

PUCCINELLIA

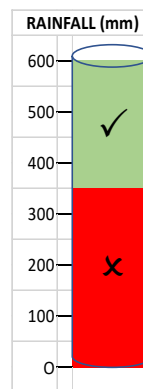
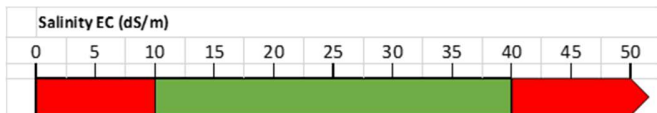
DRYLAND SALINITY NOW SERIES PRODUCED BY THE COORONG TATIARA LOCAL ACTION PLAN

Background

Puccinellia (*Puccinellia ciliata*) is a perennial grass that is tolerant to both salinity and transient waterlogging (inundation <4 weeks). It is dormant in summer with maximum dry matter production in late winter and spring. It has shown its ability to be useful in remediation of scalds, and its palatability makes it well suited to grazing systems in the Upper SE providing the areas is managed appropriately.

Site Suitability

- 350-600mm annual rainfall^{3,4}
- Neutral-alkaline soils
- Salinity levels of of 10-40dS/m⁷
- Transient waterlogging tolerant (not suitable for areas that are inundated >4weeks)



PROJECT DETAILS

Responding to Dryland Salinity NOW
Recommendations for a new audience

Funding Body

This project is supported by the National Landcare Program – Smart Farms Program, an Australian Government Initiative



Establishment

Puccinellia is best established early-mid winter (preferably after rain has leached salts from the soil surface and with sub-soil moisture at 20cms. Alternatively, it can be established in late-winter/early spring after the soil has dried out.

Seeding rates

- Single species - sow @ 4-10kg/ha¹ (use higher rates at higher soil salinity levels)
- Pasture mix – sow @ 4kg/ha¹

Weed control at establishment: Pre-seeding knockdown required to control sea water barley grass. Spraytopping the season before can be beneficial, however it may increase the salt concentration at the surface over the summer period if it is left too bare so use caution⁸.



Figure 1. Puccinellia Establishment (Year 2) Cooke Plains, 2021

Nutrition / Fertiliser Requirements

- Phosphorous: Soil Colwell P levels >12mg/kg adequate for Puccinellia
- Nitrogen: Puccinellia responds well to Nitrogen¹. Applications of nitrogen increase plant growth and vigour increasing the ability of the plant to withstand waterlogging.
 - o Timing:
 - 25kg/ha N early winter (unless the area is likely to become waterlogged within 4 weeks of application as denitrification may occur).
 - If high risk of flooding, spring applications of 12kg/ha N can be beneficial.

Grazing Management

Puccinellia requires 12-18 months to establish before grazing^{2,4}. Prior to stock entry to the paddock, ensure that plants can't be pulled out by hand. Rotational grazing is recommended to increase production and allowing the plants to mature and set seed every 2-3 years will help to maintain density.⁴

Grazing Management by season:

- Winter – avoid grazing when waterlogged/inundated (leads to pugging and potentially damage to the base of the plant)
- Late spring – ensure cover is maintained going into summer to reduce evapotranspiration and crusting/scalding of salts on the soil surface
- Late autumn/early winter – maintain green leaf area and plant height to allow the plant the ability to generate energy and assist in the capacity to survive the effects of waterlogging

Fodder Quality

Farmer experience has suggested that Puccinellia has very good palatability with stock grazing it effectively and appearing to do well on it when compared with other saltland species in the Upper South East region¹. The feed value varies across the season with the highest protein and digestibility values over the winter-spring period (Figure 2a-b) when the plant is green and actively growing (as expected). Although the quality declines in Autumn, this is the 'ideal' time to graze to maximise production and persistence of the puccinellia stand, and also to maintain groundcover over summer to reduce evapo-concentration of salts.

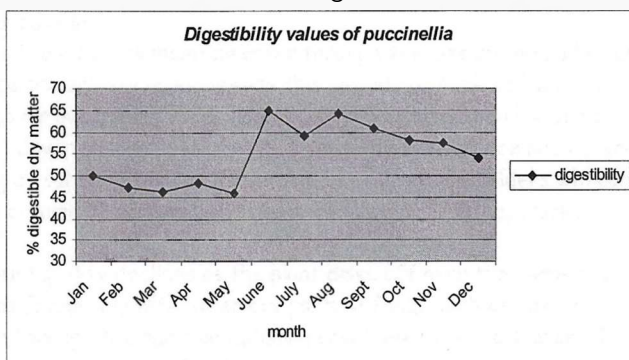


Fig 2a. Digestibility of puccinellia ¹

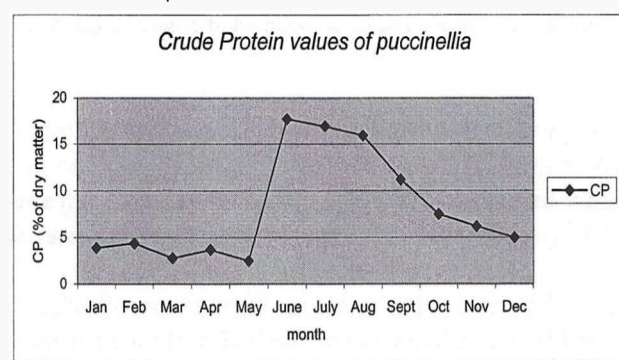


Fig 2b. Crude Protein of puccinellia¹