Above: A short hole at Auckland Golf Club

<<

growing there, this being the national emblem of New Zealand. These ferns can grow ten metres in height, and are used as fence posts.

Travelling down to South Island, where the climate is very similar to our own. I had the pleasure of meeting several greenkeepers from the Christchurch area, and was invited to accompany them to Lancaster Park, the venue for the first Test Match against England, to see at first hand how a Test Wicket is prepared. Although practices for the preparation of cricket wickets differ from those required for golf greens, the pressures involved in trying to create a perfect surface are very similar to those we know so well in greenkeeping.

Top courses

Christchurch and Russley are the two top courses, and I was fortunate to be able to play both. I found each had Brown Top greens with a little Poa Annua, which seemed very common throughout the South Island. Richmond Hill, a little nine hole course, was the exception, with fescue/bent greens. The course, built on the side of a hill, had fencing around the greens to keep the sheep off. Interestingly, there were two holes to each green, a red flag in one hole and a yellow in the other, thus creating the 18 holes for the course.

Christchurch has the proud distinction of having Bob Charles as an Honorary Member, this being granted following his victory in the 1963 Open Championship. Russley was in magnificent condition. Walter, the head greenkeeper, has a very comprehensive watering system which is supplied from an old river that runs under the course. The north-west wind that blows in from Australia is a greenkeeper's nightmare. This wind can blow at 30-40mph with temperatures in the 40s Centigrade, which dries everything out in a matter of hours. It then requires days of watering for the course to recover.

Similar

Greenkeeping practices in the South Island are very similar to our own. The greens are cut with a Triplex (I never saw a pedestrian mower anywhere) to a height of 4mm, and the frequency varying between four and six times a week. Top dressing takes place monthly, mainly with sand, and sprayed with sulphate of ammonia and iron. Wetting agents are used to help prevent dry patch, although some courses do still suffer from this.

Moving further South brings you to the Otago Province, which comprises two distinct regions. Around the coast the land is green, and the air moist and misty. Inland from this coastal fringe there is a dry, brown, mountainous upland. Otago has the distinction of being the first Province in which golf was played. Dunedin was the proud inheritor of the Scottish National Game, and developed there from the early 1870's.

Wanaka and Queenstown stand out as the best of the courses, enjoying clear mountain air and impressive views.

Queenstown has large boulders landscaped around the greens and tees - effective but somewhat hazardous.

Alexandra Golf Club has the unique distinction of never closing, despite experiencing great extremes in temperature. The sandy base provides for rapid drainage, and a complete watering system irrigates the course during the summer scorches.

In 1932 a group of greenkeepers formed the New Zealand Greenkeepers Association. The formation of this association, its annual conference and a diploma course were all designed to build up the standards and expertise in the industry. Sadly, some 56 years later, the association still faces problems of low membership, and this in spite of a fee of only $15 (about £6), for which the benefits are numerous.

Travelling to New Zealand made me realise that wherever one goes around the world we greenkeepers are all engaged in shaping the future of our profession.

by Brian Turner, chairman of BIGGA's Surrey Section

The construction of golf greens

by Jim Arthur

WHAT is the best type of construction? To understand this better, it will help to discuss the recent history of green construction on the less than ideal sites which are all that is generally available today. It is rare to be given an ideal links or sandy heathland site for a new course. Generally it is a stretch of heavy agricultural land which is hardly either ideal golfing country, nor particularly well drained naturally.

My involvement in golf course construction goes back to the late 1940s working with that genius of an architect Mackenzie Ross, first in Scotland then in Belgium.

There was then a long period when few new courses were built in Britain, until the boom starting in the sixties, when I returned full-time to golf advisory work.

I was horrified at what I found - even in those days I advised that greens sited on heavier land be built on stone carpets, though this was regarded as an expensive and generally unnecessary luxury.The usual method then was to lay down a herring bone drainage system, if anything, topped with local soil, finishing with 2" seed bed compost. No wonder we have so many poor courses with even worse draining greens.

