

ment and this is evident in the accelerated growth rate of newly emerged seedlings which can be a problem in itself.

Following emergence, thought must be given to providing the seedlings with the necessary nutrition to enable full establishment and persistence.

In the past overseeding was performed once annually, generally in September, and any fertiliser application typically using a granular product with an analysis 4:0:8 or similar also served to 'winterise' the surfaces.

As our overseeding programme is now commencing much earlier in the season and is seeing us perform repeated operations, we must achieve seedling establishment/persistence and rapid surface recovery without creating a flush of growth that would negatively affect playing characteristics. To achieve this we utilise products that we know and trust; Farmura Potash Plus and Farmura Liquid Seaweed are both products that we use throughout the maintenance calendar and both have proven effective in maintaining turf health and vigour without any negative effect on playability.

Approx one week following seedling emergence an application of both products is made aimed at pushing the seedlings on to establishment, thereafter Potash Plus is applied at 10-20l/Ha on a regular basis.

I feel that one of the attributes of the Farmura products that we are using is that while providing the seedlings with the required nutrition for increased resistance, increased rooting, etc, these applications are also improving the overall sward health.

At the same time as the Seaweed/Potash Plus application we will generally apply Primomax at 0.25l/Ha to restrict top growth in the seedlings and favour root development and tillering.

During 2009, two greens that were significantly different botanically to the other greens received an intense overseeding programme from late June through to October. The frequency of overseeding operations determined that we repeatedly sought to establish seedlings and achieve rapid surface recovery whilst maintaining playing conditions. Obviously as a result of the numerous overseeding operations that were performed, there were seedlings at several different stages of establishment within the same green, through regular light applications of Potash Liquid



ABOVE: Surface prepared to accept seed.

Seaweed we were able to provide these seedlings with a source of nutrition that proved appropriate to see all of the newly introduced plants persist.

As was stated initially, the overseeding process that we employ is very straight forward and involves just a few simple and straightforward operations. It is an operation that has been performed repeatedly for numerous years now and has yet to fail to produce satisfactory results. Seedling persistence has been achieved each time, this I feel could be attributed to some generally sensible maintenance practices. I would also attribute a degree of the success to the fact that in the early stages of life the seedlings are being maintained at up to 1" longer than the sward into which they are introduced; this is obviously a significant competitive advantage.

The practice of overseeding is a vital aspect of what we are trying to achieve at Royal Porthcawl GC and will remain part of our annual maintenance.

There is sometimes a misconception that botanical change has to be disruptive; we've achieved numerous overseeding operations and are progressing through a process of botanical change while staging both national amateur events and professional tournaments annually.

If you've got the environment set to support the desired species, I'd encourage anyone who isn't already overseeding but desires botanical change to give it a whirl.

The satisfaction gained from seeing excessive numbers of seedlings is great and the members also appear to take a significant interest when they can see that what you're doing actually works!



LEFT: Seed worked into holes



Financing equipment in the *tough times*

Keeping an up to date fleet of machinery can be difficult but there are ways and means

In these tough and uncertain economic times when businesses are making long-term purchasing decisions, they are not only looking for tailor-made financing options and the lowest possible interest rates.

More than ever they are reminded how important it is to only put their trust in a financing partner they can rely on to support them in the long-term – someone who understands their business and speaks their language.

“As a manufacturer owned

finance company we are primarily here to help customers purchase our products, rather than simply to sell them finance.

“And this is actually more important in the bad times than in the good times,” said Andreas Peppel, John Deere Credit’s European Sales and Marketing Director.

“In recent years we have found an increasing number of golf clubs worried about the rising cost of maintaining and servicing older machines are taking up replacement finance schemes,” added UK General Sales Manager

Cameron Renwick.

“Instead of buying one or two items of equipment each year for cash, a financed package deal can enhance the entire course maintenance fleet by spreading the cost over a fixed period – and another benefit is there will be an immediate improvement in the quality of finish on the golf course, something members notice straight away.”

