

Forage Shrub Case Study

Mediterranean Saltbush ~ *Atriplex halimus*





Cleared north facing slopes in Tasmania's semi-arid climate region. ▲

Established *Atriplex halimus* on a north facing slope. ▼



It may come as a surprise, but there are areas of Tasmania with a semi-arid climate. The region between Ouse, Hamilton and Bothwell in the Central Highlands is one of these low-rainfall areas. The major land use of the region is grazing which relies on dryland pastures and runs that are unreliable in times of drought. **Cleared north facing slopes are a particularly fragile component of grazing enterprises** as they are difficult to incorporate without causing erosion.

On the mainland there has been significant work undertaken to research the benefits of forage shrubs as a value add to marginal land. **The Derwent Catchment Project, with funding from Meat & Livestock Australia, investigated whether forage shrubs could be established at a commercial scale on north-facing slopes to add grazing value to these marginal areas whilst introducing deep-rooted perennials to stabilise the ground.**

The trial was established in winter of 2021 across three 5 ha north facing sites in the Derwent catchment using planted tubestock of Mediterranean saltbush (*Atriplex halimus*), a hardy forage shrub that had been successfully established before in the region. **The trial successfully established saltbush at one of the three sites**, the browsing pressure of native wildlife (wallabies in particular) severely impacted the other sites and although there were promising starts initially, the shrubs ceased to establish. **The successful site on a farm near Hamilton was at least 500m away from any remnant native vegetation which was key to establishing the forage shrubs.**



Key Messages

Establishment

There was significant variation in established plant size from plants 25×25cm to 1.2m×2m. This was likely due to differences in planting process, grass competition, fertility and soil texture. Another key factor is likely to be genetic variability of the shrub tube stock as the *Atriplex* seed is wild harvested, not selected for best performance like commercial crop seed.

The weed free self-mulching black clays on the upper slope had the best-established plants. Plants on the lower slope tended to be smaller on average, even in the drainage lines, likely due to greater grass competition. However, even the smallest plants were robust enough to survive grazing.

The cost of establishment comes to \$2,068 per ha/\$10,340 across the 5-hectare site. This includes costs for ripping, tube stock, manual planting and some maintenance. The survival rate of the shrubs after planting at the site was approximately 65%.



Grazing

The trial site was grazed (130 DSE/ 5 ha) for 27 days after 2 ½ years of establishment.

The saltbush was healthy and green whilst the inner-row grass had little green (some in the rip lines), and mostly dead or dying annual grasses across the site. The dry matter in the rows ranged from 1.5-3.5 tonnes of dm/ha and this included some of the dead material carried forward during the forage shrubs establishment.

The sheep started on the green grass, then nibbled saltbush leaves and shoots (day 2 to 7), then switched on to the shrubs relatively quickly (by day 10). By day 17 they had consumed most of the edible shrub biomass. More material was still removed up until day 27, when the sheep were taken out, leaving nothing other than stem on the saltbush shrubs. The substantive structure of the plants was undamaged.

At the time of sheep removal clusters of reshooting buds were appearing on the woody stems. There was no residual leafy biomass, only new leaf buds.

The sheep reached into the bush bases to graze up to a height of 1.2m and more, likely utilising the slope.



Regrowth



The shrubs regrew in the extreme dry of summer, in a drought, delivering green material on a north-facing slope between December and April 2024, when nothing else grew.

Data indicates that post grazing shrub height increased on average by 29% and width by 48%. Growth appears encouraged by the grazing, despite the critical lack of water for the inter-row pasture.

Almost no mortality was observed, with only one out of 107 individually identified and monitored shrubs having no green leaf canopy 6 months after grazing.



Likely opportunistic insect damage. ▼

Some insect damage and leaf drop were observed at the site in the post grazing regrowth period. It is likely that the insect damage was from multiple opportunistic predators and the shrubs only appeared untidy, not at risk of death.

Planting stage at the site in Hamilton.

Landowner perspective

The costs of the trial are totally prohibitive at around \$2,000 per hectare. Pasture would come in at around \$700 a hectare for this type of country. To make it viable (say the same as pasture) we would need to mechanise the planting, using a seedling plug planter behind a tractor or even better getting the direct drilling of saltbush seed to strike. **The way these shrubs have grown in this drought, under better conditions we could get 3 grazings off them a year** which is better than the dryland pasture that is there.

Good to remember there are other benefits to this type of planting, aside from the green pick value such as deep-rooted perennials to help stabilise the ground and the addition of some diversity into the landscape, these both have value.

Successfully established Saltbush from the same site at Hamilton 2.5 years after planting.

In Summary

- The regrowth in a drought following a 'failed spring', has been extremely impressive.
- Whilst this site is a long way off perfect, it offers a resource that warrants grazing management and a green biomass opportunity that the pasture is not capable of delivering.
- The sheep ate every scrap of leaf and a lot of non-woody stem over 27 days. They selectively grazed the green shrub biomass after the green pasture was consumed.
- Our observations support incorporating the shrubs into a grazing cycle up to 3 times a year as the plants respond well to grazing and plant structure benefits. If they are left as just a drought reserve, they will become too woody and tall.
- The site offers insight into a potentially valuable and durable grazing asset that could maybe even overcome the cost of establishment. The projection of increasing dry spells and drought under climate change could really compound its value.