Even when stone carpets became more generally used - as opposed to using them only on wet sites, mistake followed mistake. Earth moving equipment was used, with no regard for its destructive effect on soil structures in root zones; churning up approaches and causing insoluble problems with drainage. Even then much too heavy soils were used - always on the grounds of expense. Some of those early courses twenty five years ago were built for under £10,000 - and never was soil imported. Worse still, the wrong 'stone' was used - and the fatal results of using limestone or lump chalk particularly, on acid heathland sites, was proven when greens had to be lifted and relaid within a few years of construction. The chalk fizzed away quietly to itself, breaking down into a wet, plastic and totally impermeable base, with obvious results on drainage and turf.

cheap construction

These errors were made in the interests of cheap construction on the false grounds that what one did not spend, one did not have to earn. Yet correct construction, though more costly, always turns out to be cheaper in the long run.

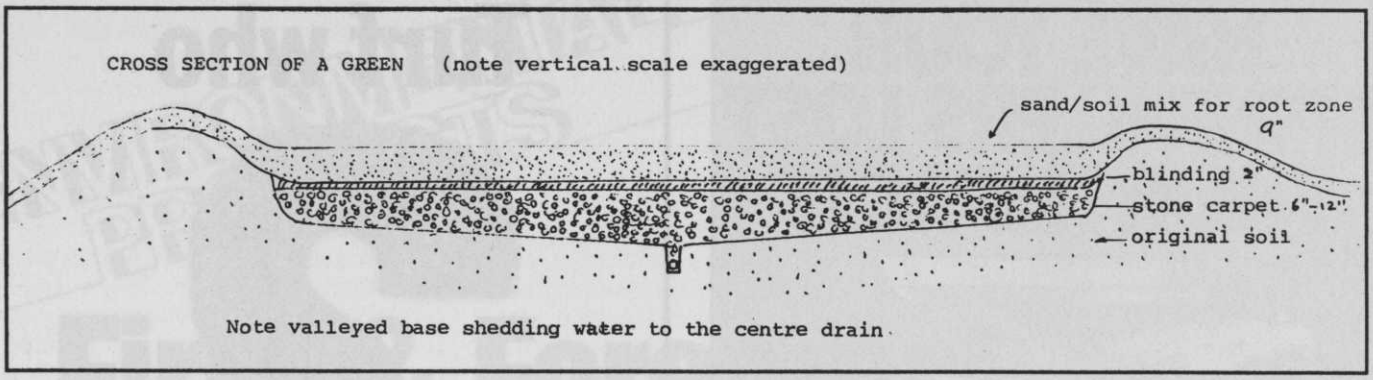
It bears constant repetition that drainage is our main problem but this must be achieved without creating an unnatural ecology, which has to be maintained artificially and very expensively - and which, as in all knife edge situations, is bound to come apart at the joints sooner rather than later. The two extremes can be reconciled by proper specifications, selection of special sandy soils for the root zone and avoidance of compaction during construction. Merely running a series of drains under a green is no answer. At best the drain lines show in a drought and at worst they drain only a narrow zone on each side of the drain. Therefore, logically the green must be built on a raft or stone carpet which is itself efficiently under-drained but the surface effect of such drains is masked by the raft.

Constructional compaction is still the prime fault of many courses built in the past twenty five years. Building by hand e.g. with wheelbarrows and spades is obviously out, if only because of the high cost, yet it is fatal to use earth moving equipment in areas where special drainage is essential. It has always been the most important constraint in my specifications that no wheeled or tracked vehicle must be used on future putting surfaces or aprons. However this increases costs. Therefore a compromise has been successfully reached in recent years - and it is significant that no greens built to these specifications have proved to be unsatisfactory, in contrast to others.

no argument

There is generally no argument about basal construction - namely that the base of the green should be excavated with a valleyed contour to shed any water which reaches it, laterally, to a shallowly inserted central spine and alternate and opposite herring bone drainage system, with flexible perforated plastic drains and pre-formed junction units, run to a proper outfall and not just, as so often happens to a small sump sited in the most important area of all, five yards in front of the green, creating a soggy bog and giving impossible run-up conditions. This excavation and construction can safely be carried out with earth moving equipment as the base does not need to be permeable and indeed it is an advantage for it to be consolidated and stable.

