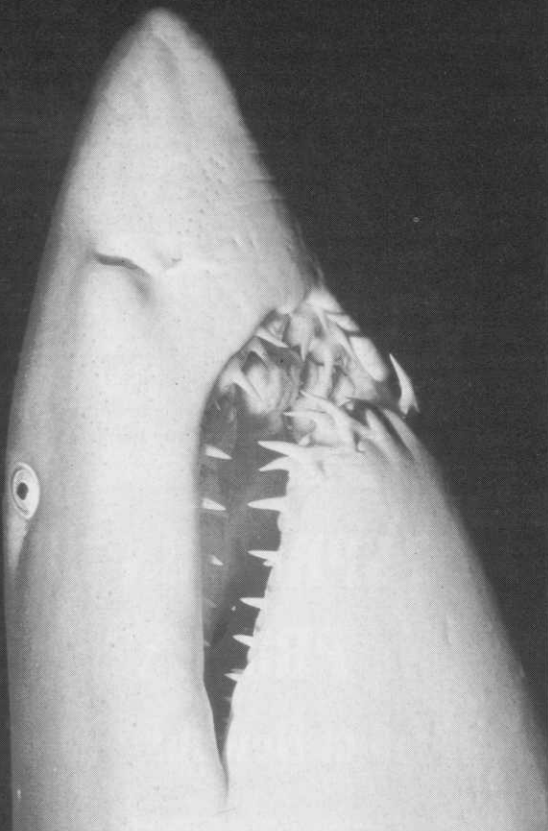
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Machinery maintenance

'Oil is the engine's life

- Drop in efficiency
- Damage to metal components through corrosion
- The machine is easier and more pleasant to use and service.

There are plenty of pressure washers (see December issue) on the market to make this task easy.

Considerable advancements in the design of equipment, engines and components have led to longer periods between services. While this is a bonus it does not reduce the importance of carrying out regular inspections within the intervening time, in fact it increases it.

With the new season only just weeks away, now is an ideal time to take a look at your equipment maintenance programme for 1996.

Engines

The most important component of any piece of machinery is its power source, which always needs to give optimum performance and therefore requires regular attention. A majority of readers will have machinery fitted with diesel engines. These require similar servicing to their petrol counterparts with certain exceptions such as spark plugs.

There are five main areas to be considered: Oil, air, fuel, electrical systems and emissions.

Oil

This is the engine's life blood and as such requires constant monitoring. Its main function is to keep friction (heat) to a minimum. For this to work satisfactorily the oil has to be of the right viscosity and used in the correct quantities. During use it is subjected to extreme temperature fluctuations and is polluted by the combustion process plus normal engine wear. As a result lubrication deteriorates and the oil will require changing.

How often this is done will depend on the manufacturer's recommendations and the quality of the oil. Levels should be checked every time the machine is used and topped up if necessary. A consistent drop in the amount of oil shown on a dipstick is a good indicator of excessive use of oil, and is a sure sign that something is going wrong and needs attention.

Oil Changes

There are two other areas where we are now seeing developments in the types of oils available – two stroke engines and hydraulic systems.

Smokeless two-stroke oil has been around for over 30 years. It is only now beginning to be recognised as beneficial to the operator, the engine and the environment. The basic ingredient of their latest introduction is a colourless, odourless gas (isobutylene) that is changed to become a non-toxic water white liquid called polyisobutylene. When the correct formula of this highly combustible oil is added to the petrol and introduced into the combustion chamber, it decomposes to its the original gas which produces water vapour and carbon dioxide. Both these are harmless and do not pollute the air with oil smoke.

Conventional refined petroleum base oils have high boiling temperatures and do not readily decompose during combustion. They are converted into a dense oil vapour that forms clouds of oil smoke. This remains in the air until it cools and then settles on the ground and eventually rain washes the oil into streams and rivers.

Another disadvantage with petroleum based oils is the formation of residual tar-like deposits which build up in the engine. These find their way into piston ring grooves and exhaust ports. The engine's performance very quickly begins to deteriorate.

A smokeless oil produces no carbon residues, so its detergent action is more effective in dealing with carbon and gum deposits produced from burning petrol. As a result the engine is cleaner and performs better.

