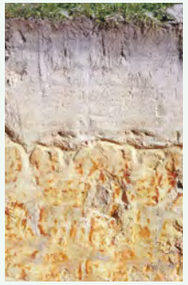
WESTERN COASTAL PLAIN SOILS
Sand • Neutral • Moderate Phosphorus Retention

- Western Coastal Plain soils stretch from Joondalup in the north to Leda in the south.
- Soils are largely yellow, orange or brown sand, usually with a grey surface, over limestone at depth.
- They tend to be neutral in the surface soils.
- Bore water tends to be alkaline.
- The phosphorus retention rate is moderate.
- Nutrient loss occurs through the soil into groundwater and via stormwater drains.

CENTRAL COASTAL PLAIN SOILS
Sand • Acid–Neutral • Low Phosphorus Retention

- Central Coastal Plain soils are approximately 10-20 km from the coast.
- Soils tend to be grey, white or very pale brown sand.
- They are comprised mainly of deep sands and range from neutral to acidic (pH range of 4.0 to 6.0).
- Bore water can be acidic.
- Phosphorus retention is extremely low and nutrient loss occurs readily through the soil into groundwater and via stormwater drains.

EASTERN COASTAL PLAIN SOILS
Sand, Loam, Clay • Acid–Neutral • Low–High Phosphorus Retention



- Eastern Coastal Plain soils are located at the base of the Darling Scarp and along the Swan and Canning Rivers.
- Soils include variable sandy, loamy and clayey soils which are often seasonally wet.
- They tend to be moderately acid to neutral.
- Bore water is sometimes saline.
- In red/orange loams and clays, the phosphorus retention rate is high. In light coloured sands, it is low.
- Nutrient loss occurs through erosion of loam soils and through the soil into groundwater in sandy soils.

SCARP SOILS
Sand, Loam, Clay • Acid–Neutral • High Phosphorus Retention

- Scarp soils are located in the foothills, scarp and Darling Range.
- Soils comprise of reddish-brown sands and loams (often shallow over rock), gravelly loams and gravelly duplex (clay) soils.
- They tend to be moderately acid to neutral (pH range of 5.0 and 7.0).
- In most soils the phosphorus retention rate is high and nutrient loss mainly occurs through erosion of topsoil.

Fertilise wise

For more information, please contact:

Phosphorus Awareness Project Coordinator
South East Regional Centre for Urban Landcare
P | 9458 5664
E | sercul@sercul.org.au
www.sercul.org.au/our-projects/fertilise-wise

To attend a free workshop on fertilise and water wise gardening, refer to the websites:
Great Gardens - www.theforeverproject.com.au
Beyond Gardens - www.beyondgardens.com.au

For native plants for your soil type, please refer to the websites:
www.sercul.org.au/our-projects/fertilise-wise
https://apacewa.org.au
or contact your local garden centre.

For their Waterwise Guides, please refer to the Water Corporation's website:
www.watercorporation.com.au
and go to the 'Save Water' pages.

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PHOSPHORUS AWARENESS PROJECT

GOVERNMENT OF WESTERN AUSTRALIA
Department of **Biodiversity, Conservation and Attractions**

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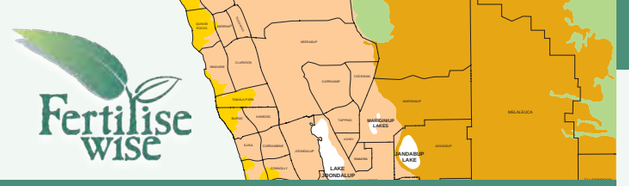
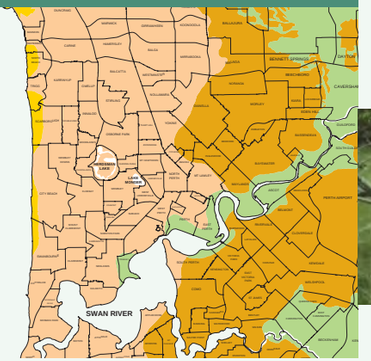


ESTABLISHING, MAINTAINING and FERTILISING LAWN

ACCORDING TO YOUR SOIL TYPE



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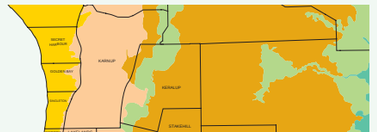

FERTILISE WISE

Home lawns and gardens are a major source of nutrients entering wetlands and the Swan and Canning Rivers. Excess fertiliser used on your lawn and garden will eventually find its way into wetlands and the rivers via the stormwater drainage system or through the soil into groundwater.