The arguments start with the selection of material for the stone carpet. Whilst various grades of gravel may be theoretically effective as drainage they fail the practical construction test because gravel is so 'fluid' that it moves under



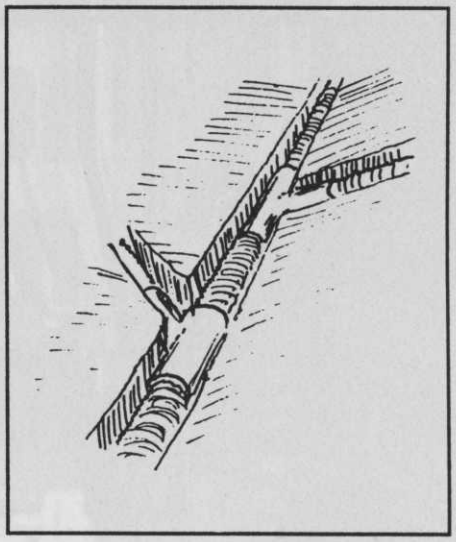
traffic, and sinks into the base of the green. It is essential for the success of this method of construction that angular stone be used because of its stability.

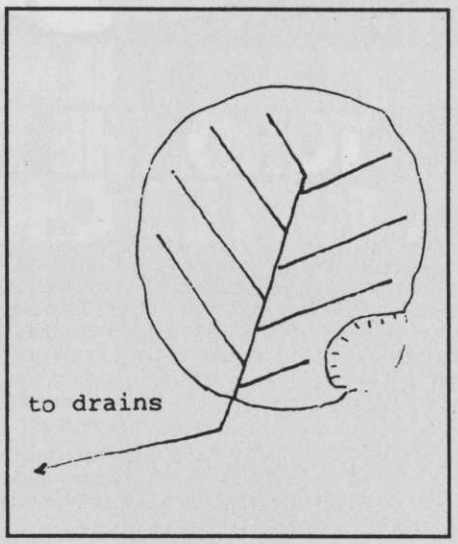
heap of stone

Once the base is graded out, and the drains inserted and topped by hand with the same stone as for the carpet, after blinding them with finer stone or gravel, then a heap of the specified stone is dropped into the centre of the green, with a Hymac or similar long jibbed excavator. This machine is then moved, sitting stationary on that levelled pile, to introduce and level the rest of the stone carpet to conform to the finished contours of the green.
In many cases, there is limited local choice about the stone, but it must never be decomposable, soft sandstone and certainly never lump chalk or limestone. A size between 2"-3" or 3"-4" depending on availability, is ideal. Hard sandstone, gritstone, whinstone, granite, 'main-line ballast', flint reject from cusher-run have all proved successful. Small gravel has not, as it is unstable, and the only way for it to give good results would be to use a drag-line excavator to introduce it!
Of course, there are large voids - intentionally - and of course the stone must be blinded, with a material naturally varying with the stone used, so as to be compatible and preventing infiltration of the root zone mix, again ranging from clean 'sharp' ash, clinker or smaller grades of stone or coarse gravel - and even to the extent of using two, compatible, graded blinding layers in the case of large stone.
The secret of good greens is to try to copy what is under the best natural turf - virtually a humus enriched light sandy 'soil' - but containing within the meaning of the Act no clay and very little silt. This does not mean mixing peat and sand! The ideal mix comes from deep alluvial deposits in East Anglia's often overlying gravel and derived from old, long since drained, lakes. It has been shipped in bulk to Ireland, the north of Scotland and the extreme South West. This fen soil is diluted with 70% - 80% sand of a specified grain size and uniformity and produces a consistent uniform root zone. More importantly, the subsequent top dressing can be carried out with exactly the same material.

