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Healthy and sustainable rural landscapes

This guide outlines your responsibilities for management of natural resources when keeping horses on the Northern Adelaide Plains.

There's simple, useful information to help you avoid adverse impacts on natural resources including soil, water and vegetation on and around your land.

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Introduction

Many people keep horses on the Northern Adelaide Plains and this number is likely to grow. Some councils have dedicated zones for keeping animals within their district.

Many properties where horses are kept are small. They are not generally used for commercial purposes (except for agistment) but rather for keeping horses for recreation, equestrian sports and related activities. Often, these property owners do not have prior land management or farming experience.

This booklet is designed to assist people in keeping horses on areas less than eight hectares (ha) or 20 acres (ac). It aims to help make your horse keeping successful and enjoyable, but also, to ensure horse keeping does not damage natural resources (the soil, water, air and vegetation) so both your horses and the land stay healthy.

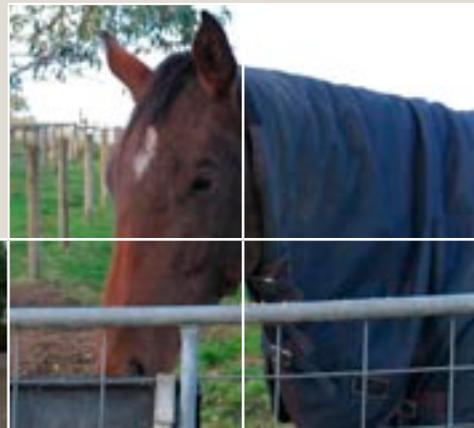
Your responsibilities as a horse owner

All landowners and land managers have legal responsibilities to protect the natural resources of the State and its landscapes, and to ensure land is used within its capability. This includes horse owners, even if you only have one little pony on your property.

Natural resource legislation ensures that land is managed sustainably.

According to the *Development Act 1993* and its regulations, 'horse keeping' occurs where there is more than one horse for every three hectares (7.4 ac) of land, or where hand feeding a horse is taking place.

In other words, if you are hand feeding horses kept on the property or if for example, you intend keeping more than two horses on eight hectares of land, you are undertaking 'horse keeping' and may require your local council's permission.



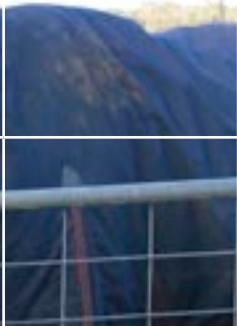
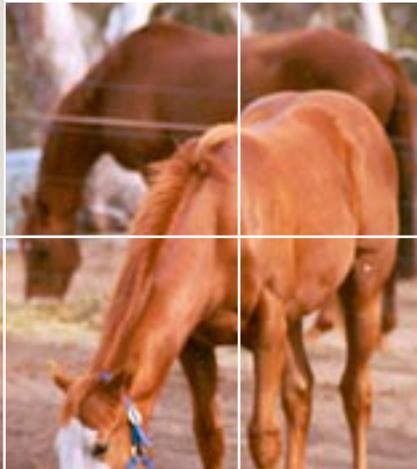
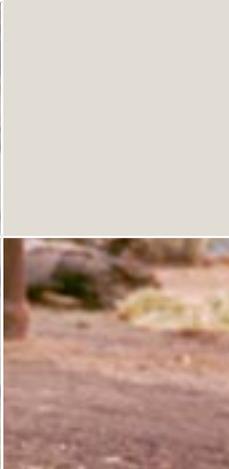


Depending on the zone where your land is located, you may have to invest in certain capital improvements. For example, you may need to have one stable and yard for every horse on the property. This is necessary so that paddocks can be 'spelled' and given time to recover from grazing, preventing paddocks from becoming bare and at risk of erosion.

Local councils have powers under the Development Act and have their own zoning regulations. Check with your council before embarking on a horse keeping venture or intensifying the use of land where horses are currently kept.

The council will be able to advise you of your rights and obligations as a horse keeper and, if you are a newcomer to the industry, the processes and time involved in getting approval to run horses.

Under the *Natural Resources Management Act 2004*, owners and managers owe the land a duty of care and an obligation to control pest animals such as foxes, rabbits, and declared weeds. Under the *Native Vegetation Act 1991*, grazing of native vegetation might be considered clearing and requires a permit.





How many horses can I keep?

The number of horses that can be kept on a given parcel of land is related to the size of the land, the rainfall, the slope and the soil type.

Improvements to the land, such as fences, watering points, pasture type, stabling and yard facilities, and council regulations should also be taken into consideration.

