Land Management Advisory Service

NATIVE GRASS TRIAL (Upper Torrens Land Management Project)

Establishing 'Gallop' Native Grass Pasture

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1 PROPERTY DETAILS

Owner(s): Janine Randell

Mobile:

Property location: Kersbrook SA

Property Visit Date: 20th May 2016

Email:

Approximate rainfall (average mm per annum): 750 to 800

Approximate regional stocking rate (DSE/ha): 7dse/ha if moderate pasture quality and medium inputs. 11dse/ha if good pasture quality and higher level inputs.

Local Government Area: Adelaide Hills Council

Natural Resources Area: Adelaide and Mt Lofty Ranges

1.1 Project description

This report contains a general evaluation of the pasture trial site and makes recommendations for preparation, sowing and establishment of 'Gallop' horse pasture seed mix. This native grass seed mix contains wheat grass (*Elymus scaber*); windmill grass (*Chloris truncata*); wallaby grass (*Rytidopserma spp.*); weeping grass (*Microlaena stipoides*).

1.2 Project outcomes

1. Develop a methodology for broad-acre establishment of a C3 and C4 native grass mix.

2. Determine the cost of establishing this pasture.

3. Provide improved knowledge and understanding of broad-acre native grass establishment and management for landholders in the area.

4. Successfully establish a perennial native grass pasture suitable for grazing horses.

1.3 General land characteristics of the area (soil, saline sites, waterlogging)

Soils of the area belong to the Kersbrook Land System.

These soils are generally acidic sandy loam over brown or mottled clay. They are deep to moderately shallow, but generally infertile and acidic. They commonly have hard setting surfaces, bleached A2 layers and tight, poorly structured clayey subsoils. Hillslopes are mostly moderately well drained, but waterlogging caused by perched water tables is common on lower lying land. Productivity potential is low to moderate. There is sporadic saline seepage and water courses are highly susceptible to erosion.

The soil at the trial site is a sandy loam/loam over clay with moderate to steep slopes. No water logged or saline sites were observed

1.4 Location and dimensions of the trial site

The trial site is located in the southern end of the property (refer to Figure 1, page 6). The slope is 'moderate' to 'steep' with no limitations from waterlogging or salinity.

1.5 Site challenges

This is a particularly challenging site and not ideally suited to establishing native grass pasture. This site was burnt in the Sampson Flat fires of 2015 and as a consequence is quite bare. It also has quite steep slopes and irregular soil surfaces in places.
Hence, very careful management is required as this activity proceeds. The risk of soil erosion is high, particularly if ground cover is low. It is important to avoid disturbing the soil, so grazing of animals before the native grasses are established is not recommended. The use of contour furrows to reduce soil erosion is explained below.