uniform layer

It is vital that the root zone layer is absolutely uniform if roots are to develop to its full depth. This means mixing the fen soil and sand off site, and never on the green site itself. Rotavating in peat or even fen soil into sand already introduced will never achieve the homogenous mix which is vital to success.
Pockets of sand, or worse still, peat or humus-rich soil can have disastrous effects on the overlying turf.
The sketch shows the methods - but experience influences the results. This is a vast improvement on the old method of using local soil however much diluted with sand. Clay plus sand makes bricks. Only a decade ago some advisors were still recommending 2" of 'seed bed compost' over a local soil base (with or without stone carpets). Needless to say the roots never ventured into the unfriendly world below, and with this





encouragement surface rooting annual meadow grass soon displaced the sown grasses.
If golf courses are to be built well and cheaply they must be built quickly. Of course, if you can afford to spend six weeks or more building one green, using hand work only, then gravel may be one answer but the end result is the needless spending of money. Courses costing £1 million and more, even if most of this has been spent in massive earth-moving of the

Continued on page 26 >>

HAVE YOUR SPRINKLERS LOST THEIR IMPACT?

REPLACE THEM WITH TORO, THE TOP PEOPLE'S CHOICE!

Ask your Head Greenkeeper if he's totally happy with the performance and reliability of the sprinklers around your course. If there are doubts, call your nearest Toro Distributor for helpful professional advice. He will show you the range of Toro gear-driven sprinklers designed especially for golf course watering. He will tell you just how technically superior they are - how they can improve watering efficiency and just how simple it is to improve your existing system.

Top people's choice? You'll find Toro Sprinklers watering the sacred turf of St. Andrews, Centre and No. 1 Courts, at Wimbledon and the pitch at Wembley Stadium...

P.S. Toro make sprinklers to water greens, approaches, fairways and tees - putting areas too!

TORO®

Toro Irrigation Limited
Unit 7, Millstream Trading Estate, Ringwood, BH24 3SD, Hampshire. 04254-6261
Your Toro Distributors are:
Home Counties, East Anglia & South East
Golf Landscapes Irrigation, Brentwood. Tel: 0277-73720
South & South West Irrigation Slurry Services, Downton, Wilts. Tel: 0725-20377
Midlands, North, Scotland & Wales
Turf Irrigation Services, Sandbach. Tel: 04775-255

The top people's choice!

Turf who

FOR SPORTS SURFACES
FOR BOWLING GREENS
FOR AMENITY AREAS

The solution to your "green" problem.

Turfland
where the grass is always greener

The country's leading turf nursery.
Nurseries in the prime grass-growing counties in England

Turfland, Dutton, Warrington, Cheshire, WA4 4LL.
Tel. (0928) 719336

Turfland, Wembdon Farm, Bower Rd, Smeeth, Kent TN25 6FX.
Tel. (0303 81) 2813

COMPACTION, THATCH OR DRAINAGE PROBLEMS?

For really fast hollow tining of your problem areas, with variable tining and coring, get Coremaster on your side and cut disruption to a minimum. C. & M. Sportsground Management, can core up to 18 Greens in a day, or a Bowling Green in 3 hours - fast specialist equipment - at economical rates.

GET C & M COREMASTER HIRE WORKING FOR YOU

Contact the Turf Aeration Specialists C & M Coremaster Hire.
22 Rosemount, Wallington Square, Wallington.
Surrey SM6 8RW

SPORTSGROUND C&M MANAGEMENT

TEL: (0306) 884732.

ENVIRONMENTAL PRODUCTS

First & Foremost in the fight for vegetation control

A comprehensive range with a quality of service that's difficult to beat – why settle for less?

For further information or advice on specific problems, contact your usual supplier or Environmental Products at the address below.

RHÔNE-POULENC

Environmental Products Regent House, Hubert Road, Brentwood, Essex CM14 4TZ. Tel: (0277) 261414.

READ THE LABEL BEFORE YOU BUY: USE PESTICIDES SAFELY

The control of vegetation and its associated problems calls for professional management and cost effective solutions. Environmental Products supply a wide range of herbicides, fungicides and insecticides, as well as products to control moss and to restrict grass growth.

