

Understanding how grass is damaged during the mowing process is critical when trying to create an improved playing surface, consider costs and examine the quality of cut. Maureen Keepin reports ...

Sharp Practice



Above: Cal Callaby, Head Mechanic at Celtic Manor, finds he can tell how mowers are performing by looking at the grass. He can then adjust accordingly

Above right: Making adjustments in the in-house grinding facility

Below: Jim McKenzie, Course Manager at the impressive Celtic Manor resort



Increasingly golf takes place 365 days of the year and mowing is an essential practice used by greenkeepers to ensure greens, tees and fairways are well maintained for their members, benefit and enjoyment.

Improvements to quality of cut are continually being sought - to achieve these aims it is vital mower blades are kept really sharp as well as correct height adjustments maintained. These help to ensure a perfectly uniform height of cut.

Global warming predictions have far reaching implications for grass management. A lengthened growing season will mean mowing needs to be carried out even more frequently. The importance of having sharp cutting units will take on even greater significance.

Maintaining an optimum cutting performance means ensuring the

mower cuts to perfection day in and day out.

Mowers may be sophisticated and technically advanced but two components are key for the highest level of presentation - the cylinder and bottom blade.

For courses considering environmental issues these points are highly significant. Fertilisers, top dressing, aeration, drainage, machinery are all part of the golf club's armoury - but mowing is critical. Mowing is generally the last thing done before the judges come out to inspect the course condition, before the course goes public - and in the case of major tournaments this is highly public.

Mowing at a Major Event

With the news that the Celtic Manor Resort in Wales will be hosting the 2010 Ryder Cup, Jim

McKenzie, Director of Golf, explained what he is trying to achieve on his championship course.

"Players prefer consistency from green to green and for play to be quick and true," said Jim.

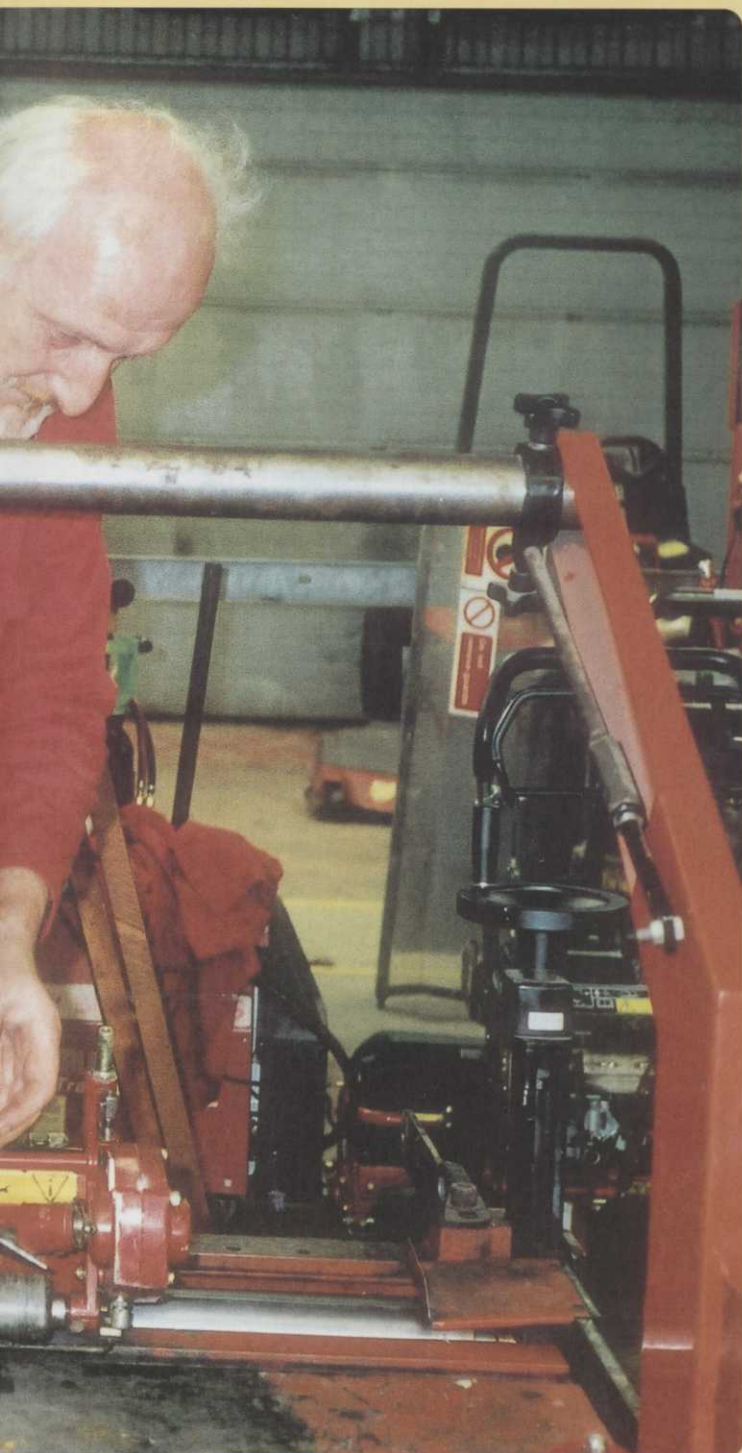
"We need a very clean cut as it helps stop disease getting into the grass. Normally we cut at around 5mm but we cut at 2.5mm for the Wales Open event in August, four times a day.

