

Maintenance of Artificial Turf Surfaces

Maintenance regimes influence
pitch performance, player safety
and surface longevity

Maintenance?

Not the correct approach!

The screenshot shows a web browser displaying the website www.wowktv.com. The page features a navigation bar with links for Home, Local News, Weather, Sports, Video, Programming, Decision Makers, and Community. A weather widget for Charleston shows a temperature of 64 degrees. An advertisement for the TV show 'Ellen' is visible. The main article is titled 'High School Grounds Crew Mows Artificial Turf! D'oh!' and is dated September 5, 2014. The article text describes a landscaping crew in Maryland who mistakenly mowed a football field's artificial turf. It includes a quote from Tom Fink on Twitter and a small image of a tractor. A social media share bar shows 6k shares and 133 recommendations. A sidebar on the right contains a '70 Years' section and a 'Before Docs' section.

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High School Grounds Crew Mows Artificial Turf! D'oh!


Posted: Sep 05, 2014 1:49 AM EST
Updated: Sep 05, 2014 1:49 AM EST
By Bryan Hughes, Meteorologist - bio | email

What will go down in high school football history, a grounds crew in Maryland mowed the artificial turf.

Wouldn't it smell like something is burning? Maybe just look wrong?



These pictures from Tom Fink will make you want to re-think who you hire to mow your lawn. In fact we'd like to have an old man yelling, "GET OFF MY LAWN!" It might have worked out better for these perplexed "landscaping professionals".

Tom Fink stated on his Twitter account:
"The landscaping crew at my buddies' HS mistakenly mowed the field turf



#HSFootball #tragic

There's no crying in baseball but it's alright to shed a tear for these football boys who's field has just been ruined. Good luck on filing that insurance claim!



70 Years
Before
Docs



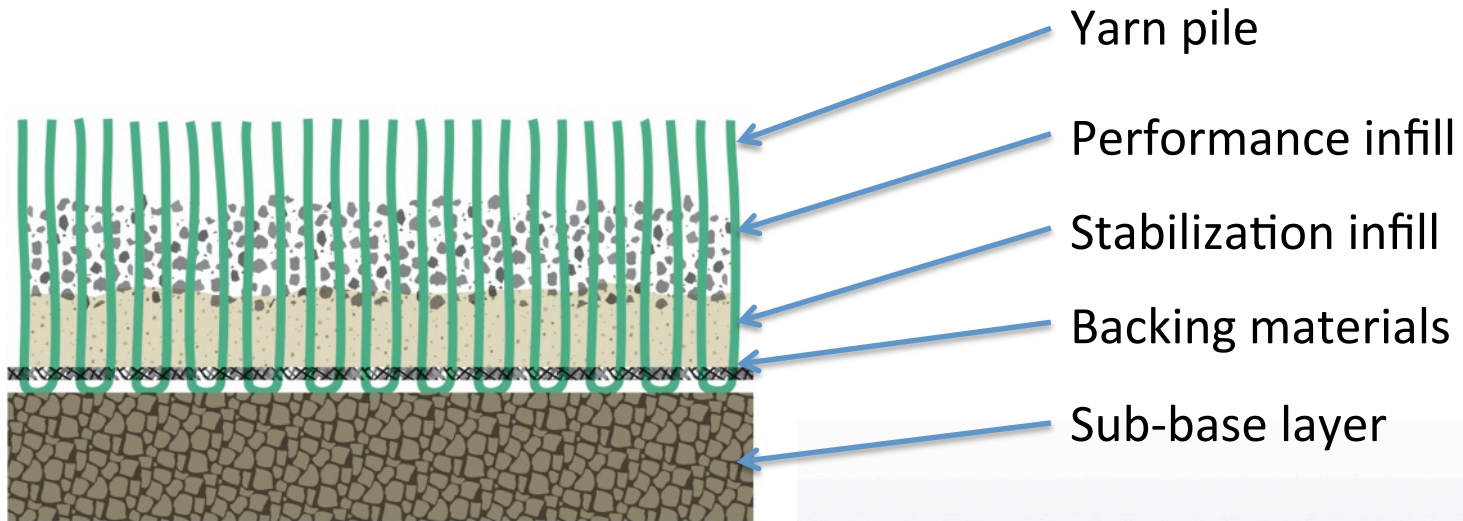
- 1. Artificial Turf Systems**
Overview of Systems and Usage Patterns
- 2. Owner/Operator Maintenance**
Regular Activities
- 3. Specialist Maintenance**
Less-frequent Activities
- 4. FIFA Maintenance Study**