In addition to the range of pesticides, ancilliary products including "Dyon" spray colourant, "Lurmark" filters and nozzles, knapsack sprayers, granule applicators and dispensing pumps are available.

The key is the provision of a service and range that is second to none. To assist in training and education, Environmental Products have also produced a wealth of information for the professional.

Information Service

Videos and Literature

A comprehensive range of literature incorporates six professional guides and three training videos.
Details of videos, booklets and further information on any of the products may be obtained from your usual supplier.

SUPERTOX 30
contains 2, 4-D/mecoprop
SERITOX TURF
contains dichlorprop/MCPA
MILDOTHANE TURF LIQUID
contains thiophanate-methyl
ROVRAL GREEN
contains iprodione
ROVRAL GRANULES
contains iprodione
SUPER MOSSTOX
contains dichlorophen
CASTAWAY PLUS
contains thiophanate-methyl/lindane
CROSSFIRE
contains chlorpyrifos
MOWCHEM
contains mefluidide
CLEARWAY
contains simazine/aminotriazole/ammonium thiocyanate
SPASOR
contains glyphosate

the construction of golf greens

<<

site to make it conform to the so called architects preconceived ideas ('Identikit courses' I call them), will certainly never see a satisfactory financial return on the expense. To build well and cheaply means building quickly and this means mechanisation. This is impossible on gravel - and even less so with pure sand.

very few courses

There are in fact very few courses where the greens have been built with *pure* sand - most are with humus-enriched sand or a sandy soil - and not one of these pure sand greens has stood up to the test of time.
It is fashionable to claim it was the use of the wrong materials or bad specification which was responsible for the poor results with sand greens, but whilst the use of binding angular, concreting sands made disaster inevitable, it is the concept that is wrong in the first place, and with it, the management which is enforced by this type of construction, virtually hydroponics i.e. growing plants without soil. This ensures that in the absence of any limiting climatic factors e.g. very hot summer temperatures, annual meadow grass is bound to dominate and under our climatic conditions we can never produce the superb pure bent (Agrostis) putting surfaces, which are such an attractive feature of the best desert courses in the States.

show me!

I would be more easy to convince if anyone could show me a good green more than two years old, subject to even modest play in the UK, built on pure-sand. Let it be clearly understood - it is pure, not 'dirty' sand I am criticising - and even if we had - (which we have not) - the need for intensive irrigation in the UK, annual meadow grass is bound to dominate as a direct result of NPK manurial treatment, without which even the fine grasses would die, on sand alone.

our main enemy

Annual meadow grass is still our main enemy. We do not have to live with it. It is not inevitable unless management (past or present) is or has been wrong. But if you build greens the wrong way you have lost the battle before you start.
There are of course many finer points of construction - and one is the need to insert the horse-shoe main serving the pop-ups into the base of the green (the perimeter of the stone carpet) without risking subsequent damage to the pipes, and at the same time avoiding unacceptable disturbance of the prepared seed beds.
A plea is made to Architects not to indulge in flights of fancy with exaggerated contours. Mackenzie greens are all very well, but their inventor, who used the two-tier green to accommodate a green into a steep slope, stated that such greens must be at least 800 sq. yards in extent, to compensate for the fact that well over a third of the green area was not available as pin space.

always difficult

Management of the slope is always difficult, not just mowing and the attendant risk of scalping, but also because everything sheds to the lower level - fertilizer, top dressing and above all water. With such greens pop-ups can at best provide only the basic minimum needs of the low wet areas and the ridges have to be topped up by hand-held open hose, with penetration aided by hand aeration and the use of wetting agents.
Common errors with this construction are in the depth of the root zone which must vary no more than between 9"-10" - just deep enough to sink a hole cup. One contractor who skimped construction costs and ended up with 6" soil, tried to resolve the problem by supplying 18 shallow hole-cups on the course he built some years ago!
This of course emphasises the need for constant and regular site supervision and total trust between architect and contractor if success is to be assured.
Surrounds to greens must also receive almost as much attention as the putting surfaces, though they are not normally built on stone carpets. Common faults are artificially steep, skimped mounds instead of bold but gentle contours, mowable by triple mower; coupled with false economy in soil preparation. Improved soil must be used, at least 4" in depth, after constructing the mounds integrally with the green.

