



## Maintenance Procedures for Powergrass



### INTRODUCTION

Your newly constructed Powergrass system consists of a porous breathable backing with synthetic grass fibres attached using a combination of stitching, hot melting and finger coating to create a durable surface allowing space for natural grass to thrive.

You can expect far greater wear resistance from a hybrid surface leading to increased playing hours, player stability and comfort, however with increased usage the hardness and traction qualities of the surface can increase and require regular testing to enable good surface management and maintain a high-performance pitch.

With natural grass forming a huge part of any Hybrid system good turf husbandry practices are key to a successful installation; Hybrid pitches are not immune to disease or pest attack they react exactly the same way, however there is always the reassurance that a hybrid surface will remain playable where a fully natural surface may not.

The carpet system is laid over the whole area of the pitch and whilst in general the maintenance is similar to that of natural grass, certain maintenance procedures cannot be used. The carpet backing can be penetrated by use of a verti-drain or similar equipment but rotary decompaction equipment cannot be used as this will destroy the integrity of the carpet backing leading to product failure.

For reasons related to the coverage of the warranty period and the conditions, we have prepared a list of recommendations concerning the proper use and maintenance of Powergrass Hybrid grass system. Please follow this list to establish the criteria for use of the playing surface.



The general rules of often seem trivial, but it is necessary to educate both **employees** as well as **users** so that the field remains in top condition.

As a general rule:

- Control access to the playing field. Do not traffic vehicles or heavy machinery over the grass. Do not use the surface for alternative events, e.g. shows, concerts, camping, dining, etc...
- Promote the use of aluminium-studded footwear suitable for the sport being played, do not allow flat soles for sport or training.
- Do not leave heavy objects or cover the grass for extended periods of time as this may deform or kill the grass surface.
- Keep the area clean, free of paper, leaves, piles of cuttings, cigarette butts, food scraps and organic waste in general.
- Encourage the installation of wastepaper baskets.
- For the marking of lines on the playing field use approved ecologically friendly non-toxic paints for natural grass, avoid lime and plaster, civil sprays or any other aggressive chemicals
- Do not block the drainage channels and inspection chambers, keep them free of dirt, mud, moss, weeds and cutting waste.
- When training Goalkeepers use of movable goals and move them to different areas of the field to distribute heavy use on the pitch surface.

Do not use any machine that promotes a linear cut deeper than 15mm deep, for example, trenchers (chain or wheel) rotary aerators or earthquake machines, disc seeders or slitter type aerators. Over-sow in the areas of greatest wear when the density of the grass is low.

### **Smoking bans.**

Whilst cigarettes alone cannot set fire to natural grass and artificial fibers in reinforced natural grass systems, they are difficult to collect and clean. If you expect a large number of participants in the event of sports and / or spectators eliminate the risk and designate the pitch and surrounds as a NO SMOKING area

### **Other items**

Remove animal excrement and clean the area. Inspect the field so that small problems do not become big problems.

### **Load Limits**

PLEASE DO NOT INSTALL OR STORE STATIC LOADS OVER 0.66 PSI (about 500 kg/m<sup>2</sup>) AND DO NOT TRAFFIC ON THE SURFACE WITH LOADS Over 5 PSI

It is therefore recommended not to stop vehicles on the grass for any extended periods.

To distribute the weight, you can use plywood with a thickness of 20 mm. Remove the panels immediately after the use, keep the duration of the plywood on the surface to a minimum.



The machinery for maintenance must be operated with care, avoid unnecessary braking, tight turns or prolonged stationary periods that could damage the grass and compact the soil.

## Routine maintenance

### Surface Hygiene

It is essential that the sward remains clean and open, with no organic build up present. Good mowing practices, along with scarification and raking, should be backed-up with sweeping and collecting of any decaying matter, particularly after matches or events, this could be weekly depending on the amount of dead or decaying material within the sward. Monitor this procedure carefully so as not to overwork the sward and remove too much healthy grass.

A clean interface between the individual grass plant and the rootzone is essential if the pitch is to continue to drain and hold together during periods of dormancy.

Surface hygiene assists in the prevention of disease or the build-up of black layer or algae. Surface accumulations of thatch and decaying material will also impede the passage of surface water.