Excessive nutrients, particularly phosphorus and nitrogen, in wetland and river systems lead to algal blooms. These can result in the death of animals and plants which live in the waterways and the possible closure of waterway systems for recreational activity.

Use the information in this guide to help establish, maintain and fertilise lawn according to your soil type, and in doing so, save time, money and help keep rivers and wetlands healthy.


Excessive fertiliser use can cause algal blooms.

Soil in the Perth region has been grouped into five categories or types. Each soil type has differing pH ranges and abilities to retain water and nutrients, depending on whether they consist of sand, loam, clay or a mixture of these soils.

Soil amendment agents, such as compost or soil improvers, should be utilised prior to establishing a lawn, before fertilising and during maintenance, particularly on sandy soils which have a lower ability to retain moisture and nutrients. Fertiliser should only be applied when symptoms of nutrient deficiency occur such as yellowing.

WHAT IS YOUR AREAS SOIL TYPE?

Find out what soil type you have on the map at:
www.fertilisewise.org.au/for-gardeners.html

COASTAL SOILS
Sand • Alkaline • Moderate Phosphorus Retention

- Coastal Soils can be found in suburbs along the coast from Mullaloo to Secret Harbour.
- They are deep, white in colour and comprise of beach sand containing limestone.
- They tend to be strongly alkaline (pH range of 8.5 to 9.5).
- Bore water in these areas also tends to be alkaline.
- They have a moderate phosphorus retention. Nutrient loss occurs through the soil into groundwater and via stormwater drains.

Is a Lawn Necessary?

Lawn is the most intensive part of any garden. It requires a large investment of time, energy and resources to maintain a lawn to a high level. Consider minimising lawn areas and replacing them with:

- **Native lawn species** - Use species like: Dichondra (*Dichondra repens*), Weeping Rice grass (*Microlaena stipoides*) and Marine Couch (*Sporobolus virginicus*) .

  For a year round, green native lawn, a combination of winter and summer active species may be required.
- **WA native groundcovers** - Grevillea, Kennedia, Eremophila, Clematis, Hemiandra and Hardenbergia species are suitable alternatives offering stunning flower displays.
- **Paving/Gravel** – extend garden beds (possibly add a few local native plants) and pave or gravel the rest of the area.

Fertilise wise

Effective and Responsible Fertiliser Use

Establishing a Lawn

When establishing a traditional lawn consider what grass type is suitable for your conditions.

Table 1: Common grass species and their requirements.

Grass Type	Buffalo	Couch	Kikuyu
Fertiliser Requirements	Moderate	High	Low
Water Requirements	Moderate	Moderate	Moderate
Shade Tolerance	High	Low	Moderate
Trafficability	Low	High	High

- High quality soil is essential for any successful garden, and lawn is no exception.
- Add compost or soil improver to increase water and nutrient retention and to minimise non-wetting problems. Use at least two litres per square metre.
- Plant buffalo rather than couch to reduce nutrient requirements. Buffalo is also less invasive than kikuyu and couch.
- The best times to plant lawn from runners are during early autumn (March-April) or early spring (August-September) when conditions are mild to warm and there is less chance of losing fertiliser through heavy rains.
- Roll-on turf is an easier and quicker way of establishing a lawn. It also requires less fertiliser and can be planted at any time of the year.
- Apply small amounts of water frequently until deep roots are established. For the first two weeks apply 4mm of water three times per day. A watering exemption may be required from the Water Corporation.
- **CENTRAL, EASTERN and SCARP SOILS** - Lime may be required on very acid soils to neutralise (sweeten) the soil.
- **SCARP SOILS** - Apply gypsum to dispersive clay soils. Use 0.5-1 kg/m^2.