care & protection

Approaches - perhaps second in importance in turf quality only to the greens - need care and protection to ensure perfect run-up conditions - with virtually no botanical difference between them and the green itself - only in the height of cut. This means not only keeping all construction machinery off these vulnerable areas, by working from the back and sides of greens wherever contours or site boundaries permit, but in much more attention to seed bed preparation.
I prefer seeding to turfing though in case of need e.g. the course having to be ready for play when an hotel opens or investors wanting to see the quickest return on their money, turfing is feasible now that we have better quality-control on 'cultivated' turf. When seeding, use the newest strains of Agrostis and fescue as they are proven to be so much better - (see the STRI Turf Grass Seed 1988 lists) and if you must economise use less, not cheaper, seed. We generally seed too heavily - which can help to keep out stray grasses - but the best method is of course to sow only when the soil is warm and moist (i.e. late July to mid September), as a quick establishment will produce the best results - well worth waiting a few weeks for - especially if the intervening time is spent on

cleaning the seed bed. I recommend that surrounds and approaches are sown with exactly the same (expensive!) mixture as the putting surfaces, since after all we want no difference in the end result.
How often one sees quite good greens and yet a foot off the putting surface, there is a thin open poor sward, with severe contamination from rakings pulled off the green and not collected! I cannot stress too much the importance of perfect marrying-in between apron and green itself.
I am sure there will be many who will push rival claims for alternative construction methods, but do remember one thing! This method is not only proven, but by far and away the largest numbers of courses *in good order* were built to this specification in the past decade and more, and none has needed lifting and all have given satisfaction as well as fine grass dominance, where management has been correct. I fully admit that not every new course with which I have been involved in the past twenty years is still successful but in every such case, my advice was over-ridden for the sake of saving perhaps £5-10,000 in original construction costs, we are now faced with costs in excess of £100,000 for rebuilding them (and all the disruption). It pays handsomely to do it right first time. There is no mystery about good course construction any more than with good greenkeeping - just a case of using logic and commonsense to achieve the right end. There seems to me to be neither logic nor commonsense in using systems that have been devised to meet the special needs of arid desert areas totally different from anything found in the U.K.

TURFGRASS PESTS

by Neil Baldwin Plant Pathologist, at the STRI

GREENKEEPERS in the UK are quite fortunate in that the number of pests that cause significant problems in turf is quite limited. Our counterparts in the USA, for example, have to deal with a wide range of insect pests - chinch bugs, sod webworms and bill bugs to name three examples. We do, however, have several pest problems, notably earthworms and also a few insect species who, if not discouraged by good turf maintenance or controlled with pesticides, can effect markedly both visual and playing qualities of greens and fairways. This article describes the main pest problems and gives advice on control.

EARTHWORMS

IT is a belief of many that earthworms, due to their ability to aerate the turf, relieve compaction and aid fibre breakdown, are a desirable, even essential, inhabitant of turf. However, casts produced by earthworms are unsightly and also may be smeared on the turf surface by golfers and greenkeeping equipment to create muddy conditions which may impede surface drainage. Additional problems are that casts can create an uneven turf surface which may interfere with play and also provide a seed bed for weeds.

Consequently, earthworm control measures are often necessary, particularly as the advantages conferred naturally by earthworms can be gained with mechanical aeration and scarification equipment.

Earthworms can be discouraged by management techniques such as boxing off clippings, avoiding excessive use of organic fertilizers or top dressing (to limit the earthworm's food supply). These operations will keep earthworm invasion to a minimum and consequently limit the need for chemicals.