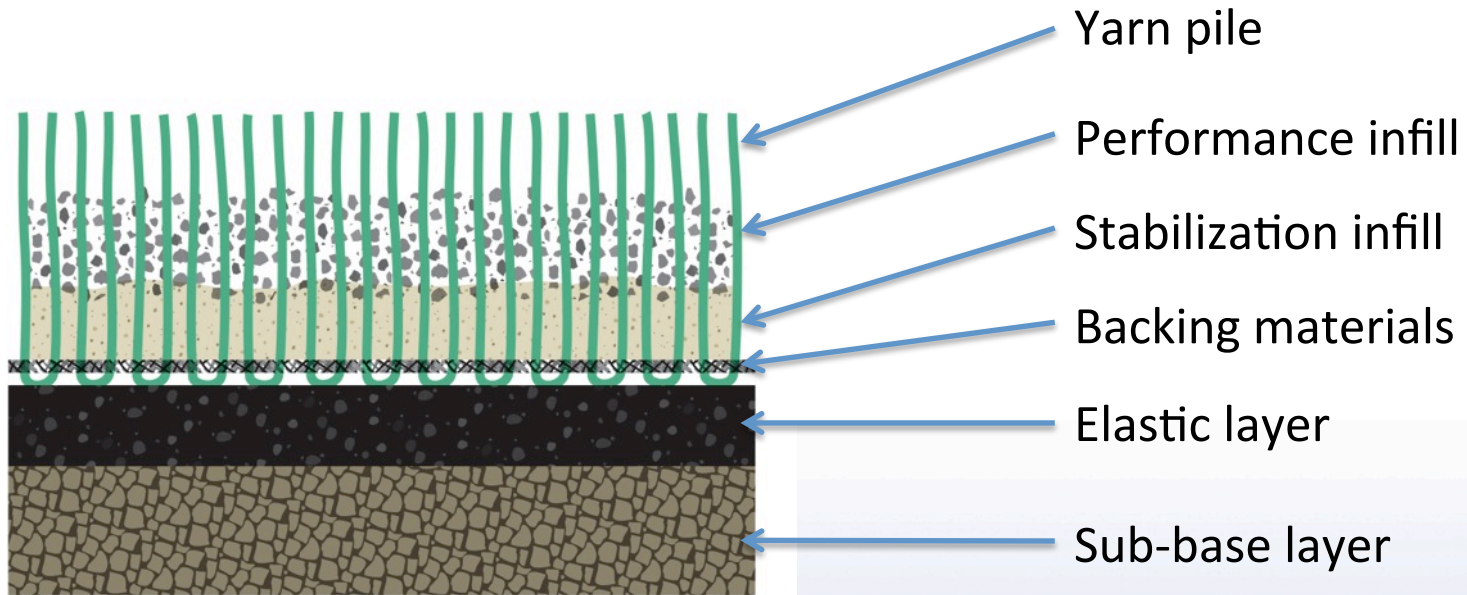
Construction Details

- Short-pile non-filled (e.g. field hockey)
- Short-to-medium pile filled (e.g. multisport, court sport)
- Medium-pile filled on elastic layer (e.g. soccer)
- Long-pile filled on road-base (e.g. football)
- Long-pile filled on elastic layer (e.g. rugby)

