NATURAL TURF ALLIANCE

Modern Natural Turf: A New Generation of High-Performance Sporting Fields

Advances in turf cultivars, soil science, drainage and sports field design have transformed the performance of natural turf. Modern best-practice natural turf can deliver dramatically higher carrying capacity, greater resilience and lower long-term costs while retaining the environmental benefits of living green space.

Why This Matters

Across Australia, councils face growing pressure to accommodate increasing participation in community sport. Too often, the discussion is presented as a choice between ageing natural turf fields that struggle under heavy use and synthetic surfaces that promise higher capacity.

This is a false choice.
Natural turf has undergone a quiet revolution over the past two decades. Advances in turf breeding, soil science, drainage, irrigation and field construction have fundamentally changed what modern natural turf can achieve. Yet many councils continue to compare synthetic turf with sporting fields built decades ago using outdated turf cultivars, poor drainage and soils that no longer meet contemporary standards.

Independent research now shows that best-practice natural turf can dramatically increase carrying capacity, recover more quickly from wear and deliver better long- term outcomes for communities. Rather than replacing living natural systems with plastic, councils have an opportunity to modernise existing sporting fields using proven technologies that support both community sport and environmental sustainability.

The question should no longer be whether natural turf can meet future demand. It should be whether councils are making decisions using today's evidence rather than yesterday's assumptions.

1. The Evidence

Independent research consistently demonstrates that the performance of natural turf depends on the entire sporting field system, not simply the grass growing on the surface. Turf cultivar soil quality, drainage, irrigation and maintenance all work together to determine carrying capacity, durability and player safety.

One of the most significant advances has been the development of new wear-tolerant turf cultivars. Research cited in the Hunter Water Best Practice Guidelines found that some modern couch cultivars can comfortably support more than 500 players per week, while older cultivars may struggle with fewer than 150 players under similar conditions. Selecting the right cultivar can therefore have a profound impact on field performance.

A study commissioned by Turf NSW examined 1,157 sporting fields across 24 Sydney Basin councils. It found that many natural turf fields were underperforming not because of inherent limitations in grass, but because they had been poorly designed, constructed or maintained. The study concluded that upgrading these fields to best practice standards could increase collective carrying capacity by approximately 59%.

The same study also found that booked hours significantly overstated actual field use, averaging more than twice the hours of genuine sporting activity. It concluded that booked hours should not be used to assess carrying capacity because they do not accurately reflect wear on the playing surface.

Additional research by AgEnviro Solutions has demonstrated that modern best practice natural turf systems can achieve carrying capacities comparable to synthetic fields while costing significantly less over their lifetime and retaining the environmental benefits of living turf.

Taken together, these findings demonstrate that modern natural turf is fundamentally different from the older sporting fields that often form the basis of current comparisons.

2. Understanding the Issue

Many existing sporting fields were constructed decades ago using turf varieties, soil profiles and construction methods that no longer represent best practice. Compacted soils, shallow topsoil, poor drainage, inadequate irrigation and unsuitable grass cultivars often limit field performance long before the turf itself reaches its potential.

This distinction is critical because it means many councils are unknowingly comparing synthetic turf with yesterday's natural turf rather than today's.

Modern sporting fields are designed as integrated systems. Wear-tolerant turf cultivars are supported by healthy soils, improved soil structure, effective drainage, efficient irrigation and ongoing maintenance. Each component contributes to faster recovery, stronger root systems and greater resilience throughout the sporting season.

Independent research has shown that healthy soils alone can significantly improve carrying capacity while reducing irrigation requirements and increasing drought resilience. Soil amendment with suitable organic matter improves infiltration, nutrient retention and resistance to compaction, enabling turf to recover more quickly after intensive use.

The debate therefore should not focus on whether natural turf can cope with increased demand. The real question is whether councils are prepared to adopt the modern construction and management practices that allow natural turf to perform at its full potential

3. Impacts and Implications

Greater Sporting Capacity

Modern natural turf enables councils to support substantially more community sport without replacing living green space. Improvements in turf cultivars, soil management and drainage

allow fields to recover faster from wear, extending playing opportunities throughout the season.

