



## FIELD MAINTENANCE GUIDE

### **Purpose**

To provide guidance to clubs seeking to improve an existing playing surface. To allow for the development of playing surfaces that provide quality playing surfaces that are not only conducive to good soccer but are safe for players and officials.

It is not intended to limit the scope for clubs to approach this problem in other ways but to set out 'best practices' information that will assist the club to provide the accepted standard for a playing surface approved by Football Brisbane.

This information should be interpreted in relation to the existing local conditions. The experience and knowledge of local turf suppliers and maintenance practitioners should not be discounted. No attempt has been made to cost the different methods of maintenance.

### **Scope**

To assist clubs in compliance with the standard of playing surface set out in the Football Brisbane 'Playing Facilities Standards' (page 8), Surface – General and Grass Coverage sections and the FIFA standard (page 9).

In particular the problem of ground hardness is at the centre of the desire to produce playing surfaces that limit the risk of injury. Ref: Football Brisbane 'Playing Facilities Standards' (Page 10) Shock Absorbency and Medi Sci Sports Exercise 31(5): S354.

There is a direct relationship between ground hardness, Anterior Cruciate Ligament injuries and AFL football that must be considered in relation to playing surfaces for football. This is set out in:

- Medi Sci Sports Exercise 31(5): S354. Ground Hardness using the Racetrack Penetrometer.

This guidance document is focused on the main elements that affect the playing surface performance:

- Maintenance and care of an existing playing surface

For new or major redevelopment the site must be analysed in the light of expected usage and potential restrictions. For all but the smallest projects a feasibility study should be commissioned from an experienced independent professional.

## **Background**

In particular the next two paragraphs outline the rationale for clubs to consider when making decisions on ground maintenance and/or ground upgrades.

Safety must be the primary concern of any club and certainly this association. A poorly constructed and/or neglected field will often be a dangerous field. Simply put, the field that is not constructed correctly and maintained can present a number of hazards to the players, which can lead to a variety of injuries. This can further detract from the attraction of the facility and open the owners up to threat of litigation.

The playing characteristics of the field will be severely impaired by poor design and/or a lack of maintenance. The ball can become faster over the surface, it will roll unevenly and the ball bounce will vary from place to place. The players will feel uncomfortable running on an uneven surface and frustrated by the inability to control an unpredictable ball.

## **Reference Acknowledgement**

In preparing this document the following documents have been used as reference material:

- Sport England (English Sports Council) [www.sportengland.org](http://www.sportengland.org) Natural Turf for Sport
- Medi Sci Sports Exercise 31(5): S354 Ground Hardness using the Racetrack Penetrometer

## **Disclaimer**

Remember this is an information guide only. Any decision to implement all or part of the methods shown here should be analysed in depth for cost effectiveness and suitability to the particular circumstances of your club and playing field.

The decision to implement a maintenance program should be a considered one. The decision **not to** implement a maintenance program also has costs and serious considerations attached. Clubs have a "Duty of Care" to provide safe playing conditions for practice and competition.

## Pitch Maintenance

### General Maintenance (During the Season)

Typically, post-match work will involve divoting and this may require the application of top dressing material to the most badly damaged areas of turf. Ensure provision of a reasonable quantity of top dressing and that adequate storage facilities are available to keep it dry. Specialist equipment can be hired to maintain pitch quality.

To restore the pitch for the following season a number of operations may need to be performed at the end of the playing year. Provision should be made for aeration, cultivation, sanding, seeding and/or reurfing.

The following equipment is fundamental to successful maintenance:

- mower - various models fulfil different requirements. Cylinder mowers produce a better quality finish
- aerator - tractor-mounted or pedestrian
- sprayer - for application of liquid fertiliser and pesticides
- chain harrow/roller - to break up clumps and re-level the surface - heavy rolling is no longer considered suitable due to adverse effects on the root zone
- hand tools - spade, fork, half moon brush, drag brush, edging shears, wheelbarrow, measuring equipment

Hire expensive equipment as and when required. Most good hire companies have this range of turf care equipment.

### End of Season Maintenance

Typically the post-season maintenance work will be guided by the level damage sustained during the playing season. The usual post-season program should include the following 'best practice' maintenance tasks to ensure the performance and safety of the pitch for the coming season.