2 TRIAL SITE LOCATION

Figure 1. Site location

3 SUGGETED CONTOUR FURROWS

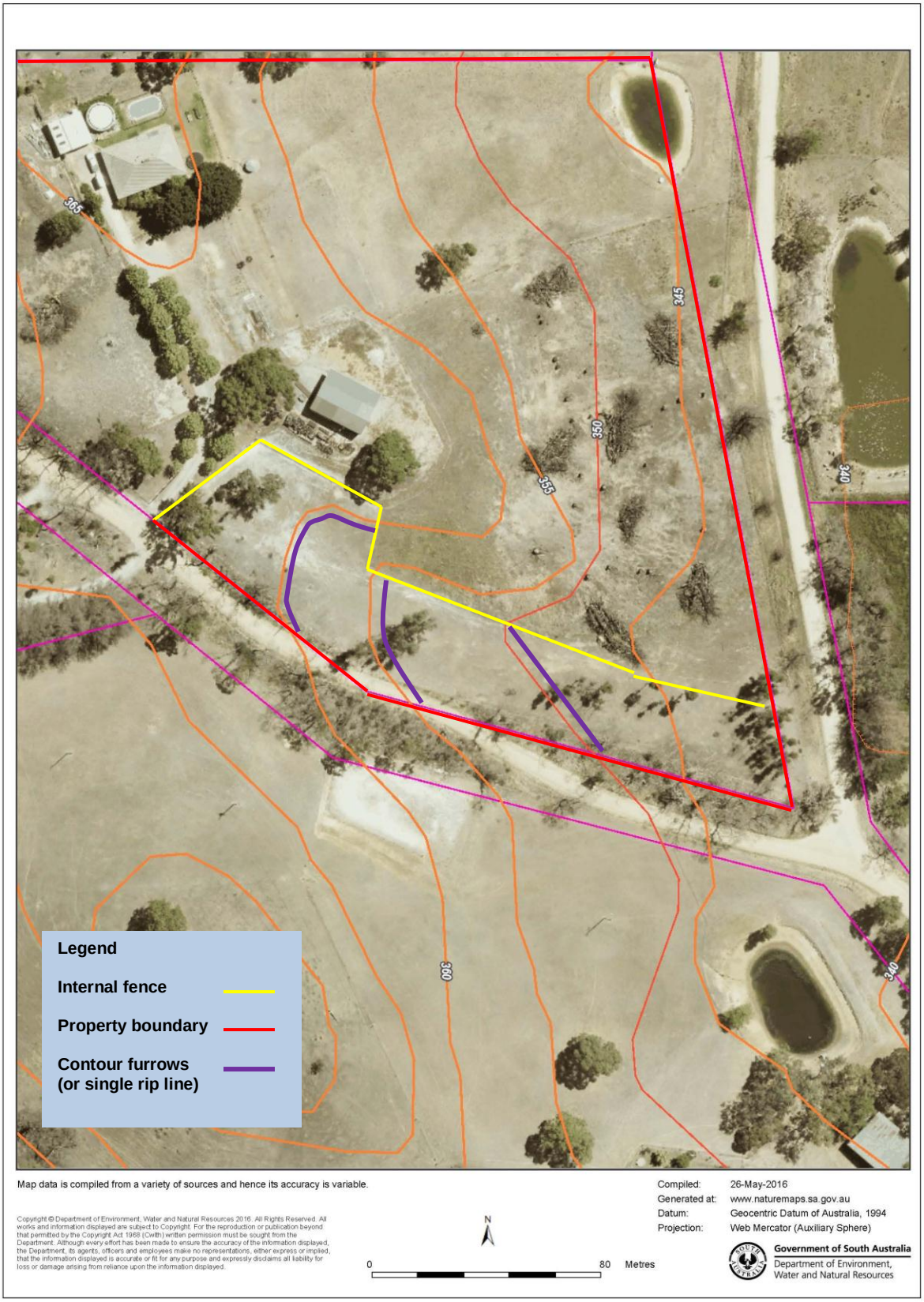

Figure 2. Site showing suggested location for constructing contour furrows

4 PADDOCK INSPECTION AND RECOMMENDATIONS

4.1 Trial site (1.0ha)

4.1.1. Observations

Plants currently growing at the site are mainly capeweed (*Arctotheca calendula*) and guildford grass (*Romulea rosea*). A few wallaby grass plants (*Rytidosperma spp)* were present along with a little geranium (*Erodium spp*.).

4.1.2 Recommendations

Aim for an autumn sowing since the mix contains C3 and C4 grasses. The earliest the seed can be sown is autumn 2017 following some robust weed control during 2016 and early 2017. Since there is a C4 component, ideally the seed mix should be in the ground in early May, or even earlier (weather permitting). C4 grasses are likely to need a soil temperature of 20 degrees centigrade to germinate. Check the Bureau of Meteorology for the long range forecast.

Soil testing

Laboratory testing for soil microbes and nutrient levels is recommended. Contact Kim Thompson for sampling packs. Soil samplers can be borrowed from the Mt Pleasant Natural Resource Centre (or the Gawler Natural Resources Centre). Soil testing for nutrients can be done through Land Management Advisory Service. November 2016 is recommended for nutrient testing.

Weed control 2016 - 17

Control of guildford grass is required in late June – July before the onset of leaves browning off caused by Helminthosporium fungus. Apply metsulfuron methyl (sold as Brushoff® or Associate®) at a rate of 15g per hectare. Add to the tank mix a wetter at a rate of 100mls per 100litres of tank mix. Avoid spraying near the roots of native vegetation.

