

COMPOST IN SPORTING FIELDS FACT SHEET

Using compost in Sporting Fields

Compost and mulch are derived from organic materials through controlled decomposition harnessing biological processes to break down the organic matter into simpler substances. The organic matter is transformed into a valuable resource that can be used in many applications across agriculture, horticulture, landscaping and environmental management.

Compost and mulch are a beneficial, cost-effective, and sustainable way to improve sporting fields. Compost can be applied as a soil amendment to improve the soil health of sporting fields and mulch can be applied to the surrounding areas of sporting fields for aesthetic and water saving purposes.

Compost can be used at different stages in the lifecycle of a sporting field. Large volumes can be used in the development of a new field or a redevelopment, and smaller applications can be used for maintenance on an annual basis.

KEY CONSIDERATION

The Australian Standard AS4454 Composts, soil conditioners and mulches provides a recognised framework for ensuring the quality of composts and mulches.

Although compliance is voluntary, the Standard is referenced in most relevant regulatory composting guidelines to establish minimum requirements for production, characterisation and quality testing.

To ensure the safety and reliability of applied products, it is important that facility managers procure materials that comply with AS4454. Compost that doesn't meet AS4454 requirements may be contaminated with glass and metal which, if undetected, can lead to serious injury in sporting fields.

Products will be designed for specific applications and should be supplied with standard product information sheets.

What's the difference between Compost and Mulch?

Compost is an organic product that is formed from the decomposition of organic matter under controlled aerobic (use of oxygen) conditions. The composting process involves a sustained increase in temperature for a specified period of time which pasteurises the compost and ensures the product does not distribute animal and plant pathogens, as well as plant matter that can spread following its application in the environment. Composts are often blended with fertilisers to improve their nutrient content. Customised blends can be tailored to lawns or gardens, offering a more bespoke product and a practical solution for application.

Mulch, available in raw and composted forms, is an organic product that can be placed on the surface or top layer of soil. It can vary in size, from fine to coarse, and usually acts as a protective ground cover that conserves water, regulates soil temperature and suppresses weeds. Mulch breaks down over time, adding organic matter to the soil.

Benefits of Compost in Sporting Fields

SOIL HEALTH

Compost adds valuable organic matter to the soil, improving soil structure and fertility to retain vital nutrients (e.g. nitrogen, potassium, calcium, phosphorus and sulphur), and promoting healthier and consistent turf growth.

SAFER PLAYING FIELDS

Sporting associations are increasingly using compost to improve soil structure, leading to a softer playing surface and decreased risk of injuries.

BUILDING RESILIENCE

Incorporating compost can help to withstand the impacts of climate change, resulting in more resilient sporting fields. Compost can reduce the reliance and use of synthetic fertilisers to maintain sporting grounds.

WATER RETENTION AND CONSERVATION

Fields with compost are more water efficient, saving 10-20% compared to those with unamended soils. Compost increases water retention and penetration in the soil by improving the soil structure, creating a sponge-like effect. In drought conditions, when water use is restricted, compost-amended sites are more resilient.

PLANT DISEASE SUPPRESSION

Compost introduces beneficial microbes that compete with plant pathogens, helping to reduce the occurrence of soil-borne diseases. It also enhances plant resilience by improving nutrient availability and root development.

Benefits of Mulch in Sporting Field Surrounds

Although mulch is rarely added to sporting fields, it can assist with the maintenance of landscaping areas surrounding sporting fields.

MOISTURE RETENTION

Mulch forms a protective layer over soil, significantly reducing evaporation and moisture losses from the soil and helping to regulate soil temperature.

WEED SUPPRESSION

Mulch forms a protective layer that blocks sunlight, suppressing weed germination and growth. This reduces competition for nutrients and water and minimises the need for herbicides.

Applying Compost and Mulch in and around Sporting Fields

Compost can be applied during the construction or redevelopment of a sporting field or for general maintenance. In the construction of a sporting field, compost works best if it is applied as a soil conditioner before the turf layer for a better coverage, as this helps the turf to establish a strong root system.

Application of compost and mulch in and around sporting fields is extensive. Some examples include:

- §Football/soccer, cricket and other field-based sports which use compost to enhance turf growth, improve drainage and reduce soil compaction.

- §Golf courses which use mulch around trees and ornamental plants for weed suppression and water conservation as well as compost for turf health.

Aerification combined with compost application

Aerification (the addition of oxygen) is commonly used to reduce soil density and improve the movement of water, nutrients and oxygen through the soil profile. Aerification should take place several times per year and is an opportunity to incorporate compost into the soil.

Spreading generally involves the following steps:

1. Hollow tine aerification. Use hollow tines which aerate the fields. Large tines with close spacing will allow the removal of large cores, typically 2cm, which will incorporate more compost to the field^[1].
2. Deep tine aeration. Use deep tine aerators to penetrate deeper into the soil (typically 40cm)^[2] if required. This is beneficial to create greater fractures and increase soil oxygen.
3. Compost incorporation. Spread compost on the field.
4. Rest field. After using hollow tine aerification, the fields are disrupted and will require time to recover. If the maintenance window is short, use solid tines instead.

Alternatively, spreading $\frac{1}{4}$ of the compost onto the field before aerification can help incorporate the organic matter into the field. Then spread the remaining $\frac{3}{4}$.

Topdressing with compost

Topdressing with finely screened compost (typically <8mm) is a very effective and low-cost substitute for conventional topdressings used to maintain high-quality sporting fields.

It is essential that the compost is rigorously tested to ensure it is free from physical contaminants and meets the end users quality requirements. Contaminants can cause serious injuries so sporting field managers should take extra care when procuring compost. Ensuring suppliers of compost are abiding by AS4454 requirements and requesting test result for each batch of compost supplied is recommended.

Stadium fields with sandy loams that have been amended with 10–20% mature compost material by volume have contributed to increased water and nutrient availability in the soil^[3]. It is recommended that organic matter not be applied to the surface of sandy soils due to their susceptibility to waterlogging. This can be amended by annual renovation works.

Topdressing is recommended for the active growth period, from late spring to early summer.

[1] Strategies for managing heavily used fields (Thomas Serensits, 2019)

[2] Strategies for managing heavily used fields (Thomas Serensits)

[3] Best-practice guidelines for sporting fields – A guide for climate-resilient playing surfaces in New South Wales (Department of Climate Change, Energy, the Environment and Water, 2025)

Key Considerations - Types of Soils

To achieve optimal sporting field conditions, it is important to consider the soil types and characteristics before applying compost to manage the availability of water, nutrients, oxygen and the removal of excess water.

Clay loams

Clay loams are prone to compaction and waterlogging, leaving little water for turf uptake. The addition of a composted soil conditioner will improve soil porosity, reduce compaction and allow plant roots to penetrate deeper into the soil.

Sandy loams

Sandy loams have low water holding capacity and require frequent irrigation. Sandy loams are also prone to nutrient leaching and require frequent nutrient supplementation, leading to higher input costs. Applying compost to sandy loam soils improves moisture and nutrient retention, enhancing soil fertility and promoting healthy turf growth.

Soil layering

Along with soil type, the way soil is layered creates differences in the characterise of the soil profile. In the case of clay overlaying sand, the field is prone to remain wet and soft as the soil is unable to remove the excess water. In the case of sand overlaying clay, this could cause challenges with ground stability and drainage.