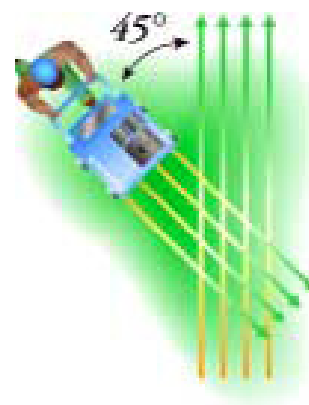
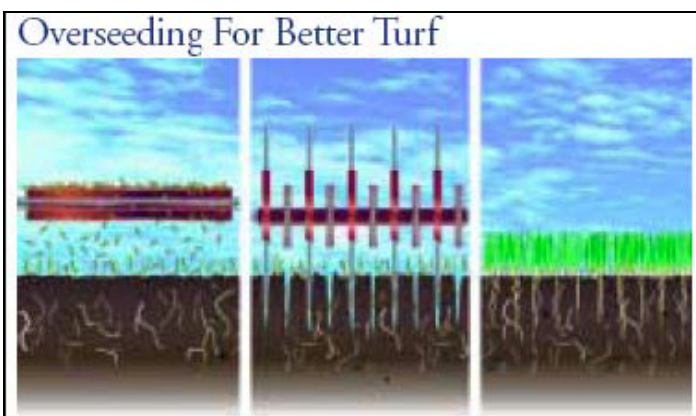
The overriding concern here is that a healthy grass cover will assist in reducing of ground hardness. The relationship between ground hardness and injury is well documented. By preparing the pitch using the following methods, the playing surface performance will be improved.

### Overseeding

Pitches suffering from thin, bare patches require aggressive renovation techniques. Overseeding with a lawn seeder may revive the pitch.

The hopper mounted on the machine drops a measured amount of seed by blending them into the soil through the action of rotating knife blades. As the seeder moves forward a neoprene flap smoothes the soil to cover the seed and aid germination.

Water thoroughly as soon as the overseeding is complete and lightly each day until the seed germinates. Once the seed has sprouted, water regularly to encourage deeper growth.



## Aeration

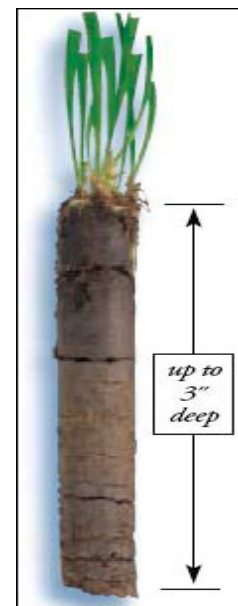
Soil compaction is a frequent cause of turf deterioration. Caused by traffic, compaction is greatest in the top 40 to 50mm of the soil. In compacted soil, dirt particles are forced together reducing the area where roots can grow. Aeration, the process of mechanically removing cores of turf, relieves compacted soil by improving the exchange of water and critical nutrients between the atmosphere and the grass' roots.

For optimal effectiveness aeration should be performed at least once annually. Spring and autumn are the ideal times to aerate cool-season grasses, such as perennial ryegrass. Warm-season grasses, such as zoysia grass and Bermuda grass benefit the most from spring or summer aeration.

Aeration increases drought resistance while decreasing the amount of watering necessary to remain healthy. Pitches that receive regular aeration will be greener, easier to maintain and suffer from fewer pest problems and disease.

## Achieving the Best Results From Aeration

- Water area to be aerated the night before. This will help to soften the soil, allowing for maximum core penetration. 40 to 50mm is sufficient to reach the root zone
- Before beginning, map out any obstructions such as sprinkler heads or drains
- Cover every inch of the lawn and go over high traffic areas more than once
- After aerating, water the lawn and apply fertilizer. This will promote growth and allow grass to compete with weed growth
- Rub sand into the turf using a soil spreader or large drag broom. Use sufficient sand to fill the cores without a significant build up of the surface



1. Compact soil prevents the grass from establishing a healthy root system. Adequate amounts of vital turf nutrients including water (H<sub>2</sub>O), oxygen(O<sub>2</sub>), nitrates (NO<sub>3</sub>), phosphorus (P) and potassium (K) are unable to reach the roots.

