

# How to prepare your Greens for winter!

## Agronomic Advice and Product Recommendations in general

Winters with a lot of snow, with prolonged ice cover, lasting for 3-4 months with low temperatures. In addition to low temperatures and snow cover, turf swards also had to deal with other stresses like low light intensities and anaerobic conditions with toxic gas evolution.

This prolonged snow/ice cover provided ideal conditions for fusarium to develop. The symptoms of which are widespread when the snow eventually melts.

Although the effects of severe environmental conditions are difficult to avoid, there are cultural and nutritional practices that the turf manager can adopt during the year that will help to minimise the effects of winter stresses.

Winter damage is often more severe on areas where too little aeration has been done and where compaction has built up. Clean up cut areas and the front regions of greens are often seen to be more seriously affected by winter stress damage. This is no doubt due to the poor root growth in the compacted areas and also due to the presence of weak *Poa annua*.

### How to improve disease resistance

It is important that hollow coring and vertidrainning is carried out during the year in order to relieve the compaction before the winter months.

Where rootzones contain significant amounts of fines, soil exchange at hollow coring with a suitable sand based top dressing is recommended.

Soil amendments such as Axis can help when added to top dressings at hollow coring. Axis provides additional permanent pore space within poorly textured rootzones which will improve root growth and also reduce the effects of compaction.

*TourTurf Soil Conditioner* used in conjunction with mechanical aeration will also help in such circumstances as it has the ability to aggregate clays and organic fines together into larger particles (crumbs). This effectively improves the soil structure and provide pore space for root development.

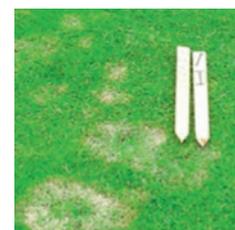
Thatch also increase the severity of winter injury. If too much thatch is present it must be removed. Graden and hollow coring will remove thatch, whilst regular verticutting during the season will prevent further thatch accumulation.

In addition to mechanical methods consider the use of *TourTurf Thatch Clear* as it contains enzymes and carbohydrates which stimulates microbes and the natural breakdown of thatch.

Thatch becomes water repellent during the summer months causing Dry Patch and shallow root growth. This results in a weak poorly rooted sward going into winter which in turn is more susceptible to winter injury. It is important that the thatch is not allowed to become water repellent. Avoid this by a monthly application of an effective wetting agent as *TourTurf Respond Plus*.

Thatch build up encourages fungal pathogens e.g. *Microdochium nivale* (fusarium) as it holds moisture at the surface.

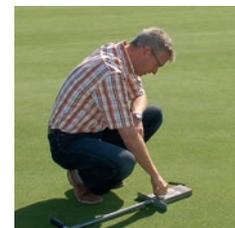
As well as carrying out the cultural operations during the year, turf swards should also receive balanced nutritional inputs in order to produce healthier more stress tolerant swards



Uden FDC



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which are more able to cope with winter injury. Fine turf areas should receive minimal nitrogen inputs during the autumn months due to nitrogen's tendency to produce lush, easily damaged plants. *TourTurf FDC 2-0-10+8,9 % Fe* or *Pro Green Autumn 5-2-12+2 % Mg* are autumn fertilizers.

Adequate Potassium, Phosphorus, Calcium and Iron levels within the sward going into winter are a must for improved disease resistance.

### Maximum plant health and stress tolerance

Potassium (K) is vital for water regulation within the turf grass plant as it has influence on the concentration of cell solutions (cell turgidity). This is why it is an important element for drought tolerance in summer and disease/frost tolerance in autumn and winter. Good levels of K need to be present within turf grass swards throughout the year, for maximum plant health and stress tolerance.

Unfortunately it is difficult to achieve on sand based greens which have a low capacity for the retention of nutrients such as potassium. Good ways of ensuring adequate levels of K within sand based rootzones include slow release potassium forms like *ProGreen Kali 0-0-27* and regular spoonfeeding using e.g. *TourTurf High K*.

Another nutrient important for winter stress resistance is Phosphorus (P). This element is essential for good root growth. Without healthy root growth, winter injury is a certainty. Good levels of P have also been implicated in disease resistance within turf grass plants especially when supplied in plant available phosphite form.

Phosphite P is fully systemic within the turf grass plant. It moves upwards within the xylem and downwards from the leaves in the phloem. It can be applied as a foliar spray and will not be locked up and made unavailable in the rootzone at low and high pH levels as is granular applied phosphate P. *TourTurf Infill* combines phosphite and iron.

Calcium (Ca) is a constituent of cell walls. Deficiency encourages diseases like fusarium as leaves are easily damaged. Correct deficiencies with *TourTurf Calcium* as it contains calcium plus amino acids to ensure rapid uptake and movement of calcium within the turf grass plant.

Iron (Fe) is involved in chlorophyll synthesis and is known to improve resistance to *Microdochium nivale* in autumn. Good levels of iron are necessary going into autumn/winter.

Use chelated Iron products as *TourTurf FDC+R Factor*. Chelated products are important when dealing with soils where the pH is out of range.

Our concept *TourTurf FDC* will help you in an integrated disease management programme to reduce winter damage. Use FDC monthly from August to November at 40 L pr ha. Recent trial work has also shown that a spring application of *TourTurf FDC* can greatly speed up (25 % increase) recovery from winter damage.

Hopefully you find all this of interest and we look forward to contacting you shortly.

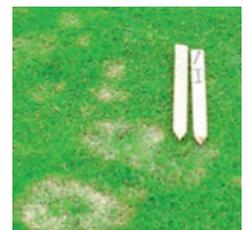
Best Regards

Carsten Marker

Enclosures:

*TourTurf FDC+R Factor datasheet*

*Pricelist*



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