Each region has an average regional stocking rate, based on rainfall, which indicates the carrying capacity of the land.

As a landowner, you should know and understand the concept of the Dry Sheep Equivalent (DSE) since it will guide you in deciding how many animals the land can sustainably carry.

Stocking rates are calculated based on the DSE or the number of dry (non-lactating) adult sheep that can be kept on one hectare of good dry-land pasture without supplementary feeding year after year. Horses need more pasture than sheep. For example, one light horse is equivalent to 10 sheep and a draught horse is equivalent to 14 sheep per hectare.

Areas around Gawler and Roseworthy have an average regional stocking rate of 5 DSE per hectare.

This means you could theoretically run one horse on two hectares at Gawler or Roseworthy.

Below: A soil contour bank helps to minimise soil erosion

Right: Poor soil cover





Let's say you have four hectares (ha) of land at Two Wells, which has a regional stocking rate of 4 DSE. To determine how many horses you can run you can do the following calculation:

- 1 ha is taken up by the house, buildings, yards and prohibited areas such as creek lines and native vegetation.
- 3 ha are therefore available for grazing.
- In total you therefore have $3 \times 4 \text{ ha} = 12 \text{ DSE}$ or sufficient capacity for one light horse or two ponies.

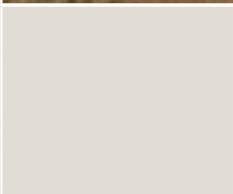
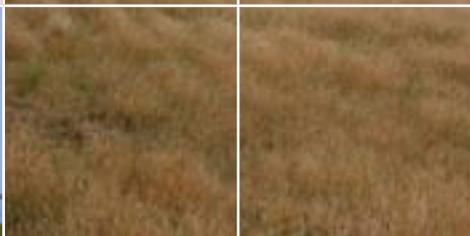
These figures are only a general guide and depend on rainfall and the quality of pasture. You still need to watch your land is managed carefully to ensure paddocks are not degraded.

If you wish to carry more horses than the land can sustainably support, you will need council approval to set up an intensive stable and yard system. You should also regularly rotate the horses between paddocks to ensure the paddocks do not become degraded and weedy due to overgrazing.



Left: Good pasture cover

Below: Appropriate surfacing and fencing of arena





Horse keeping areas on the property

As a horse keeper, the key to managing your land well is to classify each area your horses can access as a paddock, yard or exercise area.

Paddocks

The aim is to have a paddock with pasture which is hardwearing and nutritionally beneficial for horses. Groundcover must be kept to at least 70 per cent, where water erosion is a major risk. These levels of cover ensure erosion and weed infestations are minimised.

In summer, it is difficult to maintain groundcover levels. Therefore, from late summer to mid winter, horses should only be allowed restricted access to paddocks and provided with supplementary feed until pasture growth is evident.

Grazing management is a real skill. Good managers ensure:

- paddocks are soil tested regularly and fertilized accordingly
- pastures are not overgrazed
- pastures are rotationally grazed
- weeds are controlled
- insect pests are monitored and controlled
- species of grass and legumes grown are suitable for the soil and climate and are safe for horses to eat.

Yards and exercise areas

These areas must be surfaced so they do not become dusty in summer or muddy in winter. Fencing an area of the natural ground and using it as a yard or exercise area is not enough. Surfacing is not cheap and therefore needs to be carefully planned and implemented. A suitable surface is 10 cm of compacted rubble or dolomite topped with 15 cm of suitable topping, eg sand, shell grit or sand/woodchip mix.





Weed control

Under the *Natural Resources Management Act 2004*, some plants are 'declared', which means landowners must control them on their properties. On the Northern Adelaide Plains examples are caltrop, salvation Jane, silver leaf nightshade and horehound. The Adelaide and Mount Lofty Natural Resources Management Board coordinates these control programs. Contact your nearest office for more information and advice. There are contact details on the back page.

There are also weeds which compete strongly with beneficial pasture plants, for example, wild mustard, wireweed and capeweed. These weeds indicate a poorly managed pasture and will also need to be controlled.

Some plants are poisonous or toxic to horses – salvation Jane and cape tulip, for example.

As a landowner you need to be constantly vigilant in controlling weeds.

Ensure that:

- you know and recognise the weeds on your property
- you use a quarantine paddock for new stock brought onto the property
- brought-in feed is free of weeds – cheap hay can lead to weed infestation and become expensive in the long run
- you clean rubber tyres, boots, etc of seeds before leaving properties visited for horse events
- grazing does not result in bare areas prone to weed invasion
- you inspect your property for weeds regularly and control them promptly.