2. Aerators relieve soil compaction by removing evenly spaced cores of turf up to 60mm in depth. Standard coring spoons or optional spike and slicing blade reels enable you to tailor aeration to grasses and soil conditions.

3. Once the soil is aerated air exchange is improved and the soil can easily absorb water, fertilizer and other nutrients.

4. Aeration promotes deeper root growth for a turf pitch that is lush, healthy and drought resistant.

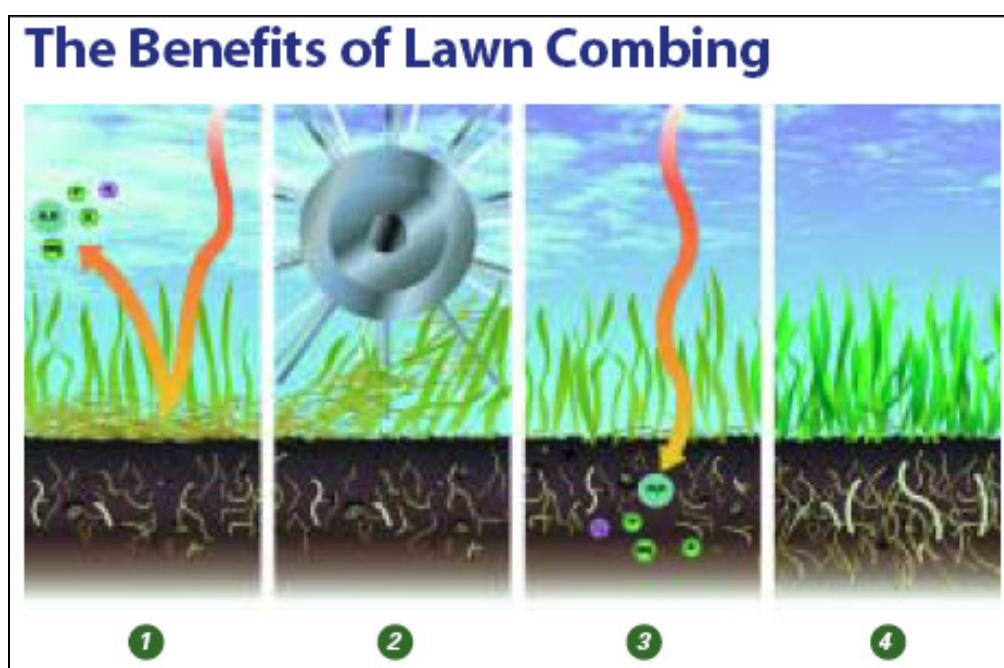
## Dethatching

Thatch is a layer of dead stems, roots and clippings between the soil's surface and the green vegetation, which can deprive your turf of vital nutrients. A thatch layer of one-half inch or more also prohibits water and air from entering the grass roots and provides the perfect breeding environment for insects and disease. A simple process called dethatching provides the best solution to thatch build-up.

Dethatching is a process that mechanically removes accumulated thatch using steel flail blades or rigid wire tines to slice through the turf, lifting thatch debris to the surface for removal. Once this build up is eliminated, air, water and nutrients can flow freely to the roots, rejuvenating a yellowing lifeless pitch.

Dethatching may cause some minor damage to the turf, or browning for a short period. To expedite recovery, all thatch should be removed using a lawn vacuum collection system or a hand rake.

Fertilizer and herbicide should then be applied to prevent the growth of weeds while replenishing vital nutrients that the turf needs to regain its green, lush appearance.