Payments can be made using the normal range of credit options if required, or on a tailor made repayment schedule to match individual budgets and cash flows (see right).

ABOVE: New Malton Golf Club, near Royston in Hertfordshire, with its recently bought fleet of new equipment.

The normal range of finance options includes:

Hire purchase

You pay the VAT due on the equipment at the outset and make regular fixed repayments over an agreed period. Once all repayments have been made, you become the owner of the equipment.

For tax* purposes you are treated as the owner from the outset of the finance agreement and can therefore claim any capital allowances available.

Key benefits of hire purchase:

- Certainty that the finance agreement cannot be withdrawn as long as you continue to abide by the terms and conditions of the contract. This contrasts with bank overdrafts, which are repayable upon demand.

- The regular nature of repayments and a fixed interest rate make budgeting easier.

- A cost-effective way to fund acquisitions. Using a traditional bank overdraft to fund equipment purchases can result in a growing hard core of debt that can prove more costly to your business in the long run.

- A straightforward form of financing which leaves you in control of both the used equipment value and the claiming of capital allowances.

Finance lease

Although you never gain ownership of the agreement, a finance lease is similar to hire purchase in that you make regular fixed repayments over an agreed period, fully paying the cost of the equipment. A key difference is that VAT is payable on each lease payment rather than paying the full VAT due on the equipment at the outset of the agreement.

At the end of the primary leasing period, a nominal 'secondary lease period' annual payment is charged for continued use of the equipment. Alternatively, you can arrange for the equipment to be sold to an unrelated third party for which you will receive the full sales proceeds.

Another key difference to the hire purchase option is that while you cannot claim capital allowances, you are able to offset the lease repayments against any taxable profit.

Key benefits of finance lease (in addition to those for hire purchase):

- Enhanced business cash flow, with the ability to spread VAT across the life of the lease agreement.

- A straightforward form of leasing which leaves you in a position to control the used equipment value.



Thetford Golf Club invested in a new machinery package worth around £175,000 in 2008. Pictured here with Course Manager Paul Gould.

Operating lease and contract hire

Operating lease* is different to both hire purchase and finance lease options in that you do not repay the full value of the equipment over the rental period. You enjoy lower rental payments, paying only for what you use, rather than the full cost of purchasing the equipment.

At the end of the rental period you return the equipment.

However, as with the finance lease option, VAT is payable on each rental rather than at the outset of the agreement. Although you cannot claim capital allowances, you are able to offset rental payments against any taxable profit.

Additional key benefits of operating lease:

- Enhanced business cash flow with lower payments than for hire purchase or finance lease, and the ability to spread VAT across the life of the rental agreement.

- None of the uncertainty and effort associated with re-marketing used equipment, and the opportunity to develop a more planned equipment replacement cycle;

this ensures that you can benefit earlier from the latest technology to enhance productivity.

Additional key benefits of contract hire:

- Known running costs; extending the principal of fixed interest costs, this type of agreement goes further and fixes all equipment usage and servicing costs for your business.

- Lower repair costs with preventive maintenance. Although a dealer maintenance plan will not cover the cost of repairs outside warranty, the likelihood of a major breakdown is reduced with more regularly maintained equipment.

It is also worth knowing that you can settle the contract early if required; depending on the type of agreement you have and the number of months that have lapsed, you may be given a rebate of interest for early settlement.

If you are rolling the outstanding financing into a new finance contract for the acquisition of new John Deere equipment, then you may be given additional early settlement rebates.

Summary

When deciding which finance product will best fit your needs, and what the tax implications are to your business, do consult your tax advisor.

You should bear the following points in mind:

- With hire purchase you can claim writing down allowances against any taxable profits, but with finance and operating lease you cannot.

- With finance lease and operating lease the lessor can claim the writing down allowances.

