



# BETTER BLADES

How can greenkeepers achieve a high quality course appearance, which is consistent from the first hole to the last, gives an improved green speed and is more profitable? The answer lies in surgically sharp mower blades. Maureen Keepin reports...

Dramatic changes have taken place within the turf industry in the last decade. With golfers watching tournaments played around the world on lush, striped fairways and smooth, consistent greens, they have come to expect these conditions for every round of golf they play. Is it possible to achieve these playing conditions without having a massive budget and a staff of 50? Yes, it certainly is. Greenkeepers can deliver better course conditions by cutting the grass with surgically sharp, properly adjusted mowing equipment.

It is no surprise that mowers cut best when they are properly set and sharp. However, there are many cultural practices, which take place on the golf course today that are beneficial to turf, but can be harmful to mower blades, such as top dressing and aeration. These impact on the quality of cut.

Grinders operating with speed, simplicity and accuracy have a significant role to play in achieving consistent playing conditions, improving turf health and course appearance.

"The difference sharp blades make to the course is astronomical," says Steven Byrne Course Manager at The Wisley.

"Our grasses on closely mown areas are predominantly creeping bent and annual meadow grass, growing on a very silty soil, with a very low infiltration rate," he says.

"We have very heavy thatch areas, because of the flood plains, so need to apply lots of top dressing and that produces plenty of blunt blades.

"One week we use greens mowers with top dressing units attached and the second week just the greens units.

"We use Express Dual 5000 to sharpen blades and find units can be ground really quickly and soon be back in operation.

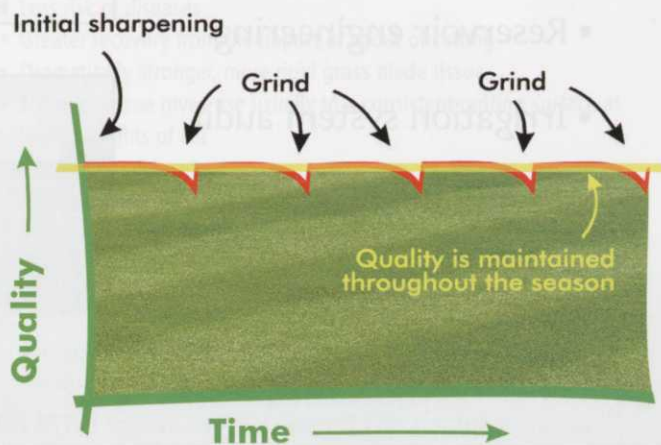
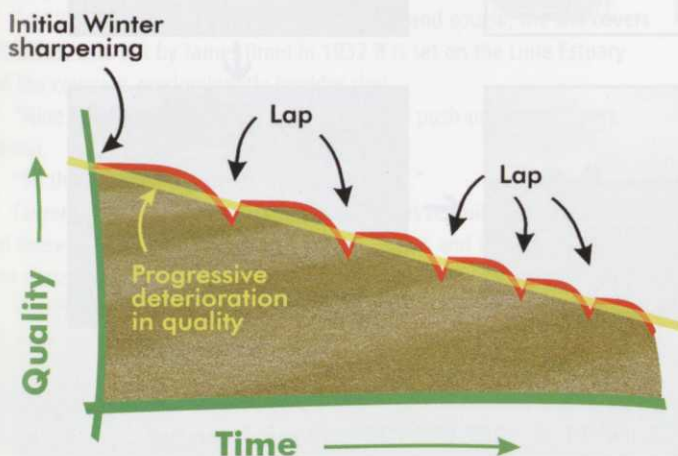
"At this time of year, with heavy dew levels, there is much more possibility of disease so sharp blades become even more vital.