Biodegradable oils for hydraulic systems are now on the market. These are manufactured from rape seed oil and are claimed to have superior lubrication qualities to mineral oils. They are also said to be user friendly and minimise traditional non-allergic health complaints such as eczema and irritation of the respiratory tract. Tests have shown that within 21 days about 87% or more of the oil is broken down. In trials carried out by the

'blood and requires constant attention'

Turf Research Association it was found that when the oil came into contact with grass, discolouration occurred but there was no long term damage to the root system. Biodegradable chain oil has been available from chainsaw manufacturers for a number of years.

Air

The highly efficient air filtration system on an engine is designed to ensure that dirt does not enter the combustion chamber. Blocked filters cause an engine to run rich, and the pollution levels emitted rise sharply, so does the amount of fuel used. Starting becomes difficult.

A foam cartridge is the most common air filter used and these need regular cleaning, especially in a dry, dusty season like the one we experienced during 1995. If a filter is found to be excessively dirty or damaged it will need

replacing with a new one.

Air is also used as a coolant and for it to be effective it needs to flow freely through the cooling fins on both an engine and the hydrostatic transmission unit. Dirt and grass clippings tend to block these and as a result restrict the amount of air passing through them. In this case the temperature begins to rise dramatically and if the obstructions are not cleared, the units will eventually seize-up or catch fire. Again, this is likely to occur more often in dry dusty conditions, so regular checks need to be carried out, especially under guards and covers.

Petrol

One of the most common engine problems in spring is failure to start and the culprit is stale petrol. When investigating the cause it is often discovered that fuel left in the system has dam-

aged carburettor components and piping.

In this situation drain off any liquid in the system, dismantle the carburettor and clean all the parts with a proprietary cleaner, fit new ones if necessary and fill the tank with fresh fuel.

Modern fuels have a limited life so unless a stabiliser is added the system should be drained prior to the piece of equipment left idle for long periods.

Electrical system

Electronic ignition consistently produces a highly efficient spark. However, the spark plug does require some attention since its life and performance does depend on how much it is fouled-up rather than actual electrode wear. There are a number of factors that contribute to this build-up of carbon including the shape of the combustion chamber, engine running speed and operat-

ing temperature. It is not worth cleaning a spark plug - always replace it with a new one of the correct type for that particular engine and with the correct gap setting.

Emissions

These depend on how efficient the combustion process is and this is reliant on the correct mixture of air and fuel. As has already been shown, blocked air filters can change this ratio, so will a badly adjusted carburettor. Fluctuations in engine running temperature or a fault in the electrical system can also alter the levels of emissions. It is important that carburettor settings are correct and are regularly checked to ensure they have not changed. Badly worn engines, while being extremely inefficient, are also a major source of pollution.

Transmission and other

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Machinery maintenance

hydraulic systems

Hydraulic systems are commonplace on today's machinery and like the engine these require regular attention if problems are to be avoided. On some applications systems work at extremely high pressures – often as much as 10,000psi.

For this reason and to obtain long life only the correct oils should be used.

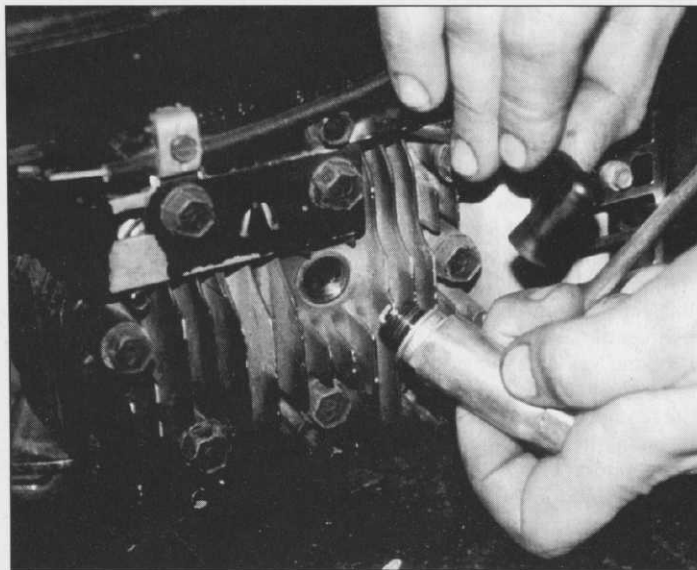
One of the most important factors to bear in mind when dealing with hydraulic systems is cleanliness. The introduction of any dirt or water will spell disaster.

