

Farmnote

Direct seeding of old man saltbush

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The most reliable way to establish old man saltbush (*Atriplex nummularia*) is by transplanting seedlings, but this can cost more than \$450/ha. A much cheaper method (\$100–150/ha) has been to direct seed old man saltbush using a specialised niche seeder, but this has proved less reliable. This Farmnote describes key steps for a simpler and more reliable method for direct seeding of old man saltbush using modifications to conventional seeding machinery.



Experimental plots showing successful direct seeding of old man saltbush at Meckering, WA

Select appropriate paddocks

Good site selection is critical. The most appropriate paddocks have slight to moderate salinity (EC_e values at 0–30 cm depth between 2 and 8 dS/m). Productivity is markedly reduced on extremely saline land ($EC_e > 32$ dS/m). Soils with sandy loam over clay are the easiest to establish, as winter rains leach salts through the surface to create a favourable germination environment.

Old man saltbush is susceptible to waterlogging, so avoid areas prone to prolonged waterlogging. Sites with 50–100% annual ryegrass and some

slender ice plant are generally ideal. If the site has samphire or is bare and scalded, it is too saline. If the site has substantial sea barleygrass, it is too waterlogged.

Prepare sites for optimum establishment

A weed-free seed bed is essential, as old man saltbush seedlings are weak competitors. Ideally plan a year ahead and reduce weed seed-set in the year before sowing by grazing and spray-topping, especially for ice plant and annual ryegrass. Commence rabbit and kangaroo control where necessary.

Use two knockdown sprays (4–6 weeks and 1–2 weeks before seeding) for good weed control. Cultivation prior to sowing is unnecessary and can make the surface too uneven for precise sowing.

Apply a residual insecticide with the final knockdown herbicide (or at sowing) to control caterpillars, cutworms, aphids and redlegged earth mites.

Ensure seed is subspecies *nummularia*

There are two subspecies of old man saltbush. Subspecies *nummularia* is palatable to sheep and is best suited to direct seeding using the methods described in this Farmnote. The alternative subspecies, subsp. *spathulata*, is unpalatable to grazing sheep and will not readily establish from seed.

Sow the best seed

Germination of old man saltbush seed batches is usually low (typically 5–20%). Seed harvested within the previous six months and stored in a cool, dry environment has the best quality. Send to an accredited seed laboratory if concerned about expected germination.

Sow large and heavy fruits, as they are more likely to contain mature, viable seeds. Grade off small fruits, as they are more likely to be empty

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or contain immature seeds. Do not remove the bracts surrounding fruits.

Sow into moisture in late winter – early spring

The ideal sowing time occurs when soil temperatures are warm enough for germination and the likelihood of sufficient moisture for good root development before summer is high. The best sowing times in Western Australia are:

- Northern agricultural region—early to late August
- Central and eastern wheatbelt—mid-August to early September
- Southern agricultural region—late August to late September

Sow into a moist seedbed, or if there is a strong likelihood of rain. Old man saltbush is salt tolerant, but its seeds will only germinate if salts have been flushed from the soil surface. If the area is waterlogged, defer sowing until later in spring, or to the following year.

Aim to establish at least one plant per 2 m of row

To provide at least one plant every 2 m, sow ~10 fruits/m of row (for seed of 15% germination). Use higher rates for seed of lower germination. Typical row widths for alleys of double or triple rows are 1 m.

Set-up the seeder for the best result

A conventional combine seeder with minor modifications can be used to direct seed old man saltbush.

Use tynes to create furrows, which capture rainfall and increase seedling survival in dry springs. Furrows of 50 mm depth are usually sufficient, but deeper furrows can be used if the soil surface is dry or highly non-wetting. Avoid soil in-fill and furrow collapse, as these cause seed burial and reduced emergence.

Adjust row spacing by removing non-seeding tynes and blocking off hose openings to them. Alternatively, small seed boxes for sowing tynes can be attached to the machine.

Use press wheels to provide good seed contact with soil moisture. They should press soil in the furrow bottoms and minimise soil in-fill from the sides. Flat-bottomed wheels give the best results.

Sow at a depth of 5–10 mm

Old man saltbush requires shallow seeding to a depth of 5–10 mm. **Seeds sown too deep will not emerge.** The simplest method is to drop fruits in furrow bottoms and allow press wheels to lightly bury them. Sowing directly onto the surface is unreliable.

Control weeds and pests

Summer growing weeds compete strongly with saltbush seedlings. Control weeds with appropriate herbicides to maximise establishment. Monitor seedlings for insect damage and control if needed. Good control of kangaroos and rabbits is essential to protect young seedlings.

Defer grazing until seedlings are well established

Defer grazing of old man saltbushes until plants are firmly anchored and actively growing. This will vary with seasonal conditions and they may not be ready for grazing until after the break of the next season.

Further information

Barrett-Lennard, E.G. (2003). Saltland pastures in Australia – a practical guide 2nd ed. (Sustainable Grazing on Saline Lands Program, Canberra) – copies available from DAFWA.

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