

# Preventing Winter Green Damage

Winter damage, aside from causing many a sleepless night, can be costly and time-consuming to repair. In preparation for a potentially harsh winter ahead, Jim Cook caught up with a man who has had a great deal of experience in dealing with such damage, but in a slightly more extreme environment

**Hauger Golf Club sits 13 miles north of Oslo, in Norway. For up to five months in the year it is common for the course to be buried under three to four feet of snow, with temperatures plummeting to a numbing -35 degrees centigrade.**

Course Manager, Eoin Moroney, took the job of making one of the busiest courses in Norway presentable by spring each year in 2003. Since then, some of the harshest winters ever recorded in the country have allowed him to experiment with various methods to reduce damage come the melting of the snow and ice.

Eoin spoke of the problems caused by the weather in Norway and of how tried and tested techniques used by him to combat winter damage could be applied to golf courses which endure less extreme conditions, but might suffer the same symptoms.

He began by explaining how no two winters resulted in the same kind of damage to greens, although two types were typical every year.

“One is disease where you have

an ideal environment under the snow to activate fungal habitat, where *Typhula incarnata* (grey snow mould) and *Microdochium* patch (pink snow mould) are the most common. This year was a typical example where we had severe outbreaks of grey snow mould when we had up to one metre snow cover on greens and a very mild climate under the snow. The other is ‘winterkill’ where ice sheets create a burning effect on the greens, killing off much of the grass plants in the low lying areas.”

Winterkill can also be caused by crown hydration, where ice crystal form in the crown of the plant rupturing cells; desiccation, where a plant dies after drying whilst dormant or semi-dormant; and low temperature kill, when ice crystals form at temperatures below zero degrees centigrade. The occurrence of this winterkill is unpredictable and as well as varying between different courses, can also vary across the same course.

“The surprising thing about this climate is that courses in our particular region always seem to

encounter different problems every year which maybe lie only 15 km from one another. The other amazing thing is different areas of a particular course can differ greatly from other areas. Greens at higher or lower altitudes can differ greatly. Greens and fairways with low spots or holding points will suffer more winterkill than greens with good run-off highlighting the importance of good green design.”

In preparation for winter, the amount of nitrogen and iron applied to greens was crucial.

“We always try to harden up the plant going into the winter by applying iron late on in the autumn along with applications of preventative fungicide. We have found reducing the nitrogen in the plant going into the winter is also a key to combat any fungal activity.”

Over the years, Eoin has employed a number of techniques with a view to prevent or minimise damage caused during the snow-covered months. Several have emerged as being consistently successful.

“We try to keep the surface of the green dry going into the first



Course Manager, Eoin Moroney

Eoin has employed a number of techniques with a view to prevent or minimise damage





frost period by dewing-off often. We have also invested heavily in snow removal equipment to enable us quickly to get snow removed when necessary. We often will have two 120hp tractors on the greens and tees in the winter, which is unheard of in the UK. We have also tried some trials with covering the greens going into the winter and I do have a lot of faith in this. It takes a lot of man-power though, which we do not have at this time of the season. We have also tried to install temporary extra drainage in low areas of the greens to help get rid of melt water underneath the ice at a faster rate. Spreading granular charcoal on the surface after snow removal is very useful to breakdown ice which can be anything from 1cm to 7cm thick."

Green design was vital, so as not to allow ice to form in lower areas, as was preparation.

"It is definitely about good preparation going into the winter, but it is always about timing it right to get rid of the snow. I feel the most critical aspect is at the construction stage, where the greenkeeper should be highly involved with the architects

to design greens and surrounds to cope with the problematic areas such as good drainage and run-off. If a greenkeeper hasn't got a good surface run-off, he or she is always going to be faced with an uphill battle for the future."

Seasons at Hauger are just five months long and because of long daylight hours meaning early morning and late evening play on the course, an intense working environment exists. Eoin explained how he coped with this.

"We have 24 hours of daylight in June and July and it is always a tricky task to get out in front of golfers no matter what the working hours will be. Having good planning and having a high quality of staff is definitely a bonus. Having sufficient amount of staff is always going to aid in helping get all daily tasks done. We are quite fortunate to have from 12 to 13 greenkeepers on a daily basis supplemented with a well maintained fleet of machinery. Saying that it never fails to amaze how fast grass grows and how keen the golfers are to get out in the morning and how late they want to play into the night."

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**Eoin Moroney,**

Techniques for dealing with winter damage in extreme conditions differ wildly from course to course and budgets are often the deciding factor for Course Managers.

"We are running off a medium end budget and we are four full time staff including a mechanic and up to 13 in the high season. We can manage to remove snow from greens and tees where as a lower end budget course might not be able to do this and will basically leave the snow to take care of itself. Saying this, there is no right or wrong way and many Course Managers work with their own feelings and local climate. High end budget courses would have the opportunity to work with winter covers and plough snow through-

**ABOVE:** The course covered in ice

**BELOW:** Aeration work on an iced green





out the winter and some will also try to create their own micro climate by installing sub-air systems.”

After the snow has melted and damage is revealed, the task of repairing begins. Depending on a courses budget, re-turfing, either from their own nurseries or by buying from abroad may be the only option. At Hauger, turf from a small nursery compliments an over-seeding programme which is usually carried out.

“This is something that both staff and members have to be patient with. Getting quick seed establishment in the spring time is a must and with daily temperature sometimes changing from -15 at night to + 20 during the day this is often a challenging experience. The use of growing covers in the spring time is getting more and more common both to help keep up soil temperature and also to combat wind desiccation.

This is complimented with a heavy scarifying and over-seeding programme. I find that shallow hollow coring followed by drop seeding with a variety of creeping bents gives an ideal result.”

Eoin went on to further describe

how his techniques could be applied to UK golf courses and how some are specific only to his climate.

“Well bringing a 120 hp tractor onto a green is, I suppose, a definite no go. My experience over the last 10 years has certainly taught me a great deal on how not to panic in stressful situations when pressure to open the course comes from all angles.

“Learning how to re-establish greens in a 3-4 week window is certainly an experience which can be of benefit back home. Managing to create a correct bed for seed establishment along with holding soil temperature up is something which is maybe forgotten about in the UK. Hardening off the grass plant for the winter period is also a high priority, along with cutting with newly sharpened units late in the season.”

Winterkill, although more severe in climates such as Norway, can be frustrating and as Eoin said there is no right or wrong way to help prevent it. Factors such as budgets, local climates and how a course was designed in the first place come into play when considering and combating damage done.



ABOVE: Work continues and  
BELOW: Snow blowing

