

Recommended management measures:

- 1 Determine what nutrient needs to be applied for the type of grassed area. A visual inspection of the ground cover may indicate nutrient deficiencies in vegetation (e.g. colour, density and growth of plants). The deficiency can be validated via plant tissue analysis or soil analysis.
- 2 Select fertiliser according to the vegetation needs, see the DAFWA's webpage at www.agric.wa.gov.au, or seek advice from an agronomist or similar expert.
- 3 Match fertiliser application to the plant needs at each stage of growth or root development. Apply fertiliser only during vegetation growth periods and limit to what is necessary to maintain healthy conditions.
- 4 Determine the soil conditions (e.g. pH, phosphorus retention index, soil moisture) to ensure the soil environment is suitable for the type of turf or pasture.
- 5 To minimise leaching losses from the root zone, slow release (coated) chemical fertiliser or stabilised animal waste or manure are preferred over highly soluble chemical fertilisers.
- 6 Wetting agents may assist in overcoming hydrophobic conditions in soils by reducing the surface tension of water, and improving the infiltration rate into the soil.
- 7 Avoid the use of fertiliser when significant rainfall is anticipated. Control irrigation immediately following rainfall as nutrients are likely to leach below the root zone.
- 8 Distribute fertiliser evenly on the vegetated surface.
- 9 Use fertiliser sparingly and often (e.g. using fertigation, a method where soluble fertiliser is applied through a sprinkler or a trickle irrigation system) to match plant nutrient demand.



Match fertiliser use to the regional rainfall or irrigation scheme

Other water quality guides:

For online information, please go to www.water.gov.au select *Publications* > *Find a publication* > *Series browse* > *water quality protection note*.

The locations of many sensitive water resources are shown online at www.water.wa.gov.au click *Tools and data* > *Maps and atlases*, then view our interactive *Geographic data atlas*. Select and expand layers on the left, then use the menu bar to scale and navigate.

Online information about sensitive water resources and protection measures is also available at:
www.dec.wa.gov.au, www.epa.wa.gov.au
www.agric.wa.gov.au, www.swanrivertrust.wa.gov.au
www.fifa.asn.au (fertcare)

For online information on land use and more see www.walis.wa.gov.au select *WA Atlas*.

For further information, contact the
Department of Water, Water Source Protection Branch

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This publication is available at our website or for those with special needs it can be made available in alternative formats such as audio, large print, or Braille.

We welcome your thoughts and suggestions on our publications. We aim to regularly update them and make them as useful as practical, to help protect WA's precious water resources.



Fertiliser application on pasture or turf near sensitive water resources



This brochure provides advice on water quality protection issues related to fertiliser application on pasture and turf in sensitive areas used as surface water sources or recharge areas of groundwater sources. We have also provided information on best environmental management practices that include recommended management measures, and nutrient and irrigation plans.



Spirogyra at a local lake

Why is fertiliser used?

Many soils in Western Australia are deficient in nutrients (e.g. nitrogen and phosphorus) and trace elements (e.g. boron, iron and sulfur). Because of these deficiencies, fertiliser is commonly added to the soil to promote the growth of turf and grassed areas.

The appropriate selection and application of fertiliser that is matched to the regional rainfall (climate zone) or irrigation scheme can assist in protecting the state's sensitive water resources from excessive nutrient contamination and keep the cost for the pasture and turf management at a minimum.

Why are we concerned about fertilisers?

Excessive application of fertilisers can lead to the eutrophication (nutrient enrichment) of sensitive water resources that may lead to:

- high nutrient levels in surface and groundwater resources that may adversely affect the environment and public health
- toxic algal blooms
- low oxygen levels in water due to algal decay that can threaten wildlife and fish communities
- unpleasant odours
- undesired increase in soil acidity
- significant discolouration of waterbodies.

Sensitive water resources

The quality of sensitive water resources (e.g. public drinking water sources, lakes, wetlands and waterways) ought to wherever possible remain within recommended water quality criteria. For information on sensitive water resources and their environmental values see the Department of Water's Water quality protection (WQPN) no. 15: *Sensitive water resources*. Buffers to water bodies should be provided as recommended in WQPN no. 6: *Vegetation buffers to sensitive water resources*.

In public drinking water source areas

Irrigated pasture or turf in public drinking water source areas (PDWSA) assigned for priority 1 protection, and irrigated turf areas exceeding 500m² in a PDWSA assigned for priority 2 source protection are considered incompatible land uses. For further advice on this, see our *Environmental guidelines for the establishment and maintenance of turf and grassed areas 2001*. To find out if your property is in a PDWSA, see our WQPN no. 108: *Public drinking water source areas of Western Australia*, view our *Geographic data atlas* online at www.water.wa.gov.au, or contact us.

Fertiliser containing phosphorus

A fertiliser action plan has been prepared by the Department of Environment and Conservation to phase out the use of highly soluble phosphorus fertilisers in the sensitive environmental areas of the South West. For more information, see www.dec.wa.gov.au.

Nutrient and irrigation management plans

A well-prepared nutrient and irrigation management plan offers potential economic benefits. It assists in promoting cost savings through the efficient use of water and fertilisers, while offering protection of the quality of local sensitive water resources. See our WQPN no. 33: *Nutrient and irrigation management plans* for further information.

Visit the Department of Agriculture and Food West Australia (DAFWA) for further information about nutrients on pasture www.agric.wa.gov.au.

Environmental best practice guidelines

Best environmental management practices for turf management and recommended maximum nutrient application rates are provided in the *Environmental guidelines for the establishment and maintenance of turf and grassed areas 2001*, available at www.water.wa.gov.au.

What should you do before applying fertiliser on your pasture or turf?

Fertilisers have different compositions based on vegetation type. Fertilisers should be selected to meet the specific nutrient requirements, soil type, characteristics of the fertiliser (fast or slow release), and locations of the pasture or turf (e.g. water requirement).