



Saltbush fills marginal gaps in mixed-farming system

Saltbush is providing John and Debra Arentz, Manangatang Victoria, with a resilient and timely forage base in even the harshest of seasons. And after more than eight years of experience with the hardy perennial shrub, John has fine-tuned his saltbush plantings to maximise the opportunities within his mixed-farming system.

Although John describes himself as a 'cropping' man, livestock have always had a role in his farming operations. And when he bought his current property, near Manangatang in the north-west Victorian Mallee during 2004, poor returns from cropping marginal soils in a dry climate caused him to search for a resilient permanent forage option.

While lucerne fitted the bill on some of the kinder heavy country (about 50 ha in total) there were still areas that required something a little harder. Initial discussions with local Landcare coordinators, Malcolm Vallance and Malcolm Thompson, led John to investigate the potential of saltbush.

Both coordinators had seen successful saltbush results in similar country and worked with John to access funding that allowed him to give it a go.

According to John, the support of Malcolm Vallance and Malcolm Thompson was crucial in the early stages. But after six years of expanding saltbush throughout 100 ha of his marginal country, John's experience has allowed him to adjust the structure of his later saltbush paddocks, reducing the cost of establishment and maximising the flexibility of the landscape with inter-row opportunities.

Lessons learned

Testing the water, John started with 8 ha of Eyres Green saltbush, planting seedlings four metres apart within rows, with row spacings of about four metres.

key points

- Saltbush can provide a resilient forage base in marginal areas unsuited to cropping and traditional perennial pastures.
- Providing plenty of inter-row space allows volunteer annuals, reducing the need for supplementary feed.

farm info.

Case study: John and Debra Arentz

Location: Manangatang, Victoria

Property size: 3300 ha

Mean annual rainfall: 275 mm

Soils: Sandy loams to heavier country

Enterprises: Cropping, sheep (Merino ewes and White Suffolk rams)



Leaving plenty of space between saltbush shrubs allows volunteer grasses to establish, providing a balanced diet for sheep. In suitable seasons, John (pictured at far right in the inset photo, sharing his experience with local producers) also opportunity crops with cereals between the shrub rows. (Photos: John Arentz (main) and Michael Moodie (inset).)

Although the saltbush established well, as it matured John has found the narrow row spacings limited the growth of volunteer grasses and medics between the rows and made mustering challenging.

While it provides an important source of feed, sheep cannot survive on saltbush alone, so an alternative feed source between the rows is important to reduce the need for supplementary feeding.

Over time John moved to six-metre spacings within the rows and 10 m between the rows. He says this is more than adequate in terms of forage production and allows greater opportunity for volunteer species between rows and even facilitates cropping when seasons look promising. In fact if he started again John would go to 8 m shrub spacings on 12 m row spacings.

Cropping the inter-row spaces is not something John carries out every year, but

when it works, as it did during 2010, John claims the financial benefits are significant.

Species selection

John has found Eyres Green saltbush to best suit his system. It is a vigorous variety which John finds easy to manage.

One of the distinct advantages according to John, is that you can sow it in rows and that is where it stays. On the other hand, other types of old man saltbush self seeds and can spread outside the rows, taking over the inter-row spacing.

Filling the feed gap

While the ability to withstand soil and seasonal constraints was important, saltbush still needed to find a nutritional niche to be successful in John's livestock enterprise. And according to John the saltbush complements



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his cropping enterprise and fits alongside his wool and first-cross lamb enterprises.

The saltbush provides a feed option for ewes during spring and summer, after vetch and medic pastures have been sprayed, to conserve water for the next crop.

John mates his Merino ewes to White Suffolk rams and the ewes graze the saltbush until they are removed for crutching in March.

Having all the ewes removed from the cropping paddocks during spring and summer leads to more ground cover in these paddocks and no soil erosion.

During higher rainfall years, there is a balance of inter-row feed and saltbush, negating the need to supplementary feed. But in a dry year, when inter-row feed is scarce, John supplements the saltbush with hay and grain.