- With a finance lease you cannot own the equipment. However, at the end of the

primary rental period you can continue using the equipment and pay a nominal secondary period rental. Alternatively you can arrange to sell the equipment for the lessor and receive a 100 per cent refund of the sales proceeds.

- With hire purchase you can offset the interest element of finance payments against taxable profits. With finance lease and operating lease you can offset the full rental against taxable profits.

- If tight cash flow or minimisation of capital employed is critical for your business, consider an operating lease or contract hire option. You only pay for what you use rather than the full cost to acquire the equipment. That means lower payments and no concerns about capital depreciation.



Is the worm *chemical die cast?*

Dr Terry Mabbett looks at what is left to defend against worms. It's a dwindling arsenal!

Professional sports turf has exacting requirements and none more so than control of surface casting earthworms.

All earthworms irrespective of species and soil profile activity are normally a source of good, but three of UK's 28 native species including the largest *Lumbricus terrestris* cause havoc with surface casts. Worm casts ruin play, create slippery conditions, smother fine turf grasses and provide ideal germination sites for coarse grasses and broadleaved weeds. Weeds may arrive as windborne seed or from inside the cast, previously ingested with turf debris, fallen leaves and soil during worm burrowing and feeding. Worm casts appear remarkably resistant to weathering and were still largely intact after heavy snow cover in December 2009 and January 2010.

Killing earthworms with chemicals is an emotive subject clearly not appreciated or understood by environmentalists or the public at large, and more so now when chemical pesticides are 'on trial' in 'Brussels'.

How do you convince 'Joe Public' that killing earthworms with chemicals is acceptable when improvement in soil structure and fertility from earthworm activity is one of the first lessons in school biology?

Charles Darwin said "It may be doubted whether there are many other animals which have played so important a part in the history of the world, as have these lowly organised creatures."

Their contributions to soil as a growing medium for grass include break down of organic matter into plant available nutrients and improvement of soil structure and friability through crumb formation, including aggregation of mineral fractions with humus to form soil particles.

Benefits are generated during burrowing and ingestion of plant organic matter and soil. Earthworm burrowing activity improves soil aeration, permeability and drainage as well as general overall structure, benefitting plant root systems and therefore turf establishment and maintenance.

But 'what goes into the worm must come out' as a thin-convoluted stream representing the bulk indigestible remains of the worm's diet and colloquially called a cast. The majority of earthworm species present no problem from casting which is actually beneficial because the nutrient rich casts are 'dumped' underground in worm burrows.



Surface casting species present few problems for 'run of the mill' grass swards but on fine-turf playing surfaces can cause huge operational problems and potentially most serious on golfing greens where ball roll and bounce is critical to any meaningful play. That said modern green construction and maintenance with drainage carpet and general year round pampering with surfactants and other chemicals that deter earthworm activity means tees and fairways tend to suffer more in practice. In the past greens received a high level of incidental protection when thiophanate methyl and carbendazim were widely used to control Fusarium patch and other turf diseases. Carbendazim is still on the market today but only for use as a wormicide.

Worm caste management

Good management practice helps to minimise problems but cannot deal with worm casting cleanly and quickly. Turf industry is faced with an impossible task of convincing European Union (EU) legislators and officials, increasingly hostile to pesticide use in general, that the most universally treasured soil animal is a worthy target. This conundrum is clearly apparent in the nature of past and present chemicals used suppress surface casting. None were 'dedicated' wormicides but conveniently happened to kill worms in addition to primary use as an insecticide or fungicide.

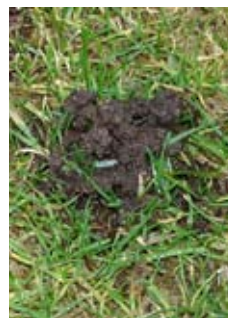
The organo-chlorine compounds 'chlordane' and 'gamma HCH (lindane)' and the carbamate 'carbaryl',

all now redundant in any capacity on turf, were broad spectrum insecticides with potent neurotoxin properties and not surprisingly they killed earthworms too. The two most recently used wormicides, thiophanate methyl (withdrawn) and carbendazim (still on the market), are systemically acting fungicides with a chemical structure conforming to the benzimidazole or MBC (methyl benzimidazole carbamate) grouping. Their wormicidal credentials became apparent during development trials in a totally unrelated sphere, namely control of fungal disease in top fruit orchards some 35 to 40 years ago.

