



Coorong Tatiara

Sustainability, Agriculture & the Environment



Fodder Beet and Kikuyu on saline soil

This fact sheet covers the steps undertaken and results obtained from seeding Fodder Beet and Kikuyu on saline soils at Cooke Plains over the 2019 –2020 season

Site conditions

The Fodder Beet and Kikuyu demonstration site is located on Brad Kleinig's property, Gypsum Road Cooke Plains. The site is affected by dryland salinity, with sandy to heavy loam soils, with a coverage of volunteer samphire and annual grasses prior to seeding.



The soil ECe was in the range of 4-14 dS/m with a pH of 7.89. It is estimated that the saline unconfined aquifer is around 3 metres below the soil surface.

Left: Site pre seeding
Photo: Kleinig

Fodder Beet

Two varieties of Fodder Beet were sown on this site; Cropmark varieties Geronimo and Summo. Local producers were interested in trialing fodder beet after hearing about successful demonstrations occurring in the mid and lower South East. Several articles appeared in the Stock Journal over 2018 and 2019 about seeding fodder beet. Salt was being added to these sites as a treatment to amend site conditions to enhance establishment.

Geronimo originates from France. It has a yellow-orange tankard shaped bulb that sits approximately 45% above the ground. The crop can be grazed in situ, or be lifted and fed whole or chopped. It is suitable for grazing by sheep and cattle.

Stock Journal

Fodder beet may prove saline solution

CATHERINE MILLER

9 Jun 2019, 9:30 a.m. Beef



LEFT: Stock Journal on line Fodder Beet article

RIGHT: Geronimo yellow orange tankard shaped bulb
Photo: Cropmark Seeds Ltd



Geronimo Fodder Beet Agronomic Traits

Sowing season	Spring
Sowing rate (seeds/hectare)	80,000-100,000
Maturity (days to grazing)	200+
Bulb % above ground	+/- 45%
Dry Matter %	15 - 17%
Disease resistance	Very good

Under optimum conditions **Summo** is a high yielding dual purpose grazing and lifting fodder beet. It has large red conical shaped bulbs which sit approximately 40% out of the ground. Summo fodder beets are suitable for grazing or lifting and can be fed whole or chopped.

Summo Agronomic Traits

Sowing season	Spring
Sowing rate (seeds / hectare)	80,000-100,000
Maturity (days to grazing)	200+
Bulb % above ground	+/- 40%
Dry Matter %	18 - 20%
Disease resistance	Very good

RIGHT: Summo large red conical shaped bulb

Photo: Cropmark Seeds Ltd



Seeding technique

The site was deep ripped with a rabbit ripper and seeded with Geronimo and Summo Fodder Beet with a shearer trash culti drill with press wheels on the 19th of October 2019 following 20mm of rain.

The recommended seeding rate of 100,000 seeds per hectare was used. The site was sprayed with Talstar the day after seeding. The fertiliser application was 350 kg/ha of a DAP / urea blend.

The germination rate was fair, with more of the Geronimo variety emerging than the Summo. Plants persisted well until the very hot and dry conditions in early summer. Some plants died and others lost their older leaves. The surviving plants persisted in spite of the lack of rain over summer. Since rainfall returned in April and May 2020 the fodder beet plants have recovered well. The plants performed well on the moderately saline soils, but not as well on the extremely saline areas.

The plants were observed during frosty conditions in early June and appeared unaffected.

What could be done to improve the result next time?

Landholder Brad Kleinig said, 'I think the main thing required is a precision seeder to get a more even germination of fodder beet plants. Also maybe a follow up insecticide spray as some pest damage was visible after Christmas. I would be interested in doing another trial this year as I see the potential for growing fodder beet in our area.'

Kikuyu

Kikuyu is a prostrate growing perennial grass. Most growth occurs in spring, summer and autumn. It is suited to fertile, well-drained soils. In favourable conditions the runners spread rapidly, making kikuyu a very suitable species for erosion control on sandy soils.

Kikuyu responds well to nitrogen fertiliser.

Kikuyu Grass Agronomic Traits

Sowing season	Spring to early autumn
Sowing rate (seeds / hectare)	1 - 4 kg / hectare
Variety	Whittet
Nutrient deficiencies	Nitrogen, phosphorus, potassium, sulphur
Insect Pests	Army worms, sod web worms, african black beetle
Animal health advice	Occasionally nephrosis or hypocalcaemia in ruminants, due to oxalates. Rare nitrate poisoning in cattle after rapid growth after dry conditions. Not suitable for horses.



RIGHT: Kikuyu Grass

Photo: DPI NSW



LEFT AND BELOW: The growth stages of Fodder Beet over the 2019 / 2020 season on the Cooke Plains site

Photos: Kleinig and Strugnell

LEFT: A Geronimo Fodder Beet with the beet pushing out of the ground

Photos: Kleinig and Strugnell



LEFT: Fodder Beet continuing to grow well during frosty conditions in early June 2020

Photo: Brad Kleinig

Seeding technique

The Kikuyu Grass was seeded on the 19th October 2019 following a 20mm rainfall event at 2 kg per hectare with approximately 50 kg/ha of DAP / urea blend. The Kikuyu had a very strong density at germination but the hot, dry spell in early summer hit it the seedlings hard with around 50% plants dying, and 100% on the extremely saline ground). Like the Fodder Beet, the remaining plants held on well despite the dry summer and have shown good activity since the break of the season in April / May 2020. Landholder Brad Kleinig said, 'Obviously the Kikuyu will go mildly dormant as the cool weather hits but I'm looking forward to seeing how it goes in spring once the soil temperatures rise.'

What could be done to improve the result next time? 'Probably spraying out the Potato Weed next time will leave more moisture for struggling plants. Otherwise I was happy with the result. With a wetter summer I think it would go really well. Like the fodder beet I am interested in sowing Kikuyu again.'



ABOVE: Seedling Kikuyu Grass 2019 Photos: Brad Kleinig



LEFT: Kikuyu Grass with mixed grasses June 2020



Coorong Tatiara Local Action Plan

P: 1300 785277

E: tstrugnell@coorong.sa.gov.au

W: <https://www.coorong.sa.gov.au/council-services/coorong-tatiara-local-action-plan/soil-health-and-dryland-salinity/saltland-pastures>

Useful Links

Saltland Agronomy

Information on saltland pastures and the saltland pasture redemption project

<https://www.coorong.sa.gov.au/council-services/coorong-tatiara-local-action-plan/soil-health-and-dryland-salinity>

Fodder Beet

Follow the Forage Products tab to Fodder Beets

<https://www.cropmarkseeds.com>

Kikuyu Grass

<https://www.dpi.nsw.gov.au/agriculture/pastures-and-rangelands/species-varieties/pf/factsheets/kikuyu>



Government of South Australia

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Natural Resources
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