3rd Generation Artificial Turf



3rd Generation Artificial Turf

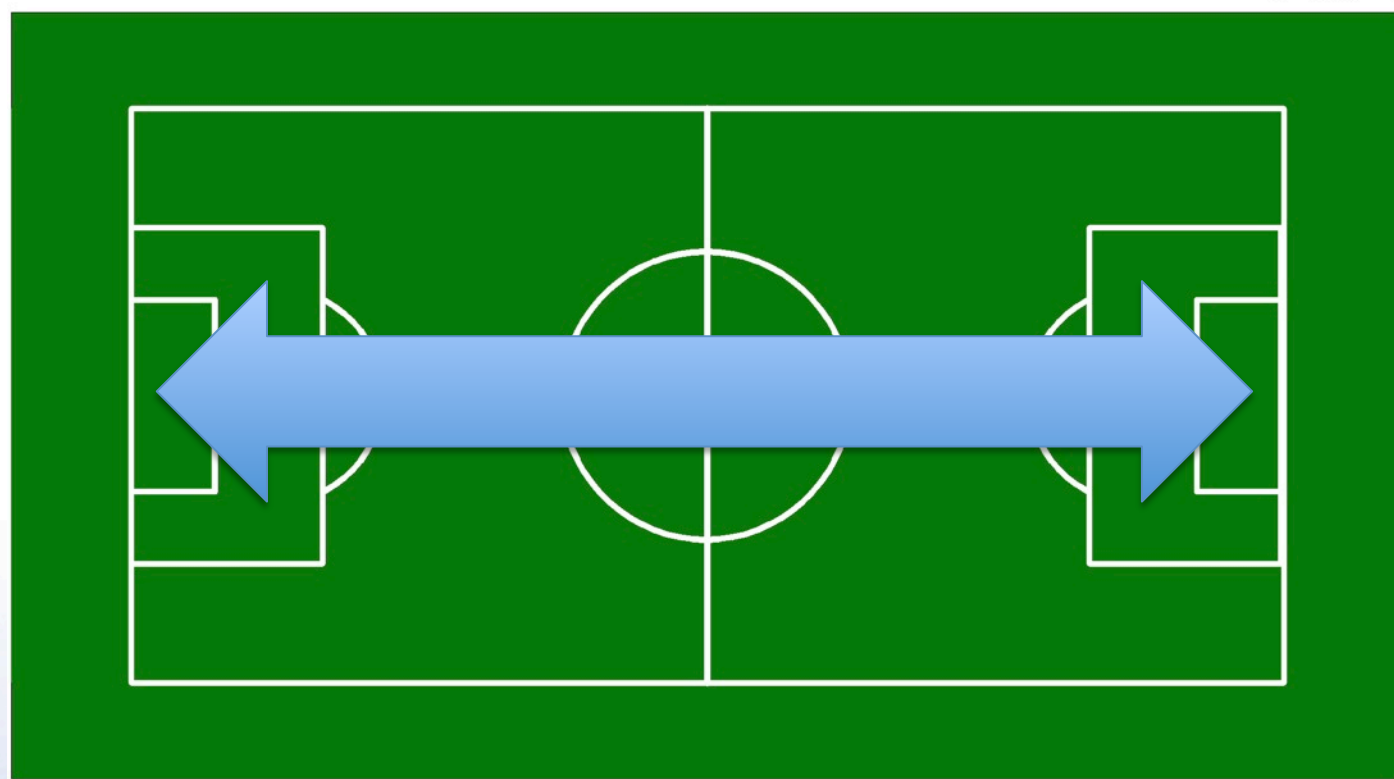


Usage Patterns



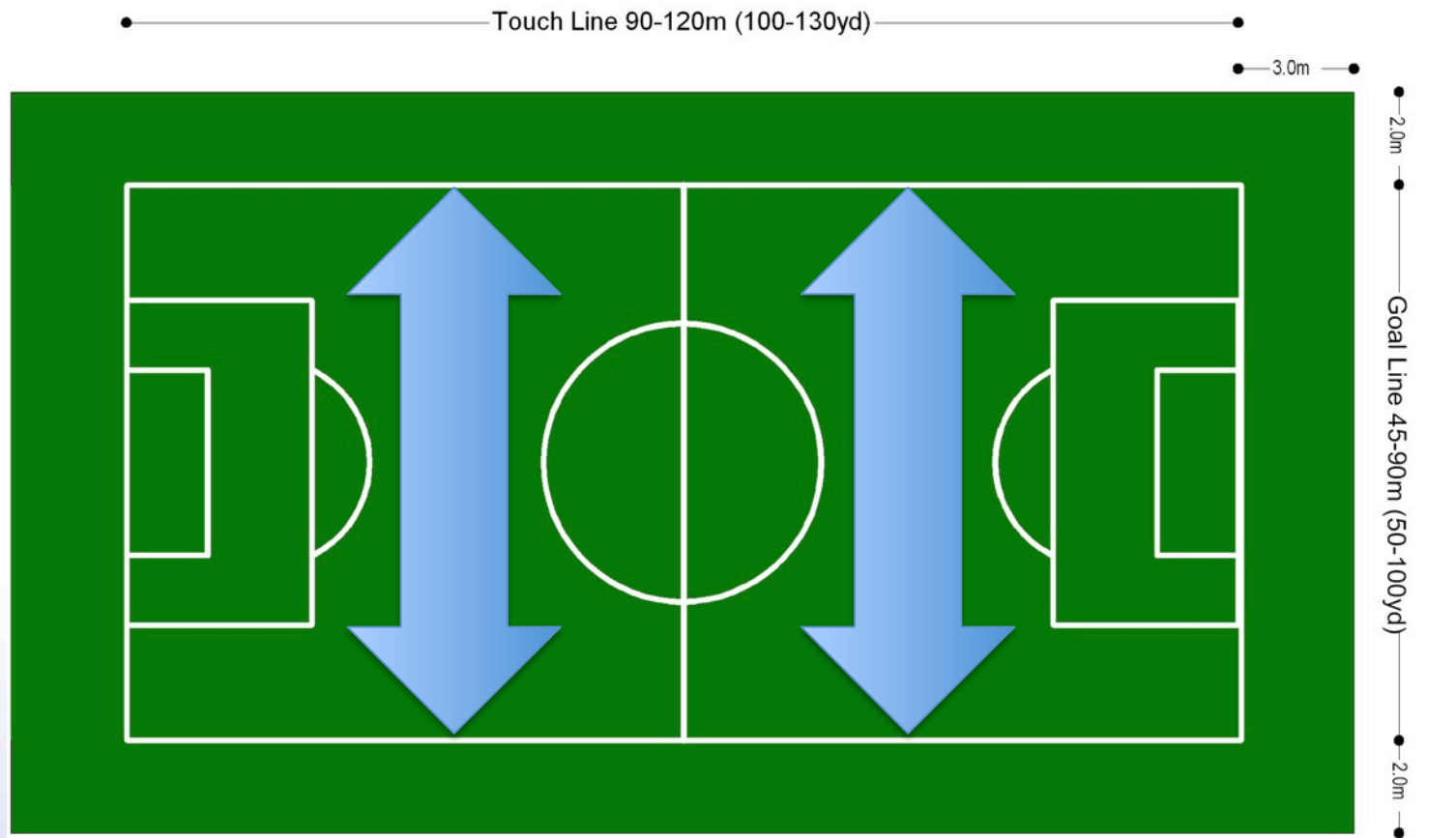
● ————— Touch Line 90-120m (100-130yd) ————— ●

● — 3.0m — ●



● — 2.0m — ●
● — Goal Line 45-90m (50-100yd) — ●
● — 2.0m — ●

Usage Patterns





1. Artificial Turf Systems
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Owner/operator tasks

- Keeping surface clean
- Keeping infill leveled in high use-areas
- Brushing the surface fiber