Both were registered for dual fungicide and wormicide use in managed turf. Thiophanate methyl has been withdrawn from any use on managed turf and carbendazim is only approved for use at a specific application rate for suppression of surface casting earthworms. The 'EU' axe still threatens carbendazim which is hardly surprising since it has the same basic chemical structure and mode of action as thiophanate methyl. Thiophanate methyl is a precursor of carbendazim which is also called MBC. When thiophanate methyl degraded it formed MBC (methyl benzimidazole carbamate) the active principal that targeted and killed earthworms.

Fingers crossed for carbendazim

It's one thing to speculate on the future of a turf pesticide but when a key supplier expresses fears for the future you have to sit up and take



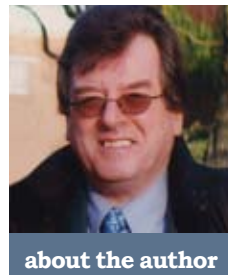
INSET ABOVE: Weathered worm cast on a green surround showing a high concentration of sand grains from a typical sandy well drained soil

MAIN ABOVE: Close up on a worm cast (Photo courtesy Bayer)

TOP RIGHT: Worm casts, freshly deposited (right) and slightly weathered (left) (Picture courtesy Sherriff Amenity)

BELOW TOP RIGHT Worm casts smeared on the green surround

PREVIOUS SPREAD: Spraying with carbendazim still provides the only quick clean way of suppressing surface casting earthworms (Picture courtesy Sherriff Amenity)



about the author

Dr Terry Mabbett has experience in grassland agronomy, and tree protection in forestry, horticulture and amenity. He has worked as consultant and technical writer in these fields for 20 years with a strong focus on pest, disease and weed management

notice. Sheriff Amenity markets carbendazim as 'Caste Off' (500g/l carbendazim) for suppression of surface casting earthworms at an application rate of 4 l/ha. The company held a 'turf technology and sustainability' seminar in December 2009 called 'Sheriff Amenity True Solutions Roadshow' where Sales Manager, Neil Pullen, spoke frankly about carbendazim. He said, "the future of carbendazim, like any approved pesticide, is uncertain. At the present time it is registered until 2013 and we are hoping to keep it on the market beyond this date."

Turf industry officials expressed concern about possible loss of carbendazim which would leave greenkeepers with few practical and economic options. BIGGA Immediate Past Chairman, Peter Todd, said many golf courses and especially those on soils with an inherently alkaline reaction would be in crisis. Neil Tuck, Technical Director of BALI (The British Association of Landscape Industries) said the carbendazim situation had simmered for years but now looked like coming to a head following an important change in the criteria used by EU to risk assess pesticides.

Carbendazim is under review by The Chemicals Regulation Directorate which is considering the active ingredient against a new set of criteria used for assessment of environmental and human risk. They include - wait for it - how harmful carbendazim is to earthworms and bees. This means future use of the only chemical approved for suppression of surface-casting earthworms hinges on whether



or not it is harmful to those very earthworms - you couldn't make it up if you tried. Nobody knows for sure what the eventual outcome for carbendazim will be, but not surprisingly the industry doesn't sound optimistic.

Be that as it may, carbendazim is still on the market and doing the job so what are the key features of its activity and continuing success. One person who knows first-hand and better than most is Sheriff Amenty's, Graham Paul, who worked for May & Baker during early development work on thiophanate methyl (precursor of carbendazim) as a top fruit fungicide. It was during these trials that an additional 'lumbricide' (wormicide) dimension to MBC activity was discovered by accident.