The sward should be brushed, using pedestrian drag brushes, as a matter of routine, to disperse morning dew and to stand the plant upright. One other form of brushing which will be required on a monthly basis (depending on sward condition and the quantity of detritus within the sward) is a tractor mounted drag brush for a deeper agitation of the Powergrass materials. After brushing it is recommended to 'Hoover' using a rotary collector mower or Trilo type machine to remove detritus from the surface.

### Irrigation

The management of water for irrigation is of fundamental importance to support the growth of the turf especially for sports use. The main objective is to provide the water needs of turf according to climatic conditions. Irrigation cycles must be programmed in such a way as to favour the development of the root system at depth as well as to alleviate prolonged drought stress.

It is necessary to make an appropriate program depending on the climate of the area. The installation of an automatic control system, allows you to rationalise consumption and better support the grass in the warmer periods

There is no program controller with artificial intelligence, so it is important to appoint a capable person for water management in accordance with the weather changes of the seasons.



It is generally sufficient to apply some simple rules to get a good result:

It is essential to have an efficient automated watering system that can deliver a uniform covering of water over the whole playing area. **A policy of drench and drain and not 'little and often'** should be adopted in order that the roots of the grass will follow the water down through the rootzone profile.

Irrigation should not be undertaken on a little and often basis as this will encourage shallow rooting and Poa annua infestations.

During preparation for matches the immediate surface should not be allowed to dry out as this may lead to a reduction in surface stability. On occasions it will be beneficial to lightly water the surface prior to matches, particularly during periods of dry weather, but if this process is carried out too regularly this could promote shallow rooting.

### Aeration and Decompaction



If your new Powergrass installation presents readings in excess of 95 -100G with a 2.25 kg Clegg hammer dropped from 0.45 m height, then follow the guidelines set out below.

There are various factors affecting hardness on a pitch surface, such as sward density, hours of use, irrigation and maintenance. A combination of the following procedures will keep the surface at the desired hardness level.

Aeration is a vital component in producing a sward able to withstand the rigours of a full season's use. It serves many purposes and can be undertaken in different forms but, in the main, aeration should be carried out using a low ground pressure fast acting solid tine aerator such as the Toro Verti-Core or Pro-Core, this can be a pedestrian machine, or if space permits turning off the pitch, tractor mounted. This is referred to as 'needle-tining' below.



Vary the depth and diameter of tines between 8mm - 12mm, ensuring they penetrate through the Powergrass carpet backing, if carried out correctly the Vert-core or Pro-Core can reduce the hardness by approximately 15-20 G (2.25 kg Clegg Hammer).

Working depth to suit conditions, and the tine spacing set at between 50mm to 75mm depending on the size of the tines being used.

These machines can be best utilised if fitted with needle tines which aerate the surface at close centres. This action maximises the air-filled porosity of the rootzone while, at the same time, causes minimal surface disruption with less rootzone compression around the tine holes.

Although aeration is important during the playing season its use in the summer months is even more important, since aeration during the growing season will promote a deeper rooting sward. Ideally, clubs should have their own aeration equipment, as this enables the grounds staff the flexibility to do the work at their own discretion. Timing is everything especially when influenced by the weather, fixtures or condition of the pitch.

**NEVER USE HOLLOW TINES ON A POWERGRASS PITCH.**

### Mowing and Scarification



Mowing is one of the most vital operations required on a regular basis to allow for the production of a healthy sward. Presentation is also much enhanced by correct mowing techniques. It is an essential all the year-round operation and the machine should be set at a suitable height (25-27mm) for Football or (30-40mm) for Rugby to provide a relatively short, quick surface.



Raking the surface with a tractor mounted rake, or a scarifying reel fitted to a pedestrian mower work to a good effect, but care should be taken to minimise soil removal. Both techniques will also help to loosen the playing surface and reduce hardness and traction.

We would suggest that this process be carried out at **4 weekly** intervals, based alternately with a **4 weekly** needle-tining to avoid over-stressing the sward through the growing season, during the winter months the scarification frequency can be reduced to avoid over-thinning the sward.

Scarification and raking will be of paramount importance if a clean, open sward is to be maintained to prevent basal crown diseases of the grass and the formation of algae and thatch in the grass sward. These operations need to be carried out on a regular basis particularly during the growing season. They will enhance presentation throughout the playing season and reduce the risk of organic build up and disease infestation, which can be costly to rectify.

### Pitch analysis



It is imperative that the groundsman keeps a working diary detailing the maintenance regimes undertaken and the condition of the pitch, as this data can be used effectively to decide on any future maintenance or renovation works required. If at any time the groundsman is unsure then consult a qualified and experienced Sports Surface Agronomist / Consultant.