A daily inspection of the whole system is recommended and particular attention should be paid to the following:

- Is the oil at the correct level? A drop in oil level could mean a leakage. It may only be small at this stage, but it needs further investigation.
- Does the oil look dirty?
- How is the system performing, are there signs of it slowing down? A pump may be wearing.
- Is it noisy? This is often the symptom of a blocked filter.
- Has the operating temperature increased? The cause needs to be found.
- Hydraulic hoses which show signs of chaffing need to be re-routed or replaced. Signs of leakage from joints also need attention.

Periodically clean or replace any filters in the system in accordance with the machine's instruction manual.

If a problem does occur then call in a hydraulic specialist.



Grease

Sealed bearing assemblies are today commonplace and require no attention. However, greasing points can be found on some pieces of equipment. It is very easy to over-grease, so care is needed – overdo it and the grease is forced back out of the nipple or seal where it hangs in a blob, attracting dirt, sand and any other foreign matter that is floating around.

Belts, Chains and Guards

These days, chain or belt drives usually have an automatic adjuster. It is worth making sure that these are working correctly and that the belts are not fraying or splitting. In the case of chain drives these will require some form of lubrication.

Guards that are showing signs of fatigue or damage should be repaired or replaced.

Cutting Systems

In the introduction we talked about the safety aspect regarding cutting systems.

Other problems are also associated with blunt or damaged blades:

- The power requirement to drive them increases considerably.
- Greater stress is placed on the engine and components such as bearings, belts and chains.
- The quality of cut rapidly deteriorates and the turf may be damaged.
- An unbalanced blade is highly dangerous and vibration sets up throughout the machine could cause metal fatigue.

In the case on a rotary or flail mower where it is known that the cutting system has come into contact with an obstruction, the blade carrier should be inspected thoroughly for any sign of broken welding or distortion and replaced if necessary.

Knowing your machinery is important factor in avoiding problems. Always be on the lookout for a change in the normal pattern.

- Does the engine sounding different or has it suddenly become

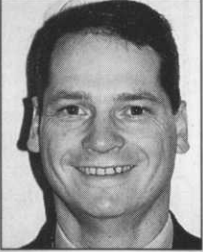
ing difficult to start?

- Are the hydraulics slower or noisier?
- Is there an alteration in the overall noise of the machine
- Are drives less smooth in their take-up?
- A hot spot is one of the biggest symptoms of a problem.
- Has fuel consumption increased for no apparent reason?

All these are strong indicators of a possible problem that needs further investigation. By acting immediately the chances of that frustrating breakdown at a most inconvenient time are greatly reduced.

Today's golf course equipment has to be cost effective, efficient and consistently produce a high standard of finish. This will only be achieved if is cared for, maintained and serviced regularly. Time invested in this is well spent and will pay dividends all round in the long run.

I THOUGHT BTME 96 WAS THE BEST YET BECAUSE:



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– Paul Murphy, Downfield GC

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Turnberry Hotel Golf Club
George Brown, Golf Courses & Estates Manager
"I do not normally get excited about new products but I must admit that the results we have had from Primer 604 have been outstanding in this difficult year. Having done trials on our championship course, we had fantastic results and I will be using it on all other areas of the course in the future."

West Kilbride Golf Club
Jim Paton, Head Greenkeeper
"Since I started using Primer 604, I now have 100% grass cover on all greens, after many years of dry patch problems."

"I said I'd want my money back if it didn't work; I'm not asking for a penny."

Murcar Golf Club
Chris Pearson, Head Greenkeeper
"Drought conditions are a thing of the past and dry patch problems are no more - thanks to Primer 604."

Sherwood Forest Golf Club
Kim Kirkham, Head Greenkeeper
"Using on a monthly programme we were delighted with the results. We will use Primer 604 again this year."

Carnoustie Golf Club
John Philp, Course Manager
"We have had excellent results from Primer 604 during our summer spraying programme on both the Championship and Burnside courses. It out performs all previously used products."