Regular Maintenance Activity



Maintenance Type	Maintenance Activity	Daily (after 8-10 hrs of playing activity)
General Inspection and Service Work (typically combined with pitch setup, i.e. soccer net setup, corner flag placement)	Remove surface dirt/litter	✓
	Check lines and seams	✓
	Check infill levels in high-use areas	✓
	Check penalty spots	✓

Regular Maintenance Activity

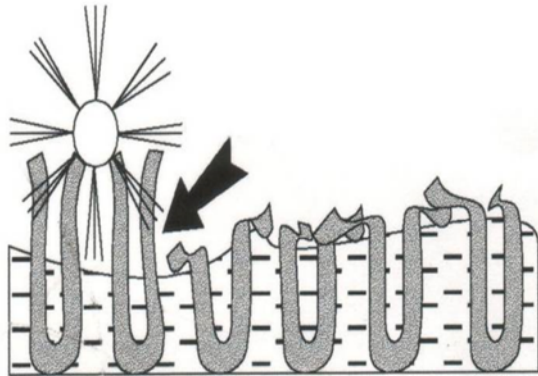


Maintenance Type	Maintenance Activity	Weekly (after 40-60 hrs of playing activity)
Service Work on turf and performance infill	Brushing of synthetic turf	✓
	Leveling of performance infill	✓
	Retopping of performance infill (in high use areas)	as required
	Decompaction of performance infill (in high use areas)	as required



Equipment

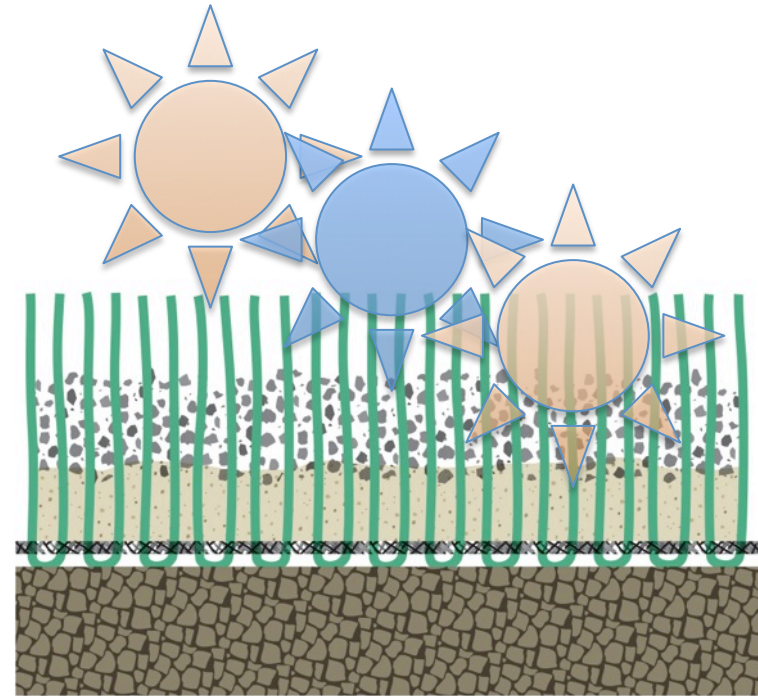
- Drag brush
- Triangle brush
- Light equipment