Chemical control is, however, usually necessary if earthworms are to be maintained at an acceptably low level. At present chlordane is the most reliable chemical; it persists in the soil and remains effective for several years. As an alternative carbaryl may be used, but in most situations control will only last for one season. A third chemical, thiophanate-methyl, also has a deleterious effect on worms but to achieve satisfactory control application may have to be made fairly frequently.

INSECT PESTS

BY far the most important insect pest of turf is the leatherjacket, but other insects such as the fever fly (see Peel, 1988) and chafers may also cause problems. All these insects damage the turf in a similar way; their grubs feed on grass roots resulting in patches of severely browned or bleached turf. Attacks of leatherjackets are particularly likely in spring or autumn after hot summers or mild winters. Fever fly and chafer damage is usually noticed in late spring. In severe attacks, large tufts of damaged turf may be easily pulled out by hand, revealing the feeding grubs (up to 1000 per m2) underneath. Bird activity (mainly rooks and starlings) feeding on the grubs is often the first sign of attack.

Carbaryl, chlorpyrifos and gamma-HCH may be used against leatherjackets and should be applied in late autumn or early winter whilst the grubs are still relatively small and before they cause appreciable damage.

Chlorpyrifas is effective against fever fly and gamma-HCH against chafers respectively. These chemicals should be applied as soon as the feeding grubs are noticed.

REFERENCE

Peel, C.H. (1988). Observational note. A severe attack by fever fly *(Bibio spp.)* on a trial area of red fescues at Bingley in late summer 1987. *Journal of the Sports Turf Research Institute, 64.*

Below: Extensive damage by fescue plots caused by the fever fly.

THE SS100 . . . FIRST ON THE GREEN

IT GRADES . . . IT SHREADS . . . IT BLENDS . . .

Now, from GRADEALL comes a new concept in greenkeeping. A unique combination of blending, shredding and grading in a single unit that gives you:

*MAXIMUM MOBILITY

*HIGH PERFORMANCE RELIABILITY

*MAXIMUM TONNAGE OF QUALITY TOP DRESSING

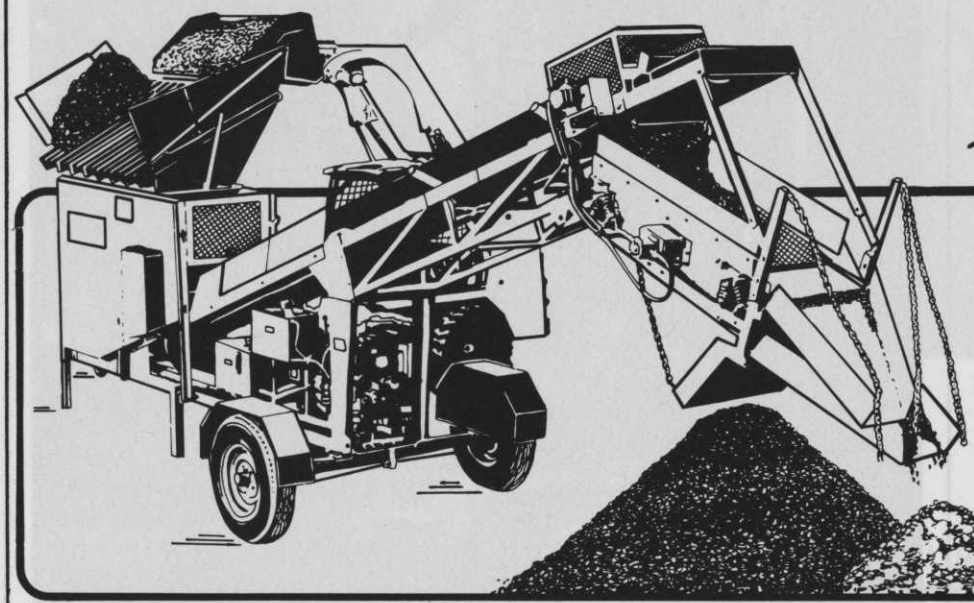
*MINIMUM EFFORT

The SS100 performs aggressively on even the poorest quality damp soil with stones, shrubs and sods producing high quality loose and manageable soil. In fact, the SS100 turns tough, lumpy organic humus into pure, workable compost.