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ITS A FACT !

Plain water does not uniformly wet soil. It penetrates the soil unevenly, runs off or lies on the surface due to the soil being water repellent. It behaves in an erratic manner causing observable defects in the grass growth and coverage.

In order to get the best from turf playing surfaces we need to offer nature a little help by using the range of Supaturf Water Management Products: Primer 604, AquaGro and InfilTRx. These products have differing specifications and varying degrees of sophistication, but all work to make water wetter by reducing the surface tension. This encourages the water to work its way to where it is needed - into the root zone of the grass. As a result the grass grows healthily and stays green.

"I am a long time user of AquaGro, but find that Primer 604 is better than anything else I have used before. I used it on a bowls green where dry patch had occurred and it has been "cured"it does the trick"

Richard Shepherd, Contractor

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Water Management Products

PRIMER 604 MATRIX FLOW SOIL SURFACTANT

Primer 604 is the result of several years extensive research and is the only Matrix Flow Soil Surfactant available. It is environmentally friendly, does not burn or scorch and needs no watering in. It literally primes the soil to allow water penetration into the root zone and encourages it to do so in a matrix, or even distribution pattern. Launched by Supaturf in 1995 and already used by the country's leading groundsman and greenkeepers.

Primer 604 is available in liquid or spreadable granular form.

- DOES NOT BURN
- DOES NOT SCORCH
- DOES NOT NEED ANY EXTRA WATERING IN AFTER APPLICATION
- TREATS 18 GREENS WITH ONE 600 Ltr TANK
- MIXES EASILY WITH WATER IN ALL CONDITIONS
- STAYS ACTIVE FOR UP TO 45 DAYS
- BENEFICIAL EFFECT BUILDS UP WITH REPEATED APPLICATIONS

GUARANTEED

AQUAGRO SOIL WETTING AGENT

For many years now a favourite product in the golf fine turf markets. AquaGro is a broad spectrum wetting agent and is suitable for all soil types e.g. sand, loam, clay etc.

It is essential when using AquaGro to accurately follow the correct application and dilution rates and to properly water in after application. If you are not an experienced user please send for the Supaturf product information sheet and ask for a free Water Management Products Programme, which we will be pleased to tailor to your exact needs and circumstances.

AquaGro is available in liquid form and in 1Ltr packs suitable for use with the Dilute 'n' Shoot application system, or pellet form for use with the Advantage automatic mixing application system.

INFILTRX SOIL PENETRANT

InfilTRx is a soil penetrant, specifically developed to be applied through irrigation systems. It produces excellent water penetration with economy when treating large areas of fairway or sports fields. It cannot claim the premium performance of Primer 604, but this is reflected in the price. A golf course can treat a typical fairway for as little as £25 per month and will benefit from a greatly improved appearance and playability.

InfilTRx being used through an irrigation system



The Primer 604 range



The AquaGro range



InfilTRx 20 Ltr drum



WE CAN PROVE IT!

As you would expect the Supaturf range of water management products have all been subjected to extensive field trials and scientific tests that prove their performance and beneficial effect.

The pictures and illustrations on this page show the results of some of these trials and tests. However as the performance of advanced soil surfactants is rather complicated we suggest that you send in the coupon on reverse of this leaflet for an information sheet and/or your own personalised Water Management Products Programme. Both contain much more information than we can provide here.

In the examples on this page, we have concentrated on the performance of our premium product Primer 604 to demonstrate its superior performance characteristics.

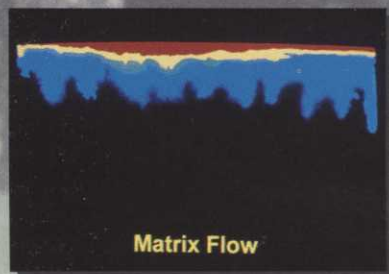
Products at their Professional Best

HOW PRIMER 604 WORKS

The unique ability of Primer 604 to encourage a matrix flow of water in soil, vertical and lateral movement, is demonstrated by photographs A and B. These images are computer enhanced photographs of water movement through an American style sand green. In photograph A of an untreated green, the typical fingered flow pattern is clearly seen. This irregular flow denies water to areas of the soil profile and water related problems occur e.g. dry patch. Once treated however with Primer 604 as shown in photograph B, the fingered flow movement is removed and the water flows evenly to where it is needed and only where it is needed - the root zone.