The best germination takes place when seed is sown using a seeder

Below: Cape tulip bulbs and flower is toxic to all grazing animals



Below: Salvation Jane is poisonous for horses





Pasture plants

Generally on the Northern Adelaide Plains, you need to sow annual pastures every year. Consider species such as a cereal rye (ryecorn), a grazing barley, or triticale with some cavalier medic. Tetraploid ryegrass, Guard annual ryegrass or Safeguard annual ryegrass, which are all Annual Ryegrass Toxicity (ARGT) - free, can also be used.

Including a medic in the mix will increase the feed value of the pasture and also increase the nitrogen levels in the soil. If there's water available, you can grow kikuyu, which is useful in high traffic areas.

Try to capture water off your stable area in a tank and then use it in summer to support an area of kikuyu growth. The green growth in summer provides ground cover, reduces dust and provides a bit of a green pick.

Soil management

Before you invest in pasture seed or engage a contractor, remember soil fertility has a major impact on how your pasture grows. It helps determine the right type of pasture for your property and increases the chances of successful establishment.

Obtain a soil test kit from your local Natural Resource Centre, agricultural retailer or fertilizer company. Collect a soil sample in summer or autumn when the soil is dry. A full test indicates the level of major nutrients such as phosphorus, potassium and nitrogen, as well as trace elements such as copper and zinc. The pH reading indicates the level of soil acidity. Once you know what your soil is lacking, you can establish an appropriate fertilizer and liming regime.

Natural Resource Management staff and private consultants can provide independent technical advice on soil testing and liming.





Sowing and grazing pastures

set at the right depth into the residue of last year's pasture. Cultivation of the soil is generally not required when sowing pasture seed with a direct seeder. However, on small properties when it is not possible to do this, adequate results can be achieved by hand seeding.

Establishing pastures

Hand sowing medics with annual ryegrass or grazing cereals:

- Graze down to 2 cm just before sowing to reduce the build up of organic matter. This ensures good seed to soil contact. At all other times there should be adequate ground cover to prevent erosion.
- Control weeds with an appropriate herbicide used at the rate recommended on the label.
- Apply lime, fertilizer or trace elements if your soil test results indicate that it is required.
- Sow in late April/May and even up to mid-June in warmer areas, to prevent seed germinating due to a false break. A false break is rainfall out of season with no follow-up rain. If a false break occurs, you may have to re-seed.
- Broadcast fertiliser and seed at recommended rates then harrow in. You can use an old gate or a piece of weld mesh for a harrow. A seeder will give a better germination rate, but if you can't access one, broadcast the seed mix and harrow it in again.
- After germination watch out for any major weed and/or pest infestations and spray appropriately.
- Allow newly sown areas to fully develop and establish root





Manure management

systems before commencing grazing.

- If you have two areas to sow, try sowing one with a ryegrass/medic mix and the other with cereal/medic mix. The ryegrass/medic mix provides higher quality feed but the cereal/medic mix provides more bulk. Usually the cereal/medic mix can be grazed earlier, but the ryegrass/medic mix will last longer.

Grazing management

When the pasture is 15 cm in height, graze down to 5 cm. Allow the paddock to rest and when pasture has regained 10-15 cm graze back to 5 cm. You might need to divide the area with portable electric fencing so the horses will quickly graze the area down to 5 cm, then allow it to rest for three to five weeks. When the pasture stops growing in summer, graze it to 5 cm and take the horses out. Leave the area with that level of cover to protect the soil.

If you leave manure in paddocks the pastures will be under-grazed because stock will not graze near manure clumps. Manure can cause a build-up in intestinal worms and make horses sick as well as polluting the environment. Under legislation such as the *Environment Protection Act 1993*, you are obliged to ensure manure is not a source of off-site pollution.

Horse manure can be regularly picked up from paddocks, bagged and

Inset Right: A good stable should have an appropriate surface and drainage

Below: A manure management system





Stables, yards and intensive exercise areas

sold to home gardeners or composted on your property for your own use. Or you can spread manure by simply dragging a piece of weld mesh, or similar material, behind a vehicle. This will break down the manure and help to recycle nutrients back into the soil. It is best done after rain. Another method is to obtain dung beetles to bury the manure and contribute to nutrient recycling.