From cricket tables, to bowling greens, to golf greens and fairways . . . indeed any turf area . . . you'll benefit from the SS100's unique capabilities. For Hire. For Sale. For Service.

CALL US...

if you want to make the GRADE!

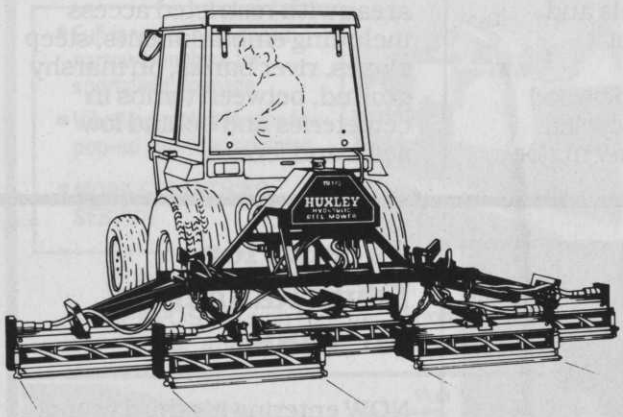


GRADEALL INTERNATIONAL

G.B. Office
GradeAll International Ltd,
3 Yew Tree Mews, Bailey Lane,
Ringway, Manchester. Tel. (061) 4990446

N.I. Office
GradeAll International Ltd.,
9 Farlough Road, Dungannon,
Co. Tyrone, Northern Ireland.
Tel. (08687) 40484.
Telex: 265871 MONREF G
Quoting 72: MAG 32854

Mowers for weight-watchers. Not weight-lifters.



Huxley Hydraulic Reelmowers for compact tractors prove that you don't have to be a heavyweight to be strong.

So, if your turf could benefit from a reduction in pressure, without a reduction in performance, please ask us to demonstrate.

We could save you pounds.

HUXLEYS
on top, on turf

HUXLEYS GRASS MACHINERY
THE DEAN, NEW ALRESFORD,
HANTS SO24 9BL, ENGLAND
Tel: 0962 733222 Fax: 0962 734702
Telex: 894426

COMPACTION ?

NOTEBOOK...

Bright idea comes to Britain

A REMARKABLE new French invention, developed for the fast and efficient removal of tree stumps, is now available in the United Kingdom from Charterhouse Turf Machinery Limited, the Surrey-based machinery specialists.

The Becker Tree Stump Remover is the result of 25 years' practical experience, and offers a number of important benefits.

* It completes in minutes a task which normally takes hours.
* It removes the entire stump and roots, leaving the soil in an immaculate condition.
* Its proficiency means that a new tree can be planted immediately after removal - and with no residual disease risks.
* It can deal even with up-rooted stumps - a major problem in the south of England last October.
* Its adaptability enables it to work equally well in what would normally be considered inaccessible locations.

This revolutionary development works like a super-efficient hybrid wood chisel and saw. Instead of attempting to uproot the tree stump, it speedily removes successive wood chips, thus eliminating the disadvantages of traditional grubbing methods.

The tree stump may either be removed entirely, or simply taken down to a depth of around 45cm. In either case only the stump is touched - the surrounding soil levels and adjacent areas are not disturbed.

After deracination the wood chips can then be re-cycled.

Contractors and other major users will be able to mount the machine onto plastic Caterpillar-type tracking to protect road surfaces and fine turfed areas. The unique design features enable it to be used in areas with restricted access including embankments, steep slopes, river banks, on marshy ground, between tombs in cemeteries and behind low walls and fences.

Facelift for Lawn Ranger for 1988

NOW entering it's third year of production, the 58" Allen Lawn Ranger has undergone a facelift for 1988.

The new look machine now has mudguards over the front wheels and new handlebars, and also features new type easy height adjustment.

The machine is now only available with 8hp Briggs engine.

Prices are £1,995 plus VAT for the recoil and £2,395 plus VAT for electric starting.