"In the 1970's 'Mildothane' (thiophanate methyl) was one of the best selling fungicides for use in apple orchards," said Graham, "offering good control of powdery mildew and apple scab diseases with additional activity against red spider mite." Earthworms were long known for their ability to clear fallen apple leaves from the orchard floor from autumn through to spring. But after 'Mildothane' had been used for two or three seasons researchers noticed leaf litter was not disappearing from apple orchards at the usual rate.

Further investigation showed surface feeding species were absent from the soil inside treated orchards because they had been killed by thiophanate methyl residues left on the leaves from repeated sprays throughout the growing season. Thiophanate methyl and then car-

MAIN ABOVE: Worm casts provide germination sites weeds and may allow establishment of weeds that are not normally found in turf like the dock seedling (Rumex) shown here

TOP LEFT: Worm casts still largely intact in January 2010 after a heavy covering of snow

BELOW TOP LEFT: Worm casts are trodden along the fairway

bendazim were subsequently developed and marketed as wormicides but unlike earlier-used chemicals such as chlordane, which killed worms by skin contact, the MBC's killed worms through ingestion.

Getting the best from carbendazim

Graham Paul says full of understanding earthworm behaviour and mode of MBC action allows greenkeepers' to obtain the very best from carbendazim. Most effective control of surface feeding and casting species is obtained when grass clippings from the first few cuts after spraying with carbendazim can be left on the surface, so that worms can feed on them for as long as possible. Established recommended practice of boxing clippings during mowing should be carried out at all other times. Leaving grass clippings on other premium sports surfaces like cricket tables is not so much of a problem, because they are not used in early spring and autumn when worm casting is most severe. Golf courses on the other hand are used year round and for regular high profile competition golf.

Graham's advice clearly makes sense. Spray droplets alighting on the turf may stay on the leaf surface or move inside the leaf, while that running off into the soil can be absorbed by the grass roots and translocated acropetally (upwards) into the leaves. What's the point in securing active ingredient on or inside the grass leaves only to remove it soon after by mowing says Graham adding how greenkeepers may have to choose between the

worst of two evils, "wet earthworm casts smearing and spreading during play or a few very short grass clippings."

Greenkeepers should add an appropriate adjuvant (water conditioner) to the spray tank to ensure the mixture remains at the optimum pH to achieve maximum efficacy, says Graham. Carbendazim breaks down rapidly at pH of 9.0 (alkaline) recording a half life of just 12 minutes. In practical terms this means 50% of the carbendazim is rendered inactive within that 12 minute period. At pH 5 (acid) carbendazim has a half-life of 30 hours so spray mixtures buffered at this pH using a water conditioner can slow down alkaline hydrolysis. Deposits of carbendazim drying on the leaf will not suffer fast breakdown and therefore stay active to suppress surface casting earthworms.

Evidence of greenkeepers and groundsmen using carbendazim in the most efficient way should go in its favour, but EU decisions on the future of chemical pesticides are not always logical. Surface casting earthworms are clearly a big problem for greenkeepers and require pro-active control. Carbendazim is the 'last chance saloon' for pro-active chemical control of surface casting earthworms. If carbendazim goes it is difficult to see any other chemical getting through the environmental safety screen now used to risk assess pesticides, and therefore any chemical company prepared to take necessary development investment risks. Best hope for cast-free courses is that those who hold the future of carbendazim in their hands also play golf.



This article comes to you courtesy of the BIGGA Learning and Development Fund.

Thank you to all our key sponsors

A QUICK GUIDE TO...

HAND MOWING A GREEN

Members of the St Andrews Links Trust Greenkeeping Team, experts in the field, offer a few tips on Hand Mowing a Green, a skill they will be showing off to the world in July!

Importance

Cutting the greens on a golf course properly with pedestrian mowers is one of the more skillful and satisfying or enjoyable jobs in greenkeeping. Doing so on greens as large as those on the Old Course where many greens can measure over 100 yards in length or you are preparing for a Tour event or an Open Championship can also be very demanding.