A

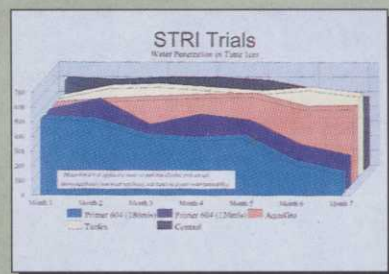


B

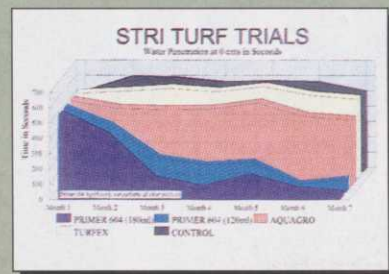
THE PROOF THAT PRIMER 604 WORKS

Don't just take our word for it. The Sports Turf Research Institute - STRI, has also conducted tests with Primer 604 compared to old technology wetting agents. They used a golf course in Yorkshire over a 7 month period. The results are demonstrated in charts C and D. As you can see, Primer 604 out performed the competition dramatically, even our own AquaGro. Proving its unrivalled performance.

The visual benefits of the use of Primer 604 are demonstrated in photographs E, F, G and H. Here, an active golf course was used for a trial where a hole was treated with Primer 604 on the forward or short tee for a season, whilst the back or long tee on the same hole was not treated. The effects are dramatic. The untreated tee has suffered severe dry patch (photo E) and a core taken after the season (photo F) cannot hold its form and crumbles to dust. The treated tee however is looking fresh and healthy (photo G) after only two applications of Primer 604, and the core is uniformly moist illustrating the effects of matrix flow (photo H). A remarkable result.



C



D

WORLD RESEARCH WITH PRIMER 604

Primer 604 has undergone trials around the world, specifically in North America, UK, Mainland Europe, Australia and Japan. These trials, on more than 50 sites, have all proved that Primer 604 is a major advance from standard water management products, dramatically improving the water penetration in the upper 2cm of soil. It was found that after only one application of Primer 604, soil hydrophobicity was reduced in 50% of test sites, after two applications this was observed in 78% of sites and after 3 applications in 94% of test locations. It was also established that the higher the application rate (within application guidelines) the greater the beneficial effect. Outstanding.



E



F



G



H

The **WATER MANAGEMENT** forum

Announcing the arrival of The Water Management Forum, a newsletter that is dedicated to discussing the real issues about the increasingly important subject of managing that most important of raw materials - water.

This service is Free to all golf clubs



The WATER MANAGEMENT Products Programme

We will ask for some simple details of your course and will produce for you your own Water Management Products Programme, outlining suggested application methods, rates and costs etc. Another free, no-obligation service from Supaturf. Ask for an application form using the coupon below or phone us direct.



SUPATURF INFORMATION SERVICE

Ref GT1

Clip this coupon and return to Supaturf, postage free, for more information on the range of Water Management Products. Each request will be despatched with a replacement brochure.

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SPORT TURF MANAGEMENT

ESPANA SL

TEL: 00 34 5260 1831

FAX: 00 34 5260 1477

C/ Marques de Larios

3-2.0 Dcha

29015 Malaga, SPAIN

SUPATURF SPORTS

TEL: 00 32 24 11 47 90

FAX: 00 32 24 11 48 783

Rue de Manchester - Manchesterstraat 3

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FAX: 00 46 31 87 87 98

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TEMPROVERDE Srl

Phone: 00 39 11 971 11 23

Fax: 00 39 11 972 34 20

Via Gregoria No3

10022 Carmagnola, (TO), ITALY

All Supaturf Water Management Products are manufactured by the Aquatrols Corporation of America and are imported into the European Community by Supaturf Products Ltd, England



Supaturf Products Ltd
Amenity House, 2 Maizefield, Hinckley Fields Industrial Estate,
Hinckley, Leicestershire, England, LE10 1YF
Phone: 01455 234677
Fax: 01455 234714

