



Your lawn needs less water than you think

Sometimes lawns, or natural turf, is criticised for using too much water. However, how much water does a healthy lawn, or a sporting field, actually need? What can we do to minimise water use on lawns and sporting fields? What are the benefits from having lawns and natural grass sporting fields and do they outweigh the disadvantages?

Australian and international research has found that:

- **The majority of home owners do not know how much water a healthy lawn needs.**
- **Overwatering of lawns and sporting fields is common.**
- **Many new turf varieties use significantly less water.**
- **There are a number of water saving practices and technologies now available.**

How much water does my lawn need?

It may surprise you to learn that many turf species, in particular warm season turf varieties, have been proven to be water wise.



Continued...

Your lawn needs less water than you think (cont.)

How much water does my lawn need? (cont.)

In Australia, warm season turf species represent 90 per cent of the turf produced and available. The main Australian warm season turf species include; Soft Leaf Buffalo, Couch, Kikuyu and Zoysia. There are many different varieties of each of these species available. Cool season turf species, such as Fescue, Blue Grass, Bent Grass and Rye Grass, use on average 20 per cent, or more, water than warm season turf species.

A study by Western Sydney University confirmed that warm season turf needs about the same amount of water as native plants, and considerably less than exotic garden plants. In addition, a study carried out in Texas, in the United States (US), showed that warm season turf can survive without any water for up to 60 days during Summer and return to health within two months after receiving water.

In another US study, once established Soft Leaf Buffalo was shown to use the same amount, or less, water as native landscape gardens. It took three years for the Soft Leaf Buffalo to become fully established and use the same amount of water as the native landscape gardens. In the fourth year, however, the native landscape gardens used more than double the amount of water compared to the Soft Leaf Buffalo - no doubt contributed to by the, now, larger size of the shrubs within the native gardens.

Are lawns overwatered?

Australian and US studies show that the majority of home owners do not know how much water is required by their lawn per week. For example, a survey of 3600 home owners in the US State of Kansas found that 62 per cent said they did not know how much water was required by their lawn per week. Of those who said they did know, 20 per cent said more than 2 inches (50mm) per week was, on average, required.

“However, the US research found only 1 inch (25mm) per week was required and, therefore, the percentage of home owners who don't know how much water their lawn needs was more like 72 per cent.”

When home owners were asked: “How do you decide when to water?”

- 40 per cent said, when the lawn looked dry.
- 25 per cent used a regular schedule.
- 20 per cent said, when it was hot and dry.

Unfortunately, the research also found many automatic irrigation systems were not properly adjusted and were using twice the amount of water than what was required. Obviously this is not only poor water use, it can also create disease problems.

Establishing a lawn in Australia

Turf that has just been laid needs frequent watering for the first seven to 14 days, possibly up to two or three times a day if in full sun. Remember, watering can include rainfall and less water is required for shaded areas.

Once established though, a lawn in full sun consisting of Couch, Kikuyu, Soft Leaf Buffalo or Zoysia would typically require:

- **East coast (Melbourne to Brisbane):** weekly watering during Summer and Spring, with twice a week needed on soils that are sandy or shallow.



AUSTRALIAN AND US STUDIES SHOW THAT THE MAJORITY OF HOME OWNERS DO NOT KNOW HOW MUCH WATER IS REQUIRED BY THEIR LAWN...

- **Canberra and the western slopes of the Great Dividing Range:** twice a week in Summer and Spring.
- **Adelaide and Perth:** two to three times a week in Summer and Spring, weekly in Autumn.

Again, note that watering can include rainfall and less water is required for shaded lawns.

More water is needed for cool season grasses (Ryegrass, Fescues and Bentgrass) which are typically grown in colder areas or high profile sites due to their superior winter colour. Generally speaking, Tall Fescue varieties use less water than other cool season turf species.

How can I reduce the water required by my lawn?

As mentioned above, different turf species and varieties have different watering needs. Newly bred Couch varieties have been shown to use 38 per cent less water than existing varieties and Australian native turf varieties are now available, such as 'Nara' Zoysia.

Queensland Blue Couch, Carpet Grass, most Soft Leaf Buffalo's, Zoysia's and Tall Fescue varieties are known to be more water efficient than alternatives, with many being region specific. Your local turf grower can recommend the most suitable low water use species for your climate and soil type.

Visit www.turfaustralia.com.au to find a local turf grower in your region.



Site preparation and installation

Possibly the most effective thing you can do to minimise lawn watering requirements is ensure proper site and soil preparation prior to laying turf. Consider the size, slope and aspect to ensure neither poor drainage nor over exposure will adversely affect your proposed lawn.

A soil test will go a long way to understanding the onsite water holding capacity and indicate what soil amendments, including compost and/or organic matter, can be applied. Ideally a quality topsoil suitable for turf should be spread out at up to 180mm depth and a starter fertiliser applied prior to laying.

Watering should take place within an hour of laying, and using a roller after laying will ensure good root contact with the topsoil and minimise water wastage during establishment.

Mowing

When mowing, do not 'scalp' the lawn and don't cut more than one-third of the lawn's height, ideally leaving it 4cm or more higher. This encourages a deeper root system and the longer grass blades shade the soil, reducing evaporation. Shaded lawns, also, require a higher cutting blade height as well as sharp mower blades to reduce plant stress and water loss.

And finally, using a 'mulching' mower returns valuable organic matter back to the soil, further reducing water requirements.