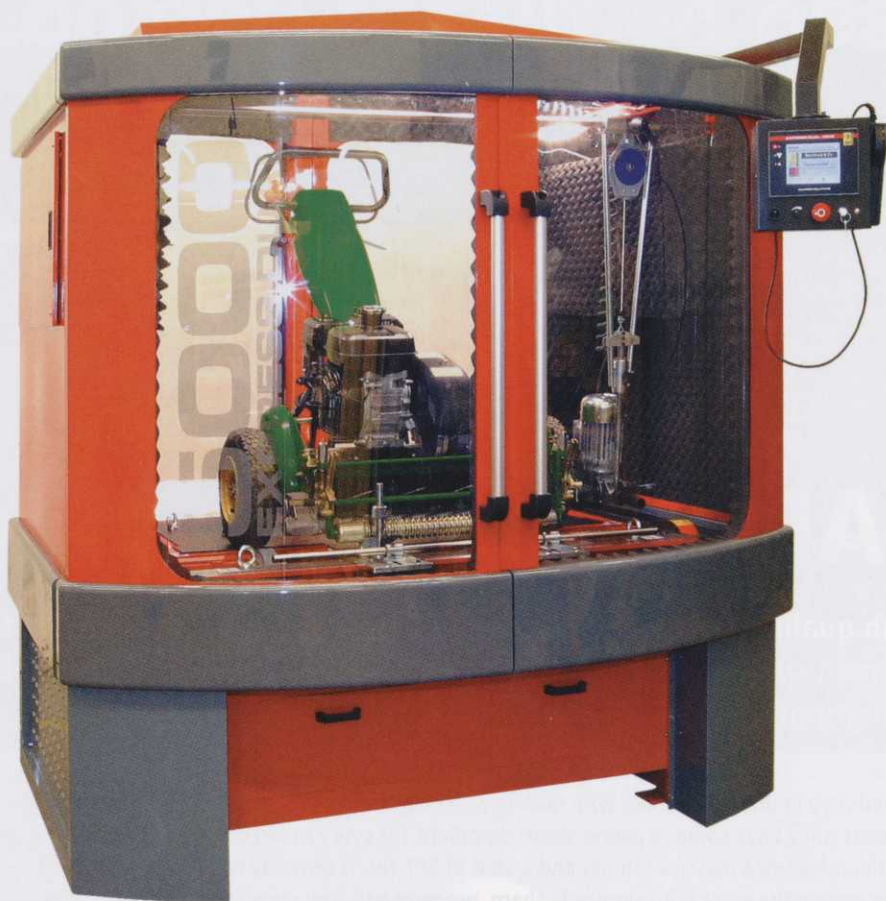
"Members always expect to see lush green Axminster-type turf."

## SHARP CUT FOR GREEN SPEED

Greenkeepers adopting a regular grinding programme can achieve consistency from one hole to the next and improve green speed. This is backed-up by extensive research carried out in America.

Mike Morris, Superintendent at Crystal Downs Country Club - one of the US Top 100 golf courses - is quickly becoming known for his green speed research. Mike and Thom Nikolai, PhD at Michigan State University, have been sharing their knowledge with greenkeepers around the world on this complicated subject.





Revolutionising the practice of green speed, they help superintendents to communicate these issues to golfers.

Mike says: "Grinding programmes impact on consistency and playability at several levels.

"First there is the daily cylinder to bottom blade inspection and adjustment, to ensure they are perfectly matched. Then there is the height of cut inspection and adjustment.

"All of these checks are crucial for a consistent, predictable performance from your mowers.

"If the mowers are not set correctly how can you expect the putting surface to exhibit any sort of consistency?"

"When we started using the spin grinding technique with no-contact adjustment we saw more consistent green speed measurements from green to green and from day to day," he says.

"Mower sharpening and adjustment was the single factor that we could directly attribute to improved playing conditions when our study began.

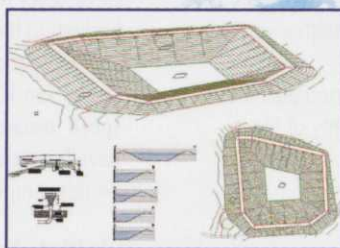
"When implementing this regular programme we also discovered an even more rewarding surprise.

"The quality of cut we achieved on our course every day.

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"As superintendents attempt to establish an ideal green speed for their course they will try lower heights of cut, rolling, low fertility and low irrigation, but I am sure many would be amazed at the instant impact of a well adjusted, sharp mower," he says.

### MOWER SET-UP

The significance of set-up of the mower is often overlooked, as people are confused by different claims and opinions that are rife in the industry.

