



FIFA  
**Quality Concept**  
for Football Turf

**How to maintain  
football turf**

**FIFA<sup>®</sup>**

*For the Game. For the World.*



# Good Maintenance is Important

It has long been claimed that artificial surfaces are maintenance-free. This is not only a myth, but a dangerous concept to embrace. The need to maintain a football turf field is fundamental for reasons of aesthetics, safety, playing performance and longevity.

## AESTHETICS

A good field is attractive to play any sport on and will encourage participants to use it in the right way. A dirty field is not attractive to play on, will deter participants from using the facility in the long term and can attract vandalism.

## SAFETY

A neglected field can also be a dangerous field that can present a number of hazards to players. This in turn can lead to injuries and further detract from the attraction of the facility.

## PLAYING PERFORMANCE

A lack of maintenance will lead to discomfort and frustration for players because of:

- Faster movement of the ball
- Uneven roll of the ball
- Variable bounce of the ball
- Run on a hard surface
- Poor grip of the surface

## LONGEVITY

Finally, the lifetime of the football turf field will be significantly reduced by a lack of maintenance, undermining the investment in it.



Examples of badly maintained fields

# General Maintenance Principles

Do not undertake any action that has not previously been authorised by the installing company. Warranties are normally linked to the maintenance of the surface and a lack of maintenance, or incorrect maintenance, will invalidate the warranty.

Do not apply any chemicals to the surface without consulting the supplier. Many chemical substances can act to the detriment of the surface, particularly petroleum-based products. Care must be taken to avoid all petroleum-based spillages, including fuel for tractor units. Always re-fuel the maintenance equipment away from the playing surface.



Those chemicals that can be used, after authorisation, on synthetic surfaces include algaecides, mossicides, weed killers and de-icers.

If you have not received maintenance guidelines from the company that installed your field, please make sure you receive this important document before using the field.

# Playing Equipment

Portable goals are recommended. These can be moved around the pitch to achieve a more even wear. Portable goals should have wheels and not be dragged around on the pitch, as this can easily damage the football turf.

Signs should be put up with information and rules for use of the pitch. The rules should, among other things, provide information about opening hours for unorganised use, prohibition of smoking, ice cream and chewing gum, and information on where rubbish can be discarded.



# Regular Maintenance

## 1 BRUSHING THE SURFACE

The surface should be brushed regularly and in accordance with the recommendations of the turf manufacturer. The brushing frequency will be related to the intensity of use – the more often it is used, the more often you must brush it.

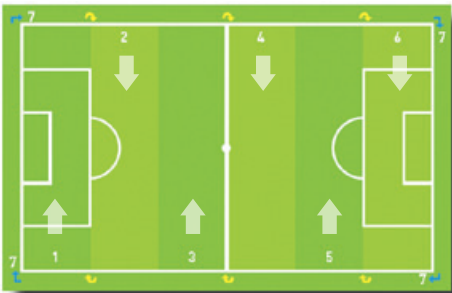
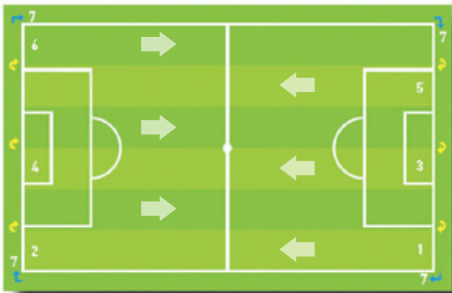
The main effect of brushing is to level the infill to ensure the uniformity of the surface. A second important reason for brushing a synthetic field is to prevent pile lean and pile flattening. Many synthetic fibres have a tendency to lean in a particular direction or flatten with use. To overcome this, regular brushing in all directions will help to keep the fibres upright and non-directional.

A variety of brush types exist on the market with different degrees of effectiveness. The most commonly used ones are drag brushes, which are normally attached to the rear of tractor units, either hydraulically or as a simple attachment. They are particularly effective at levelling the infill (where present) in the surface. Rotary brushes are also used and are typically attached to the front of the tractor unit. They can rotate forward or in reverse. Rotating forward is particularly effective at removing material from the surface, and either modes of rotation are good for raising the pile of the carpet. The tractor speed should not exceed 5 kilometres per hour and sharp turns must be avoided.

Always brush in different directions, as brushing in one direction will tend to cause the fibres to lean in that direction. This will result in different ball roll characteristics in different directions. The high-wear areas will require additional attention as these zones will obviously have the most disrupted infill and pile flattening due to the intensity of the play. It is most effective to brush the surface when it is dry.

Only use brushes that are recommended by the turf manufacturer.





Always brush the field in different directions

# Regular Maintenance

## 2 KEEP THE INFILL LEVEL

The penalty spots and corners are prone to disruption of the infill. Ground staff should be aware of this and be prepared to top up on a more regular basis than is necessary for routine brushing. It may be necessary to top up these areas every day during intense usage. When material begins to accumulate at the edges of the field, debris should be removed from it and the accumulated material cleaned and brushed back into the main field.

Systems that utilise infill materials may require a period of settling in. This will necessitate a regime of regular brushing on a more frequent basis than is normally required. The installing company will give advice as to the necessity and added frequency of this extra brushing.

Replenishment of infill should be made with light equipment or by hand, whichever is most appropriate. With the delivery of the field, the owner should buy additional infill material so that it is always available. Installations should have weekly checks of fill levels on the field. In addition to the weekly check, there should be an annual inspection of the whole pitch to ensure that the fill height is kept at an appropriate level in accordance with the supplier's specifications. Type of granules for replenishment must be determined in consultation with the turf manufacturer.



