

# INFORMATION NOTES



DEPARTMENT OF  
PRIMARY INDUSTRIES

## Saltbush for Saline Land

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Saltbush is a native, salt-tolerant forage more suited to the warm climate and low rainfall areas of northern and central Victoria. It can be used to rehabilitate Class 2 (moderate) and Class 3 (severe) salt-affected soils that do not waterlog.

The most commonly used species are Old Man Saltbush (*Atriplex nummularia*) and River Saltbush (*Atriplex amnicola*). Old Man Saltbush is suited to well-drained areas and is relatively frost hardy. River Saltbush is more palatable and tolerant of slightly wetter areas.

Neither type is suitable for areas dominated by Samphire, which is an indicator of high levels of salinity and water logging, and that conditions may be too wet for Saltbush to persist.

Saltbush requires a combination of both warm temperatures (>25°C) and moderate moisture for its growth, so it is less suited to most areas in southern Victoria.

With good management, Saltbush can be a productive part of a grazing enterprise. Stands on less-saline areas can provide an opportunity to increase productivity by including inter-row species, such as medics. Land class or saline zone fencing to provide effective livestock control is a key to the success of saline rehabilitation with Saltbush.

### Why use Saltbush?

Land clearing following European settlement has caused the watertable to rise across much of northern Victoria. In areas where water tables are within 2 m of the surface, moisture can rise to the surface and evaporate, concentrating salts at the surface. Salt-sensitive vegetation is killed by the salt, and the area becomes dominated by salt-tolerant plants such as Sea Barley Grass. Increasing levels of salts cause patches of bare ground known as scalds.

Saltbush stops this process by using moisture from deeper in the soil profile, lowering the watertable and disrupting the upward movement of moisture. Winter rainfall then leaches salts into the soil. The top soil becomes less saline and can support more salt-sensitive forage plants, such as medics.

### Is the site 'hostile' or 'reclaimable'?

Hostile sites have high levels of salinity and generally have a patchy cover of Sea Barley Grass, with scalds exceeding 1 m<sup>2</sup> (Class 3 salinity). They tend to occur when the rainfall is less than 400 mm, and on heavy soils, such as clays and clay loams. These sites can be planted to Saltbush primarily, with an optimum plant density of 2,000 stems/ha or more.

Reclaimable sites have moderate levels of salinity and generally have a thick cover of Sea Barley Grass with scalds less than 1 m<sup>2</sup> (Class 2 salinity). They tend to occur in the 400-600 mm rainfall zone and on lighter soils, such as sands and sandy loams. These sites should be planted to widely spaced rows of saltbush at a density of up to 1,500 stems/ha

On reclaimable sites, the areas between the rows of Saltbush can be sown to moderately salt-tolerant forage, species such as Tall Wheat Grass, Puccinellia and a salt-tolerant cultivar of Yellow Burr Medic (*Medicago polymorpha* cv *Scimiter*), and then fertilised with phosphate fertiliser. Saltbush will also benefit from fertiliser.



Newly Sown Saltbush in the Wimmera, on the property of John McIntyre at Carnnum.





3. Annual pasture based on Medics growing between rows of saltbush at Lake Grace, WA.  
Photo: Micheal Lloyd.



4. Saltbush at its limits of usefulness in saline land rehabilitation at Tammin, WA, with groundwater one-and-a-half times saltier than seawater.

## Establishment

Saltbush can be established by either direct seeding or planting nursery stock. Direct seeding requires exact and prescriptive conditions to minimise the risk of failure. Planting nursery stock is more expensive, but more reliable. Both forms of establishment require good preparation to minimise the risk of failure.

The site should be spraytopped in the spring prior to planting then ripped and mounded during summer to provide a seedbed. After autumn and early winter rains have leached salts out of the mounds, weeds should be sprayed and the seedlings planted in late winter or spring.

## Grazing and management

Fencing to control livestock is the single most important tool for the management of saline discharge areas and Saltbush plantations. Samphire zones should be fenced to exclude livestock altogether. Saltbush needs to be fenced so that livestock can be made to strategically graze the stands.

The first grazing of a new stand can promote multiple stems and bushy growth and should only occur after the Saltbush is firmly anchored to the soil by its roots. This may be as early as eight months, but is generally 12-18 months after planting. Grazing must be closely monitored to ensure plant stems are not seriously damaged while they are young and fresh. Let livestock remove up to 80% of the leaves.

Mature Saltbush requires grazing once or twice a year to remain productive. Saltbush must be grazed hard to promote fresh growth.

Autumn is the most common time to graze Saltbush. The combination of understorey with Saltbush can raise the total feed value to a maintenance level. The stand can also be grazed in spring if productive species are planted between rows.

Saltbush leaves have a high salt concentration (up to 30% of dry weight). Sheep can only consume up to 200 grams of salt per day and, consequently, cannot eat enough Saltbush to maintain weight. A productive pasture between the Saltbush rows means stock can eat more and maintain weight. Supplementary feeding is required in Saltbush stands without any inter-row pasture.


Livestock grazing Saltbush must have access to fresh water.

Of the many varieties available, Old Man Saltbush is the most suitable for planting in saline discharge areas. It is deep-rooted and tolerant of both high salinity levels and low rainfall. Old Man Saltbush stands should be productive for 10-20 years, but can survive for up to 50 years depending on management.

## Is saltbush for me?

Target area is in northern Victoria and experiences long hot summers	Suitable
Target area is Class 2 and 3 salinity (sea barley grass and bare patches)	Suitable
Surface soil only occasionally appears moist in summer	Suitable
Occasional samphire plants are present	Suitable for River Saltbush
Surface soil often appears moist in summer	Not suitable
Native species dominate the area	Not suitable
Target area is dominated by Samphire	Not suitable

## References

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-  [Saltland Pasture Association](#)

## Further information

- Western Australian Farmnote `Saltbush establishment on saline sites`
- Western Australian Farmnote `The optimal design for saltbush`
- Saltbush establishment Collins J.P. (2007) Dept of Agriculture and Food West Australia Farmnote on saline sites (in press)
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- Land, Water & Wool and Australian Wool Innovation, 2006. SALTdeck Series, prepared for the Sustainable grazing on saline lands (SGSL) sub-program.
- Saltland Solutions – options for saltland restoration

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