It is important to monitor nutrient levels, as sand-based pitches are renowned for leaching nutrients from their profiles. Also, keep an eye on root depth and check on its aerobic state and hardness.



Typical industry practice is to test the hardness of a pitch using a 2.25 Clegg hammer dropped from 0.45 m height. For winter sports, the preferred readings for hardness would be between 75 -100 G, the ideal hardness should range between 80-90 G To determine and maintain the target readings for each sport, weekly Clegg hammer readings should be taken across the playing surface in high and low usage areas. Normally this is done by taking 5 readings within a square metre at up to 10 locations across the pitch using a 2.25 kg Clegg Hammer.

To ascertain the mean hardness of the pitch, these readings should be totalled up and then divided by the number of readings taken, the resulting figure is the mean average. If the mean average is high (in excess of 100 G) then this should be rectified immediately (please refer to Aeration and Decompaction).

### Over sowing/Over seeding

In order to reduce the intensity of the end of season regeneration, we would recommend that an over seeding of 6 g/m<sup>2</sup> (of the same grass specification used in the construction phase) on this will help to bolster the sward and help to maintain sward density, recommended 6 weekly through the growing season depending on usage. **Do not use disc seeder**, only use dimple seeder.

### Nutrition

Sand based pitches are notorious for leaching nutrients so, to help promote and sustain healthy grass growth, a suitable, regular fertiliser programme is required.

Fertiliser/soil improvers may be applied in either the form of a granular top dressing, or as a liquid foliar feed using accurately calibrated sprayers and spreaders. The regime the we have included is for intensive high usage and Stadia which in turn require an intensive feeding programme, the lower the use the less feeding required.

Please see the separate feeding regime.



### End of season Renovations



Powergrass pitches are completely suited to modern day end of season renovation techniques. For major works it is advisable to employ the services of a competent contractor who has the relevant expertise and machinery to carry out such work.

End of season renovation should be determined by the condition of the pitch prior to the end of the playing season and should be assessed at the appropriate time.

In most cases pitch quality will change over time. Having started with an ideal sward composition, and free draining, you may be faced with a changing surface environment once the ravages of play take their toll.

By the very nature of the maintenance required, plenty of watering and a constant feeding programme, the sward goes through many cycles of growth which, in turn, produces a lot of thatch and dead vegetation. If left to accumulate it will eventually slow water infiltration and provide an ideal environment for disease and proliferation of Poa grasses.

However, with the advent of the Koro Field Top Maker fitted with scarification tines or blades, the job of renovating football pitches has been made more effective, with an opportunity to clean out all weak grasses and leave the desirable ones. The type of regeneration and when it is carried out will largely depend on the density and performance of the sward





Site operator to reduce the grass height to 25mm and remove arisings from site.

1. Annually –. The basic renovation technique is to spray the pitch with a growth regulator, such as Primo Max and a light liquid fertiliser to slow down growth of the existing grass plants. Scarify in several directions using a mounted drag harrow/tine combination to thin out the sward and Hoover off using a Trilo machine (or similar). Top-dress with a compatible rootzone/cork infill, thoroughly brushing the surface to stand the Powergrass fibres up and evenly distribute the infill material, fertilise and seed. As in-fill material is potentially removed from the surface during the renovation process, there will be a need to replenish the surface and maintain the free pile height of the synthetic fibres at 25mm. Approximately 50-70 tonnes of medium course sand and cork mixture may be required, this can be determined on site after the heavy scarification process has been completed.
2. Thoroughly brush the surface to stand the Powergrass fibres up and evenly distribute the infill material, fertilise at a rate of 55g/m<sup>2</sup>, ideally 2 days before seeding. The seed choice is of client preference, (Powergrass recommend Barenbrug Bar Stadia RPR), at a rate of 35g/m<sup>2</sup> using a dimple seeder in at least 3 directions. Avoid using drill seeder and **do not use disc over seeders**.

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### Initial Cutting/Mowing

Carry out the first cut with a rotary collector mower when the grass has reached a height of 50-60 mm. The first three cuts shall maintain the grass at 50 mm. After the first three cuts, gradually reduce the cut height to 30 mm, never removing more than 1/3rd of the leaf blade.

Once the sward has been reduced to 25-27 mm continue cutting throughout the season as mentioned previously in this document.

All clippings should be collected and removed from the surface.