"Greens are Providence creeping bent and the fairways and tees predominantly rye grass and the roughs predominantly fescue.

Celtic Manor's workshop was set up in 1993 and they find having their own grinding facility saves a tremendous amount of time and money.

"Our greens units are ground every time they are bladed which is usually every three weeks," explained Cal Callaby, Head Mechanic.





"We keep everything super sharp, so a lot of grinding and sharpening goes on here.

"The height has been dropped gradually, taking it down by around 1/2mm a time, as very fast greens are needed for professionals. Grass is not cut this height outside a tournament," he said.

"It is normally 4-5mm depending on how the speed is showing.

"When I joined eight years ago a decision had already been made to purchase Bernhard's Express Dual and Anglemaster grinders. I was pleased, as I had experience of using them at the St Pierre Golf Club, near Chepstow, where I worked previously.

"We do more grinding here than the average main agent," he revealed.

"Generally we grind in batches of six to seven units, as once the mode is set there is a minimum amount of

adjustment and the next unit can usually go on straight away.

"We take off the minimum amount to be economical with the reels, which are somewhat expensive to replace.

"It is vital we maintain the quality of cut and we do not contract out any grinding.

"Indisputably it saves us time and money and I do not know how other golf courses carry on with contracting-out grinding. We can be back on track with the minimum amount of down-time."

In the eight years since Jim came to the Celtic Manor Resort from Wentworth, £120m has been spent creating three courses, a golf academy and the largest golf clubhouse in Great Britain.

His responsibilities include complete maintenance and development

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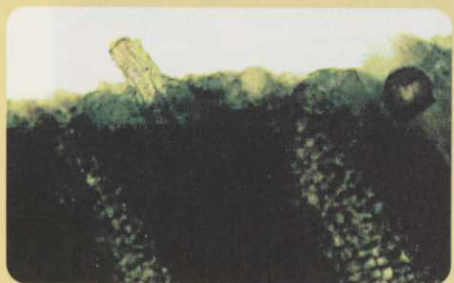
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Sharp Practice



Above: Both lapped and non-lapped grass



Above: Magnification of a non-lapped cut



Above: Magnification of a lapped cut



Above right: Part of the Championship Course at the Celtic Manor resort, Wales, who will host the next Ryder Cup

of the golf courses, gardens and estate - everything outside the hotel or clubhouse building.

"Sir Terry Matthews has bought 1,400 acres of land here bit by bit. I have three Head Greenkeepers, Gary Connell is one, and he is also my Deputy, Paul Davies and Nick Vickery.

"We are all here to help put Celtic Manor on the map so the Wales Open is our own event.

With more than 120 cutting units, mainly Toro machines, Jim feels his four mechanics have a great deal of experience in sharpening.

For the Open the team increased their regular maintenance regime - much the same thing but far more often.

"Four times a day we cut and the sward was rolled twice.

"This is for speed and it worked

fairly successfully. We were out from 5am to 9pm every day for a couple of weeks. Some staff were finishing at midnight.

"During this time we were also carrying out a lot of renovation tasks and quite a lot of course construction, two new bunkers and a new tee. This pre-tournament preparation is not quite as they teach you to do it at college," said Jim.

Benefits of clean cut

A critical factor in producing a high quality cut with cylinder mowers is keeping the correct relationship between cylinder and bottom blade.

Over several years many trials have shown that setting mowers with no contact reduces mower fatigue, lowers hydraulic pressures and generally prolongs the life of the cylinder and bottom blade. This also reduces the

stress on the mower engine, reducing engine wear.

"A clean cut causes less stress and damage to the grass, reducing the need for water and chemicals and improving the appearance of the sward," explained Stephen Bernhard, Managing Director of Bernhard and Company.

"Fundamentally, grass does not like being beaten up by a mower and on the golf course it can get beaten up very regularly.

"Grass is often stressed during the process, spores are present and there is considerable tissue damage. A macroscope (small microscope) can be used to look closely at the grass and see the results of mechanical damage.

"Looking at grass in this way clearly demonstrates why it is vital to have mowers which cut well," he explained.



Scything action

Mowers can function with either a scissor or scythe-type action - but usually a much cleaner cut is developed by a scything cut.

Scissoring demands that the two blades operate against one another. To cut effectively they have light contact or the grass will just be pinched.

This method is often less precise and may cause tissue damage and excess transpiration. As a result, messages go to the crown requiring that more nutrients be used to sustain the plant and repair damage caused.

Grass mown in this way can show as much as four times the surface area of damage compared to the relatively low area of damage caused by a clean scything cut where the two blades have no contact at all.

"Scissoring may cause a higher rate of water loss, resulting in the need to water the sward more regularly," said Stephen.

If the mower is set up correctly a scything instead of a scissoring action can be produced.

"With bottom blade and cylinder kept apart only one blade moves through the sward like a set of horizontal razors. The bottom blade holds the grass blades in an absolutely uniform pattern and height," he explained.

"Being cut in a surgical fashion reduces damage to the extent that usually the grass will root better and therefore will more readily withstand the damage caused by play or heavy pedestrian traffic," he added.

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