Lawn Maintenance

- Apply a soil amendment product (containing zeolite, bentonite clay, spongelite or fly ash), to the manufacturers' instructions, to improve the sand's ability to hold onto water and nutrients.
- Apply a good quality wetting agent, to the manufacturers' instructions when fertilising, to improve lawn productivity and reduce run-off of water and nutrients.
- To reduce thatch build up that promotes diseases and non-wetting, use fertilisers sensibly and mow regularly with a close-cut during autumn.
- Areas of lawn with dead spots may respond to extra potassium (in sulphate or potash) applied with a wetting agent from a watering can.
- Extra potassium in autumn will toughen lawns for winter.

Fertilising Requirements

- Different grass species have different fertiliser requirements to achieve a pale green lawn with an even growth rate.
- When establishing and maintaining a lawn and symptoms of nutrient deficiency occur, such as yellowing, use a complete lawn fertiliser with a Nitrogen to Phosphorus to Potassium (N:P:K) ratio as outlined in Table 2. Use a maximum of 25 g/m^2 . As a guide, a male hand can hold approximately 50 grams of fertiliser while a female hand holds 40 grams.
- For maintenance with a Nitrogen only fertiliser at greater than 20% apply a MAXIMUM of 12 g/m^2 (See Table 2).
- If fertiliser is required, apply two applications in spring and two in early autumn (September, October, November, March and April) when grass grows rapidly.
- **DO NOT** fertilise in summer or winter. Summer fertilising encourages over use of water. Fertiliser applied during winter will be washed into stormwater drains or leached into groundwater.
- **CENTRAL, EASTERN and SCARP SOILS** - For better lawn growth use a complete fertiliser that contains nutrients such as sulphur (S), magnesium (Mg) and calcium (Ca) and trace elements copper (Cu), iron (Fe), manganese (Mn), zinc (Zn), molybdenum (Mo) and boron (B).
- **COASTAL and WESTERN SOILS** - Alkaline soils or soils affected by alkaline bore water may have trace element deficiencies. Ensure your fertiliser contains trace elements such as iron (Fe), manganese (Mn), boron (B) and zinc (Zn). Other nutrients such as sulphur (S), magnesium (Mg), calcium (Ca) and the trace elements copper (Cu) and molybdenum (Mo) may also be required for good growth.

Table 2: Nutrient analysis of fertilisers and their application rates. To check the nutrient analysis of a fertiliser, look for the percentages on the fertiliser bag.

Fertiliser Type	Maximum Fertiliser Analysis			Max Applic. Rate (g/m^2)
	Nitrogen (N)	Phosphorus (P)	Potassium (K)	
Complete Establishment	10 - 12%	1%	6 - 10%	25
Complete Maintenance	10 - 12%	0 - 1%	6 - 10%	25
Maintenance with Nitrogen	Greater than 20%	0%	0%	12

A male hand can hold approximately 50 grams of fertiliser while a female hand holds approximately 40 grams.

Watering Guide

- Frequency of watering is based on your house number.
- Two days a week have been allocated to water your garden and lawn.
- To find out your sprinkler days, take the last digit of your house number and apply it to the table below.
- Water for a maximum of 15 minutes. Overwatering leads to leaching of nutrients from the soil into groundwater.
- During the wetter months, you will not need to water your lawn.

LAST DIGIT OF HOUSE NUMBER	YOUR TWO SPRINKLER DAYS	
1	Wednesday	Saturday
2	Thursday	Sunday
3	Friday	Monday
4	Saturday	Tuesday
5	Sunday	Wednesday
6	Monday	Thursday
7	Tuesday	Friday
8	Wednesday	Saturday
9	Thursday	Sunday
0	Friday	Monday

Environment-friendly Gardening Tips

- Healthy soil is the key to a great garden. Use complete fertilisers and amendments that improve soil, rather than those that provide a few water soluble nutrients.
- Grow low fertiliser and low water use plants such as local native plants.
- Minimise the use of deciduous trees as falling leaves can enter stormwater drains and contribute to nutrient problems in waterways.
- Group plants with similar water/fertiliser/shade requirements.
- Plant deep rooted perennials rather than annuals.
- Use a high quality, coarse mulch in garden beds to reduce watering (and thus minimise the amount of nutrients seeping through the soil into groundwater).
- Take care using raw animal manures that break down readily leading to nutrient losses through the soil into ground water. Composted manures are better.