Watering

Ideally, water early in the morning (before 10am) and water only when the lawn is showing signs of stress. For example, if you step on the lawn and the grass doesn't spring back, it needs water. Similarly, if the grass blades are curled and/or change colour, it is time to water if no rain occurs.

Remember long, slow soakings that allow water to penetrate to a depth of about 15cm encourage a deeper, hardier root system. Aerating your lawn can also aid infiltration, particularly in compacted or high traffic areas.

Fertilising

US research shows that a lightly fertilised lawn uses up to 30 per cent less water than an unfertilised lawn of the same grass type. Typically, an Australian home lawn requires a basic lawn fertiliser only twice per year, in Autumn and Spring, while higher use areas may benefit from additional fertiliser and extra watering.

There are a large variety of lawn fertilisers commercially available. Alternatively, a diluted spray of the liquid drained from a composting worm farm is an ideal fertiliser that also returns waste to the soil.

Pest Management

Luckily, most lawns that consist of a suitable variety or mix or varieties, have been installed properly and maintained with appropriate mowing, watering and fertilising will thrive. However, sometimes pests, particularly lawn grubs, can cause turf to

struggle. Various pesticides are commercially available and your local garden adviser should be able to provide advice.

Can natural turf sporting fields use less water?

Did you know that more than half of the sporting fields in Sydney are not irrigated? These sporting fields rely solely on rainfall and water stored in the soil to meet their watering requirements.

As the usage of sporting fields increases, however, so do their watering requirements. In New South Wales, the Award Winning *Lake Macquarie Sports Field Improvement Program* resulted in saving about 50 megalitres of water per year, while at the same time improving playing surfaces.

The Lake Macquarie City Council used more than 2000 cubic metres of compost to improve soil condition and increase water retention. Water savings have also been achieved through using a central irrigation control system to enhance the scheduling of irrigation and monitoring of irrigation system performance.

The monitoring functions with the central control system have enabled system failures, such as pipe bursts and faulty valves, to be quickly identified and rectified. Inefficient irrigation components, such as sprinklers and nozzles, were identified and replaced while the entire system has been optimised for performance.

New, but simple, technology

While a significant proportion of Australia's more heavily populated areas receive, on average, an adequate volume of rainfall to sustain turf, there are areas and periods of time when rainfall is not adequate.

The Queensland based Sports Turf Research Institute (STRI) has developed a 'blue2green' system which enables turf installations to be environmentally sustainable by catching, storing and reusing rainwater to automatically irrigate the turf, without the use of tanks, sprinklers, pipes or pumps.

The 'blue2green' system consists of moulded plastic pods which interlock together, at a prescribed depth, under a turf installation. The plastic pods effectively catch rain water and hold it where the turf root system can reach and are robust enough for sports to be played on and heavy machinery to be driven over it. The 'blue2green' system reduces or eliminates the need for irrigation.

Another simple but useful technology is using a soil probe for observing and feeling the soil at various depths for moisture.

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Your lawn needs less water than you think (cont.)

What are the benefits from having lawns and natural turf sporting fields?

In parts of the more densely populated areas of Australia, rainfall alone can be sufficient for turf to survive. In many other areas, however, occasional watering during dry periods is all that is required if the lawns have been installed and managed properly.

However, in other lower rainfall areas and/or if a high use of the lawn or natural turf sporting field occurs, regular irrigation may be required at certain times throughout the year.

So the question is, do the benefits of natural turf make it worth watering?

The many benefits of natural turf can be listed under the following three categories:

Functional

- Soil erosion control
- Dust prevention
- Rain water entrapment and ground water recharge
- Solar heat dissipation
- Glare reduction
- Organic, chemical and pollutant entrapment and degradation
- Air pollution control
- Fire prevention
- Environmental protection
- Improves visibility, for example, next to roads

Recreational

- Low cost surface
- Improves physical and mental health
- Provides a safety cushion
- Enhances community interaction and spectator experiences

Aesthetic

- Provides visual beauty
- Improves quality of life
- Increases community pride
- Significantly increases property values
- Complements trees and shrubs in the landscape.

In addition to the above, the side effects from no longer watering lawns can result in the death of trees and/or shrubs in the landscape.

To sum up:

- Generally speaking, most people do not know how much water their lawn needs to survive and many overwater.
- New water efficient turf species and varieties are available and your local turf grower can provide advice, visit www.turfaustralia.com.au.
- Once established, many lawns in Australia can survive on rainfall alone and many more require minimal irrigation.
- Good site preparation and appropriate turf installation will significantly improve water use efficiency.
- Raising the mowing height, especially in shaded areas, can conserve water.
- Aerating lawns can aid infiltration, particularly in compacted or high traffic areas.
- Lightly fertilised lawns can use up to 30 per cent less water.
- Adding amendments and compost to turf soils can significantly improve their water holding capacity.
- New simple technologies, such as the 'blue2green' system, can reduce or completely remove the need for turf irrigation.
- Efficient irrigation systems that are used judiciously, monitored for breakages and worn components replaced, will reduce water usage.
- Watering early in the morning and only when the turf is showing signs of stress can save considerable amounts of water.



For more information:

Turfgrass Water Conservation Alliance, www.tgwca.org

Outdoor Water Use, Australian Government: Your Home, www.yourhome.gov.au/water/outdoor-water-use

Water Right – Conserving Our Water, Preserving Our Environment, published by The Lawn Institute, www.thelawninstitute.org

Water use in turf and gardens study, Western Sydney University.

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