Insufficient infill will destroy the fibre



Infill often spreads to other areas of the field



# Regular Maintenance

## 3 KEEP THE SURFACE CLEAN

Wherever and whenever contaminants are present, remove them as soon as possible. No food or beverages should be allowed on the field. Equally problematic is chewing gum, although this can be simply remedied by freezing the offending gum, which can then be broken out of the field when it has become solid. Smoking is strictly forbidden.

Organic material, such as leaves, pine needles and grass on the pitch can interfere with the granulate if not removed. The possible result of this mixture is that the pitch becomes harder, there will be poorer drainage and all of this will result in algal, moss or weed growth. The problem with organic material can occur throughout the year. In the most vulnerable periods, the pitch should be cleaned daily.

If the infill shows signs of agglomerating, break up the lumps into their individual components.

It is advisable to avoid leafy trees being located close to the field.

# Less Frequent Maintenance

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## DECOMPACTION

Check for compaction of the infill, particularly in the high-usage areas. Contact the installing company if you observe this and they will advise accordingly. Some installing companies supply equipment for overcoming this problem; others will undertake the work themselves under a maintenance contract. The Maintenance Manager can easily check for compaction by bouncing a ball on the surface. A surface with uneven compaction will show variable ball bounce, and a high ball bounce will often indicate loss or compacted infill.



Decompaction equipment

2

## CHECK SEAMS

If the seams have failed in any place, contact the installing company as soon as possible and insist on an immediate repair under the terms of the warranty. Do not attempt to undertake the repairs yourself.



A pitch with open seams is not safe to play on and can cause injuries

# Less Frequent Maintenance

## 3 IRRIGATION AND WATERFALL

Football turf fields will heat up during periods of warm weather. The surfaces can become so warm as to be noticeable to the players. Furthermore, a heated surface can contribute to a friction burn due to the fact that a skin temperature of approximately 60 degrees C is required to produce a skin burn. On a hot day, the combination of hot skin with a hot surface, in addition to the friction (heat) generated when the player slides on the surface, makes it almost inevitable that a skin burn will occur.

Water has several effects: it will lubricate the surface, cool the surface, stabilise the infill and consequently reduce loss of infill. After heavy rainfall, it is advisable to check the infill levels as they may have become disrupted. This can be particularly significant if the field has a slope and the infill has migrated with the slope.



Check your irrigation system periodically



It is crucial to have excellent drainage to avoid standing water on the pitch

## 4 FIELD CLEANING

When a field begins to show signs of significant compaction and accumulation of detritus, or when permeability problems occur, use specialist machines that are capable of removing a proportion of the infill materials, cleaning them and re-introducing them back into the surface. These procedures are normally undertaken by specialised maintenance companies or the installing company.

# Less Frequent Maintenance

5

## WINTER MAINTENANCE

Fields with under-soil heating offer player comfort in the winter as, in most cases, it will offer almost the same playing qualities as in the summer. However, under-soil heating can be expensive to install and operate, and mechanical removal of snow is usually still required.

Mechanical removal of snow from the pitch should only be done by trained personnel using specially designed equipment, approved by the manufacturer. Incorrect equipment and/or careless use may cause severe and costly damage.

De-icing chemicals must be used with caution as they might affect the environment, the players' shoes and clothes, and even dressing room floors. The manufacturer must always be consulted before using any kind of chemicals.

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## MOSS, ALGAE, WEEDS

Weeds are easily removed by hand if the infestation has not become too excessive. Moss and algae require specialist treatment, normally using specific chemicals and techniques to remove residues. The advice of the installing company should be sought at an early stage if the problem occurs. The longer you leave an infestation in general, the bigger the problem will become.

# Less Frequent Maintenance

## 7 FIELD SURROUNDS

The most important design feature is to avoid contamination, which can come in several forms: player-borne contamination, surrounding vegetation, wind-borne contamination and animal-borne contamination.

Players will often take the shortest path between the changing facilities and the field. If that pathway is dirty, they will carry that dirt on their boots onto the field. To avoid this, ensure that the pathway is clean and install a brush mat at the entrance of the field.

Another good solution is to lay asphalt or concrete slabs around the pitch. This will prevent spectators from dragging soil and dirt onto the pitch and provide maintenance vehicles with a clean and stable route around the pitch.

If other vegetation surrounds the field, this will inevitably be deposited on the field, for example grass areas around the field will, when cut, deposit cuttings on the field. Try to leave a barrier between the natural area and the artificial field. This can be a physical barrier or a zone that is vegetation-free.

Contamination, particularly pollution and seeds, will be blown onto the field by the wind. Take this into consideration when deciding on the location of the field.

Animals, particularly birds, will leave deposits on the fields. Clean them off as soon as possible as the deposits will become the nutrient for moss, algae and weed growth.

# FIFA Maintenance Portal

It is now common for responsible manufacturers to supply a logbook as a method of recording the maintenance and usage of the field. Typical logbooks will allow the owner to record the routine maintenance times, operatives, machinery used and so on, as well as recording the field usage.

To make the task of the Maintenance Manager easier, FIFA has launched a new online logbook that:

- provides weekly, monthly and biannual maintenance guidance;
- makes sure all maintenance is recorded;
- includes the FIFA Virtual Learning Environment to provide additional maintenance knowledge.









## Contact:

For detailed information please contact FIFA Quality Concept for Football Turf at the address below:

Fédération Internationale de Football Association  
FIFA-Strasse 20 P.O. Box 8044 Zurich Switzerland

E-Mail: [football.turf@fifa.org](mailto:football.turf@fifa.org) Web: [www.fifa.com/footballturf](http://www.fifa.com/footballturf)