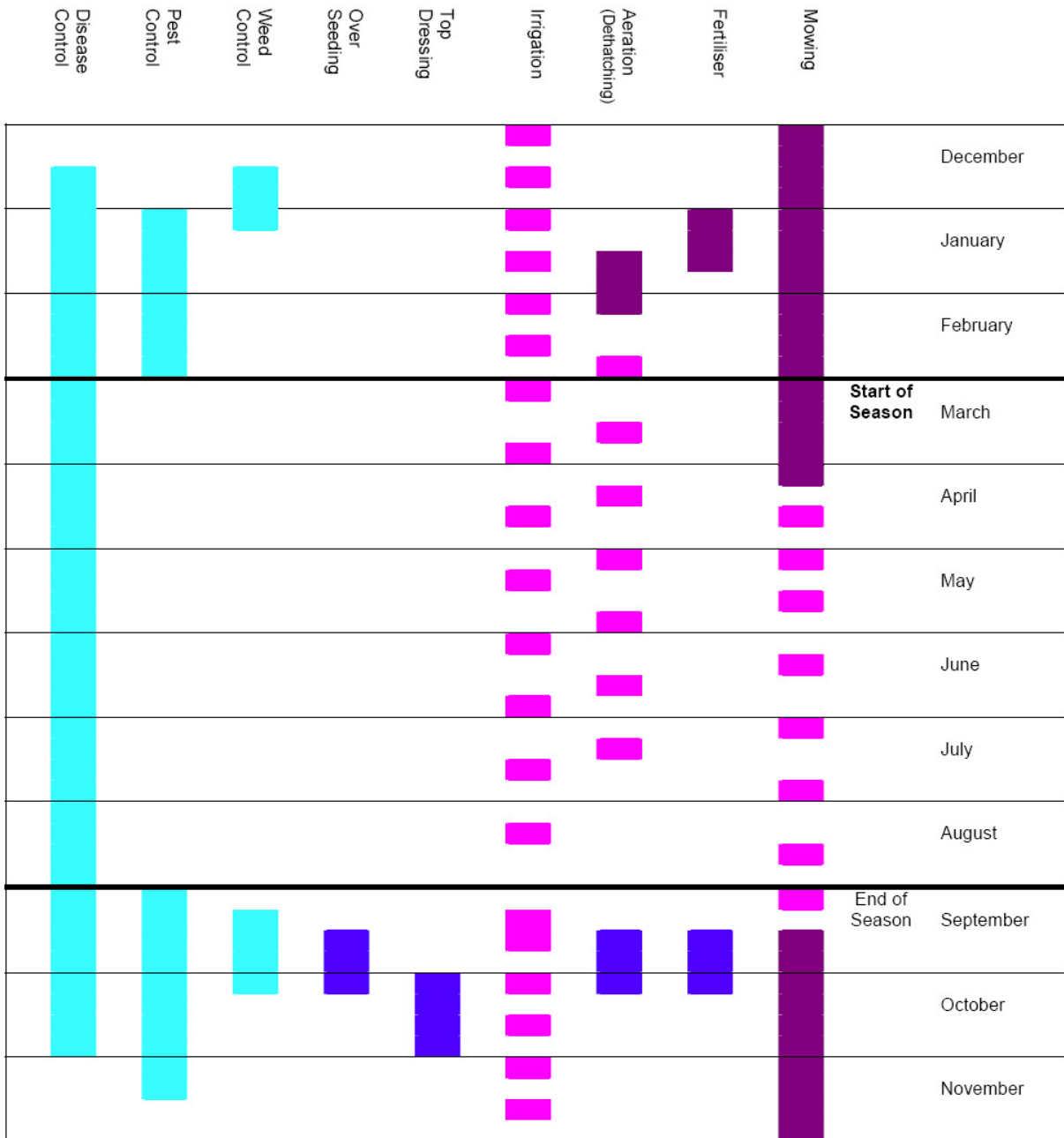


### The Benefits of Dethatching.

1. Thatch is a dense mat of roots, stems and grass clippings that accumulates between the soil and growing blades of grass. As thatch builds, adequate amounts of vital turf nutrients including water (H<sub>2</sub>O), oxygen (O<sub>2</sub>), nitrates (NO<sub>3</sub>), phosphorus (P) and potassium (K) are unable to reach the root system.
2. Combing with flail blades, reel blades or spring tines effectively removes thatch build up. This allows air and nutrients to reach the root system again.
3. With thatch removed, air, water, nutrients, herbicide and pesticides can do their job. Turf becomes healthier and more resistant to insect damage and disease.
4. Dethatching with a lawn comber at regular intervals promotes denser growth and ensures you'll have a vibrant, healthy pitch.

# MAINTENANCE PROGRAMME

Queensland – South East.



**Key:**

- Essential
- End of season renovation work
- May be required
- According to growth & ground conditions

Suggested maintenance programme. Adjust for local soil and weather conditions.