Better Value for Ratepayers

Research shows that improving existing natural turf infrastructure is often significantly less expensive than installing and replacing synthetic surfaces. Better performing fields also reduce ongoing repair costs and improve the return on existing public assets.

Climate Resilience

Best-practice natural turf is more resilient to drought and heavy rainfall than many traditional sporting fields. Improved soil structure increases water infiltration, reduces compaction and allows healthier root development, improving recovery during extreme weather.

Better Community Spaces

Unlike synthetic surfaces, natural turf continues to cool surrounding neighbourhoods, absorb rainfall, support biodiversity and provide attractive green open space. Councils therefore gain improved sporting performance while preserving the environmental and recreational values expected of public parks.

Better Decision-Making

Perhaps the greatest implication is that councils now have a genuine alternative. Rather than viewing synthetic turf as the only solution to growing demand, they can evaluate modern natural turf using contemporary evidence, current technology and proven best-practice design principles.

4. Best Practice Approach

Modern sporting fields are built around an integrated approach rather than relying on any single technology.
Best practice begins with selecting turf cultivars appropriate for expected wear levels and local climatic conditions. This is supported by deep, well-structured soils that encourage strong root systems, rapid recovery and efficient water movement. Effective drainage and irrigation ensure the field remains playable after rainfall while reducing water consumption during dry periods. Ongoing maintenance preserves turf density and playing quality throughout the year.

Importantly, best practice is evidence-based. Independent assessment of soil conditions, drainage performance and turf selection should guide design decisions rather than assumptions or historical practices.

The Hunter Water Guidelines and recent NSW research both demonstrate that investing in healthy soils, improved drainage and modern turf cultivars produces substantial improvements in field performance while reducing long-term costs.

The future of community sport is therefore not about replacing natural turf it is about replacing outdated natural turf practices with modern best-practice systems.

5. Recommendations

1. **Recognise** that modern natural turf performs very differently from older sporting fields built decades ago.

2. **Invest** in best-practice turf cultivars, soil improvement, drainage and irrigation as integrated systems.

3. **Assess** carrying capacity using actual wear and independent evidence rather than booked hours alone.

4. **Compare** modern natural turf with synthetic options using whole-of-life performance, cost and environmental outcomes.

5. **Prioritise** evidence-based investment in natural turf before replacing living community green space with synthetic surfaces.

Key Takeaways

Turf has evolved
Modern natural turf is fundamentally different from the sporting fields many councils currently manage.

Systems matter
Healthy soils, drainage and irrigation are just as important as the grass itself.

Capacity can increase
Best-practice natural turf can dramatically improve carrying capacity while maintaining high-quality playing surfaces.

Better long-term value
Modern natural turf delivers stronger sporting, environmental and financial outcomes over its lifecycle.

Future-ready solution
Investing in modern natural turf provides a sustainable pathway for meeting growing community demand.

"The future of community sport does not depend on replacing natural turf. It depends on replacing outdated natural turf practices with modern best-practice natural turf systems."

References

1. Best Practice Sporting Fields – Book 2: Soils and Turf, Hunter Water, AgEnviro Solutions & Peak Water Consulting.

2. Winter Usage, Wear and Carrying Capacity of Sporting Fields in the Sydney Basin – Preliminary Findings, Turf NSW / AgEnviro Solutions.

3. New Cultivars Provide a Real Natural Turf Alternative to Synthetic Turf.

4. NSW Department of Climate Change, Energy, the Environment and Water. Best Practice Guidelines for Sporting Fields.

5. NSW Chief Scientist & Engineer. Independent Review into the Design, Use and Impacts of Synthetic Turf in Public Open Space.

Visit the NTA Document library: **https://naturalturfalliance.org/document-library/**

NATURAL TURF ALLIANCE

E: enquiry@naturalturfalliance.org
A: PO Box 481, Lindfield, NSW 2070

This Fact Sheet has been developed with the support of Lawn Solutions Australia, the nation's largest network of turf specialists.
www.lawnsolutionsaustralia.com.au

Natural Turf Alliance Inc (NTA) is a Registered Association consisting of community groups committed to preserving and developing natural grass open spaces including sporting fields.
Our core focus is engaging with local councils and sporting groups in relation to best practice natural turf construction and maintenance.