In September spray with glyphosate before any weeds have had a chance to flower and set seed. Spray glyphosate 450g/L at a rate of 2 litres per hectare. Include pulse® penetrant at a rate of 250ml per 100 litres of tank mix. A further spray may be necessary in late spring depending on what weeds germinate.

When the opening rains come (March to late April) allow weed seeds to germinate over a 2 to 3 week period. Spray again with glyphosate (see above for rate) and then wait 4 to 5 days for the chemical to translocate through the plants before preparing the soil.

Note: *Before using any chemicals, read and follow the label instructions. Avoid misting which can cause spray drift damage.*

Soil preparation

Once weeds have been sprayed with glyphosate after the opening autumn rains, it is important to create a fine seedbed free of weeds or thatch. Cultivate/harrow once or twice (or as necessary) to ensure all plant litter is buried. Follow the contours to reduce the risk of soil erosion. If the surface is uneven it may be necessary to smooth the surface by dragging a sleeper or chain over it prior to sowing. Ensure the soil surface is weed free and finely tilled. The soil needs to be clean as in the photograph below (Photograph 1).

Photograph 1. A well prepared seed bed ready for broadcasting native grass seed.

To reduce the risk of erosion it is worth considering constructing some contour furrows (or single deep rip lines). Refer to Figure 2, page 7 for location.

Photograph 2. Well constructed contour furrows to help reduce erosion.

Ensure the site is well fenced to keep animals out.

Seeding – map the site into a grid (e.g. 10 to 12 squares)

Contact Kim Thompson well before the time of sowing to arrange delivery of the seed. Ensure the site is well fenced off from livestock. There is no need to apply any fertiliser at seeding. This can be applied once seedlings are well established.

The seeding rate is: 20kg/ha.

Sowing depth is 5 to 10mm. Do not bury seed > 10mm as it is most likely to result in poor establishment.

Divide the plot into a grid pattern of 10 to 12 squares, and divide the seed into the same number of lots. Seed one lot per square to enable an even distribution of the seed. Broadcast the seed by hand. To help spread seed evenly you may wish to mix it with washed river sand.

Ensure seed is covered. Dragging a piece of weld-mesh behind a four 4WD or quad bike will usually do the job.

Management of site after germination

Leave plants to get established over the next 12 to 18 months .

Allow one season of seed production before grazing. Do not graze lower than 8cms.

Apply fertiliser in spring 2017 and/or autumn 2018 depending on the recommendations from the soil test.

Monitor the site for broadleaf weeds and control with an appropriate selective broadleaf herbicide depending on the weeds present. Avoid using metsulfuron methyl (Brushoff®) since damage to grasses is likely.

Monitor for pests and diseases and, if present, treat accordingly.

Managing risk

Establishing native grass pasture is more difficult than introduced pasture species. A lot of things need to go right for it to be highly successful. Barriers to success include:

- Low germination of seed.
- Sowing seed too deep.
- Poor seasonal conditions which impact on soil moisture and soil temperature.
- Poor weed control prior to sowing (ideally planting a cereal cleaning crop is advised prior to seeding native grasses). .
- Seedbeds which are not weed free.

All steps need to be taken to reduce the risk of being unsuccessful, so landholders need to be assiduous when undertaking this activity. Please contact Kim Thompson (UTLMP) if there is anything you are unsure about.

5 APPENDICES

5.1 Useful websites

UTLMP Native Grass Pastures – workshop videos, *https://www.youtube.com/playlist?list=PL4IsUu0-il4oYMYb08WNPwUwwl1mVFYyr*

Native grasses for sustainable agriculture, *Evergraze – Future Farm Industries CRC , MLA, AWI. www.evergraze.com.au*

Van den Berg, M. Australian native grasses for horse pastures – part 4, *www.horsesandpeople.com.au*

Native Seeds: Suppliers of native grass seed, www.nativeseeds.com.au

Seed World Australia: Suppliers of native grass seed, www.seedworld.com.au

Flora Victoria: Suppliers of native grass seed and hay, www.floravictoria.com.au

STIPA Group: Native Grasses Association Inc. www.stipa.com.au

Native Grass Resources Group, www.nativegrassresourcesgroup.com.au

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