Extensive research has shown that when mowers are operated with no-contact setting between the cylinder and bottom blade the machine will operate in the best way - as a scything unit. This is in accordance with the original lawn mower design of Edwin Budding back in the 1800s.

Grass suffers if greenkeepers adopt lapping procedures, where the cylinder and bottom blade act as a scissoring action, as this demands that the blade of grass is torn or pulled apart.

Under the microscope it is very evident that this causes significantly more tissue damage than a scything-type of cut.

Grass cleanly cut is greener and there is better definition, which is vital for championship courses under the critical gaze of the TV camera.

And it does not stop there - mechanical implications are associated with this whole process as well.

Clearly a very sophisticated tractor with five cutting units is going to operate at much lower levels of stress and strain if the five units do not have brakes applied to them, holding back the tractor.

With this there would be a huge use of fuel and significant stress upon the tractor.

The same applies to a mower with blades, which come into contact.

There is increased fuel consumption, more wear on the bearings, seals and hydraulics and all engine components.

As a result, the set up of the mower features strongly in the environmental equation - with no-contact offering reductions in the use of fuel, water, chemicals and pesticides.

### WATER LESS

For greenkeepers facing drought conditions, the fact that typically a bent grass will show a surface area of exposed tissue damage that will be five to six times greater when mown with a scissoring cut - rather than the same grass mown by a sharper scything cut - has tremendous implications.

Water lost through transpiration will be significantly higher in the blade of grass showing greater tissue damage.

Ragged edges of cut grass also demonstrate more surface area on which spores may find a home and therefore an increased risk of disease.

In the UK, Course Manager at the Lancaster GC, Warren Bevan, says his top priority is to make the club most water efficient.

An 18-hole, par 71, gently undulating parkland course, the site covers 120 acres. Laid out by James Braid in 1932 it is set on the Lune Estuary and the course is predominantly boulder clay.

"Nine are sand greens and nine the original push-up greens," says Warren.

"So this requires two styles of management."

Currently the greenkeeping team is on a tees re-building programme and these are being grassed using dwarf ryegrass and fescue bent, with bent grasses used on the greens.

Significant developments in irrigation equipment led the club to invest in a new system this year, to replace their old one.

Other management tools used to increase water efficiency include keeping mower blades surgically sharp and the use of retentive wetting agents.

"A cleaner more surgical cut is vital, rather than tearing your grass plants," he says.

"As they are not stressed the evapotranspiration rate is a lot lower, so you save considerably on water and fertilisers."

Purchasing a set of grinders Warren says:

"At first I was concerned that although the Board had invested in the machinery they would not see the impact.

"Unlike a mower you do not see the grinding machine out on the course."

During the first season when their agronomist visited the course, he immediately noticed a significant improvement on the greens and commented on how much fresher they looked.

"Keeping the blades sharp I have also had positive comments from players who say the course is quicker," he says.

Warren is also grooming, verticutting and top dressing the course.

"Having grinders means we can top dress more confidently, knowing we can re-grind our blades and in a couple of hours have them all turned around," he says.

"We alternate between hand mowing and triple cutting and use Toro machines with 3250 for the tees and 6500 on the fairways."



Grass - bad



Grass - good

### BACK TO BASICS

Cost-saving benefits of maintaining surgically sharp blades are huge and this means the price of buying the right equipment is insignificant in comparison.

An essential means of saving money and improving reputation, investing in grinders is probably one of the most inexpensive ways of dramatically raising the profile of the golf course and the team that maintains it.

Everyone benefits - the golf club, course manager, staff, members...and the grass plants.

### ADVANTAGES OF NO-CONTACT CUT:

- Healthier, more attractive grass
- Significantly less tissue damage to grass blades
- Plants suffer less evapotranspiration
- Grass winters better with improved root zone
- Increased drought and heat tolerance
- Less risk of diseases
- Greater recovery from the impact or shock of cutting
- Dramatically stronger, more rigid grass blade tissue
- Stronger tissue gives rise usually to a consistent putting surface at higher heights of cut
- A higher quality cut
- Newly seeded grass establishes more quickly with good root growth and less damage to top growth

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