Check your mower

Before leaving the maintenance building, check your mower is operating correctly, it is fuelled up, starts, the blades turn and that the height of cut is correct and the cutting cylinder to bottom blade is set properly.

Carry out a quick visual inspection

When arriving at the green, carry out a quick visual inspection for any stones or other debris which is lying on the green that could damage the mower or the surface and remove them if required, switching worm casts may come into this category if necessary. Remove the pin.

Cut across the low sun

The first thing to consider is to cut across the low sun if you can rather than into and away from it. By doing that you can use the shadow to help see your line. You should change your direction of cut every time to prevent a nap forming and this will also stop previous lines of cut confusing you!



Line it up

For your first line, pick a point at the far end of the green or just beyond it and line it up with another point just behind that. Aim for these two points, never taking your eye off them and don't deviate from this projected line running from you right through the two points and beyond.

Take a wide turn

At the end of the line, take a wide turn if there is room to do so. This is good practice and will give you more time to line up your next one as well as reducing wear on the apron which suffers enough from golfing traffic. From now on when cutting, you should be looking slightly ahead of your mower, (anything from between 5 and 10 yards), for your line rather than looking down at your box. You are trying to overlap your previous line by as little as 20mm so the job requires a lot of concentration and constant attention.

Start again

If you do make a mistake, miss a strip or go off the straight, then you have no option but to go back to where you first went

wrong and start cutting from that section again.

Leave a glove or a screwdriver at the end of the line

At St Andrews, where the grass is often dry even first thing in the morning and growth rates can be quite slow, staff often leave a glove or a screwdriver at the end of the line to help them get lined up again when they turn at the far end to come back.

Switch a sprinkler on

Another tip is to switch a sprinkler on for the shortest of times, just enough to give the green a "mist". It's great when you come in and there is a heavy dew but the downside is that you don't get such a good cut.

The bonus?

Hand mowing should help keep you fit because you will probably walk between 6 and 7 miles on average each time!



**“With high expectations,
it’s vitally important that we
have the right machinery to
get the work done.”**



Jim Mackenzie
Director of Golf,
Celtic Manor Resort

M8540 | Tractor

As Director of Golf, Jim is responsible for the course development of the 2010 Welsh Open/Ryder Cup Championships. With a requirement for heavy duty drainage and dressing work, Jim consulted his local Kubota dealer. “Chris Hopkins at Ted Hopkins Ltd reviewed our requirements and recommended the Kubota M8540.”

With 30 dedicated full time ground staff, Jim’s team are hard at work getting the course completed on time. The M8540 has already completed

all major drainage works and has been used to top dress over 9000 hectares. The tractor is currently being used to prepare the ground for the building of the hospitality village.

**“We get no marking on the ground even
when pulling 2-4 tonnes of sand.”**

Find your local dealer or book a test drive today: www.kubota.co.uk UK 0800 023 1111 | ROI 1 800 848 000 | sales@kubota.co.uk

Kubota (U.K.) Limited, Dormer Road, Thame, Oxfordshire. OX9 3UN



Professional Turf Care & Amenity Solutions

- Chemicals
- Fertilisers
- Grass Seed
- Top Dressing & Aggregates
- Golf Course Equipment
- Sprayers & Spreaders
- Total Weed Control Solutions
- Sports & Landscape Equipment
- Line Marking
- Contract Spraying
- Technical Innovation



Sherriff Amenity, Cambridge House, Nottingham Road, Stapleford, NG9 8AB
Tel. 0115 9390202 Fax. 0115 9398031
web: www.sherriff-amenity.com email: sales@sherriff-amenity.com

James de Havilland takes a closer look at the intricacies of current machinery

The anatomy of...

Imants Shockwave

Imported by Campey Turf Care Systems, the Imants Shockwave range of rotary decompactors are not designed to 'replace' deep tine aeration systems, but complement them. So how do these tools operate?