Ewes remain in the saltbush until late autumn when they move onto John's Mallee ground, which contains a mix of vetch and naturally-regenerating medics, for lambing.

John has found that while dry ewes do well on saltbush, lambs are slow to become accustomed to the feed source. In very dry seasons ewes have lambed in saltbush paddocks but need supplementary feeding.

Ewes and lambs remain on the Mallee country until shearing, during August, when the dry

ewes return to the saltbush until winter pastures become available the following year.

In addition to providing a handy feed source at this time of year, John finds he can leave the ewes on the saltbush and they remain trouble-free in terms of flies.

Most lambs are generally sold by August, but any remaining lambs are weaned on to the lucerne for finishing.

When season and market conditions are suitable, John has bought lambs during spring, held them in the saltbush and finished them on the available crop stubbles to clean up any residual grain and weeds that escape the boomspray.

Size matters

John's earliest saltbush paddock were about 20 ha, but later paddocks have been reduced by about half. This forces sheep to graze the paddocks more evenly. In larger paddocks, sheep tended to graze more closely to the water source – needing to drink more water when grazing the salty shrubs.

Complementary benefits

For John, the saltbush has numerous benefits: it provides a profitable option on country that will not consistently support cropping and a valuable forage source to fill seasonal feed gaps.

Saltbush also gives John the flexibility to take advantage of fluctuating seasons and markets. He can buy wether lambs during September and October when other people are running out of feed. And he can hold stock on saltbush and the lucerne until they are ready to be sold.

John firmly believes the balance of cropping and livestock is critical to the long-term sustainability of his operation – one wouldn't work without the other. But he also recognises this balance is not everyone's cup of tea.

Saltbush seedlings require several waterings to establish successfully and small paddocks lead to costs associated with fencing and water systems.

John admits if it weren't for his marginal country, he wouldn't have committed to saltbush. But in his circumstances, livestock were an existing part of his operation, which helped bankroll the saltbush system.

For other producers looking to incorporate areas of saltbush, John recommends taking it a step at a time. 🌱

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Michael Moodie, Mallee Sustainable Farming

- **The dune-swale landscapes on Mallee farms have high spatial variation occurring across short distances within the same paddock. Soil types range from light-textured sands through to calcareous clay loams with sub-soil constraints, such as high boron, chloride, electrical conductivity and pH.**

On these highly-constrained soils, crop rooting depth can be limited to the top 60 cm of soil. Coupled with low average annual rainfall (275-350 mm), these soils support highly variable crop yields. While they can produce reasonable yields, following wet springs they generally have much lower long-term average yields and, importantly, a much higher risk of poor yields and crop failure.

Mallee farmers manage the soil types across their farms differently. In most instances they use precision agriculture to limit inputs and costs on the heavy-constrained soils, where cropping is often unprofitable, and focus inputs on the lighter, more productive soils. Where there are large areas of constrained soils, some farmers, such as John Arentz, have

changed the way they manage these soils from an annual crop and pasture system to a perennial-based system using forage shrubs.

These farmers have found perennial shrubs to be a valuable feed source, especially in times of low feed availability (before harvest and late autumn) and during drought. However, they understand old man saltbush is not a 'silver bullet' and has limitations as a feed source. Monitoring of John's shrubs through the Northern Victorian *Grain and Graze* project has shown production to be low (typically 1 t/ha), which is consistent with old man saltbush production on constrained soils by CSIRO through the Mallee *EverCrop* project. Livestock grazing old man saltbush also require supplementation with a high-energy food source, such as hay or grain.

John has set up his perennial shrub plantations to help address some of these constraints. By leaving a gap of 10 m between shrub rows he can establish grazing cereals that can boost total feed production, and complement the shrubs by providing a higher-energy

feed source. Furthermore, by planting shrubs at wider spacings both within and between rows, John reduced the costs of establishing the site. John is also trialling mixed species shrub plantings identified through the *Enrich* project and funded through the Mallee Catchment Management Authority as a means of providing a more productive diet for livestock by growing plants, each with different qualities to be used together. A suite of species which, along with conventional understorey pasture, can provide a more stable and better-balanced feed supply.

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