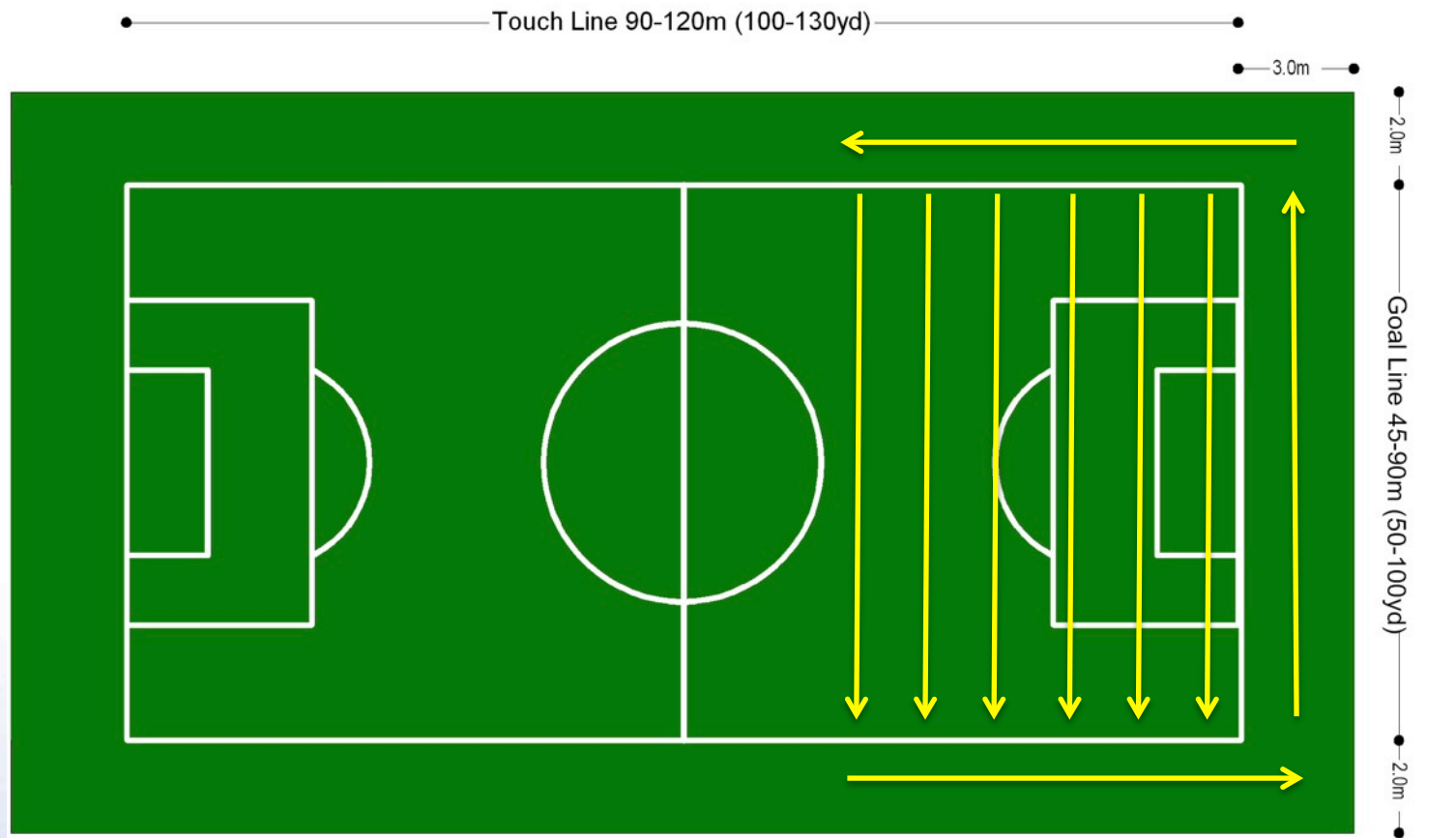


Correct Brush Setting

- Too high
- Too low
- Correct



Brushing Direction



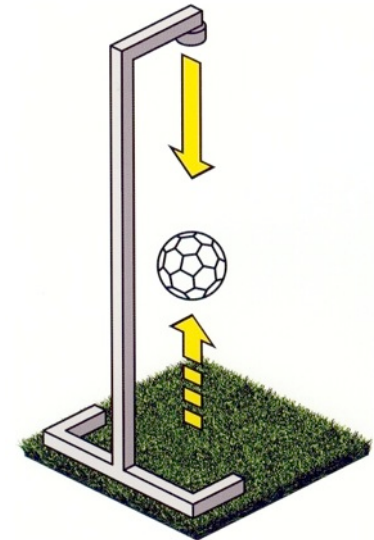


Surface Performance Testing

- Ball roll testing
- Ball rebound testing

Important:

Maintenance activity required to occur earlier in case surface testing indicates deterioration of performance characteristics





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Less Frequent Tasks across entire pitch

- Retopping of performance infill
- Decompaction of performance infill
- Deep cleaning





Field Deep Cleaning

Use of specialist equipment capable of:

- Removing proportion of infill materials
- Cleaning infill material
- Re-introducing material back into surface





Equipment

- Pull-behind tractor equipment
- Specialized field cleaning equipment



Specialist Maintenance Activity



Maintenance Type	Maintenance Activity	Bi-annually (after 1,200 -1,500 hrs of playing activity)
Service Work on turf and performance infill (across entire pitch area)	Retopping of performance infill	✓
	Decompaction of performance infill	✓

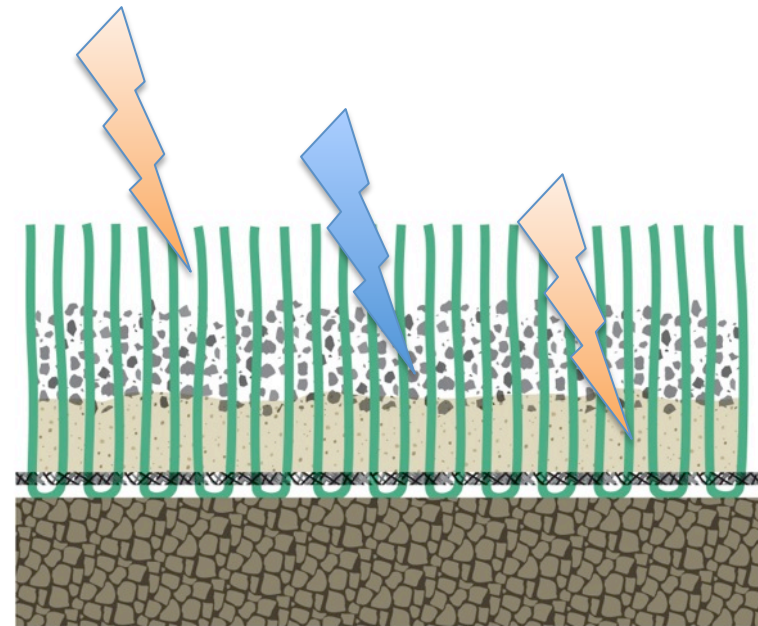
Maintenance Type	Maintenance Activity	Annually (after 2,400 hrs of playing activity)
Special Maintenance work (across entire pitch area)	Deep cleaning	✓

Important: Maintenance activity required to occur earlier in case surface testing indicates deterioration of performance characteristics



Decompaction Setting

- Too high
- Too low
- Correct





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FIFA Maintenance Study



FIFA Test Procedure	Maintenance Effect
Ball rebound	Performance infill, fiber
Ball roll	Fiber
Force reduction	Performance infill
Deformation	Performance infill
Rotational resistance	Fiber





Approach: Divided pitch into 4 quadrants to test 4 maintenance methods

- Oscillating brush
- Rotary brush
- Drag brush – steel rake
- Triangular brush



Measurements in each quadrant

1. Performance test
2. Playing activity
3. Maintenance
4. Performance test
5. Playing activity
6. Performance test (after no maintenance)



General results

- Oscillating brush best result/best improvement
- Triangle brush least results/improvement
- Any maintenance better than none





Ball Rebound

- No significant differences between 4 approaches
- Without maintenance, pitches with shockpads retained parameter better



Deformation

- Drag brush/steel rake with greatest overall improvement
- Small variances between various methods





Force Reduction

- Best results with rotary brush
- Without maintenance only pitches with shockpads retained parameters within FIFA Quality Program requirements
- Impossible to return non-shockpad pitches to their original force reduction



Conclusions

- Maintenance improves performance and safety
- Most significant improvements on ball roll
- Maintenance frequency depends on playing hours
- Specialist maintenance equipment have significant influence on specific characteristics
- **Without regular maintenance only minor performance improvements possible**



Thank you

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