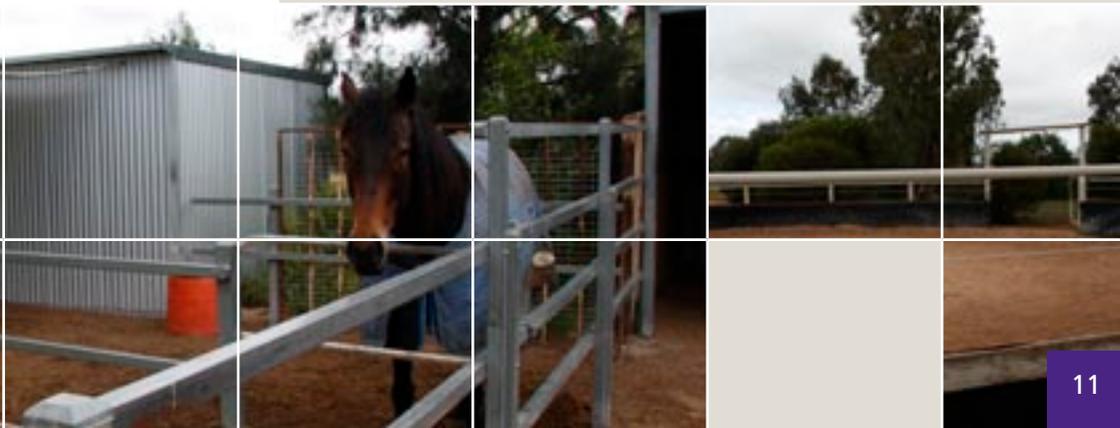
Remove manure daily from stables, yards and intensive exercise areas and store in an area protected from rain and surface run-off. This will ensure that no manure or nutrient-rich liquid drains into a watercourse.

When implementing a property management plan ensure watercourses have a suitable vegetation buffer (five metres is ideal) to help combat nutrient runoff.

Stables and yards facilitate feeding and handling stock and allow you to keep the paddocks free from horse activity for a period of time, allowing pastures to recover. Yarding allows safe and easy land management operations such as spraying weeds and applying fertilizer. You can also isolate new horses for a couple of days to monitor their health, including worm infestation.

When you are hand feeding stock, feed them in the stable or yard because it allows easier weed control and will cause less erosion in your paddocks.

There are many designs for stables, yards and exercise areas. Ask other horse owners for their advice and look around for properties similar to yours. Remember you will probably need development approval from your council so check with them before you build any structure.





Guidelines for stables, shelters and yards

- The stable/shelter and yard must be big enough for the horse to roll, lie down and move around. The height of the stable/shelter should be at least 60 cm (2') above the poll of the horse when standing alert. The horse should always be able to access both the yard and stable/shelter. The back of the building should face the prevailing winter weather.
- Yards must be surfaced. A 10 cm layer of compacted rubble or dolomite topped with 15 cm of a suitable topping, such as sand, shell grit or sand woodchip mix and with a minimum slope of 1/30 provides both a good surface and suitable drainage.
- Yards of 50 square metres provide a balance between the cost of surfacing and the comfort of the horse.
- An enclosed stable must have cross flow ventilation but not a draft. The inside of the stable/shelter should be lined to a height of 1.3 to 1.5 metres with suitable kick-proof material, such as timber planks, masonry, concrete or steel sheeting.
- Build a perimeter drain around the area so surface water runoff can enter and exit freely.
- It is also best to surround stables and yard areas with a grass apron, which will absorb and use the draining urine as fertilizer.

Guidelines for improving paddocks

- There should be sufficient water troughs to enable rotational grazing around the property. Try to locate troughs on hard surfaces and make sure there is 360 degree access to minimise erosion.

Right: Good combination of shelter belts, electric fencing and appropriate ground cover.





- Electric fencing is a cost effective way to prevent horses congregating in the corners of paddocks.
- Try to graze horses in groups. Horses enjoy it because they are social animals and it decreases tracking along fence lines.
- When resting paddocks, fill in any holes with stable manure, sawdust and hay and spread grass seed to allow these areas to regenerate. Protect the area until the grass is re-established.
- If you plant windbreaks, select species that are suitable for the local area and not poisonous to horses.
- Make sure you have enough paddocks or divide the area with portable electric fencing so you can rotationally graze – generally, one week grazing and five weeks’ rest. In spring, if there is too much feed either make hay in some paddocks or slash the excess feed.
- Stop grazing a paddock when the pasture gets down to 4-5 cm or cover reaches 70 per cent.

Intensive exercise areas

These areas must be surfaced so they do not become dusty in summer or muddy in winter. Ensure they are fenced and locate them near the stables.

