Increasing farm productivity with shelterbelts

Shelterbelts protect stock, crops, and pastures from strong winds while improving biodiversity and resilience on Kangaroo Island farms. This guide focuses on practical steps to plan, design and plant effective shelterbelts suited to local conditions.

1. Choose the right location and orientation

Shelterbelts work by filtering and breaking the force of the wind. They are best when planted at right angles to the wind from which protection is needed. On Kangaroo Island, cold winds often come from the west or northwest. Position shelterbelts to block these winds to protect lambing paddocks and pastures. Running both north–south and east–west belts can improve coverage in open areas.

2. Plan for width and structure

Shelterbelts should have at least two rows, (12–24 m wide) combining trees and shrubs. The wider the more effective. A canopy layer of tall trees and an understory of shrubs prevents wind tunnelling and increases shelter. Mixed vegetation also supports native wildlife and stabilises soils.

3. Consider height and protection zone

The taller the trees, the greater the protection. A shelterbelt can reduce wind speed up to ten times its height. Tall species such as eucalypts are ideal long-term shelter trees. Allow enough space for mature growth and roots.

4. Ensure the shelterbelt is long enough

To be effective shelterbelts need to be 12 times as long as the mature height of the trees, without any gaps. For example if your tallest tree is 8m high, the shelterbelt needs to be 96m long.

5. Tree spacing

A semi-permeable shelterbelt which lets some wind pass is the most effective. Plant more understorey plants (shrubs and groundcovers) than trees so there is a range of plant heights from the ground level up. Plant understorey plants in groups close together from 1–3m apart. Plant trees 4–8m apart depending on how tall they grow. For best results plant 800 plants per hectare. See figure 1.

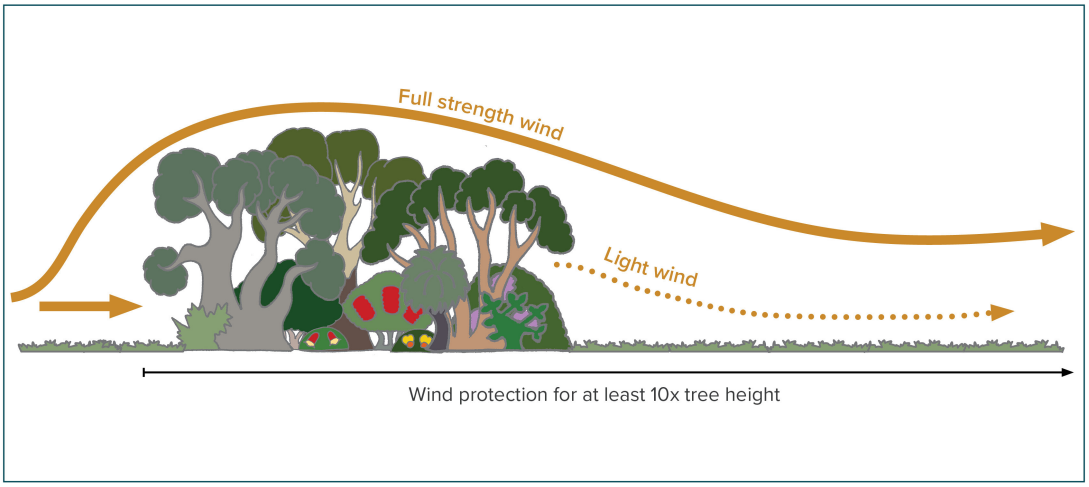

Figure 1. Dense plantings of understorey and tree species, at a range of different heights from the ground up to the canopy, give the best protection from strong winds for stock, crops and pastures.

6. Gate gaps

Gaps in shelterbelts are often needed for gates and tracks. Angle the gap in the shelterbelt by 45 degrees, or plant a few short shrubs either side of the gap, to stop wind being funnelled and intensified through the gaps. See figure 2.

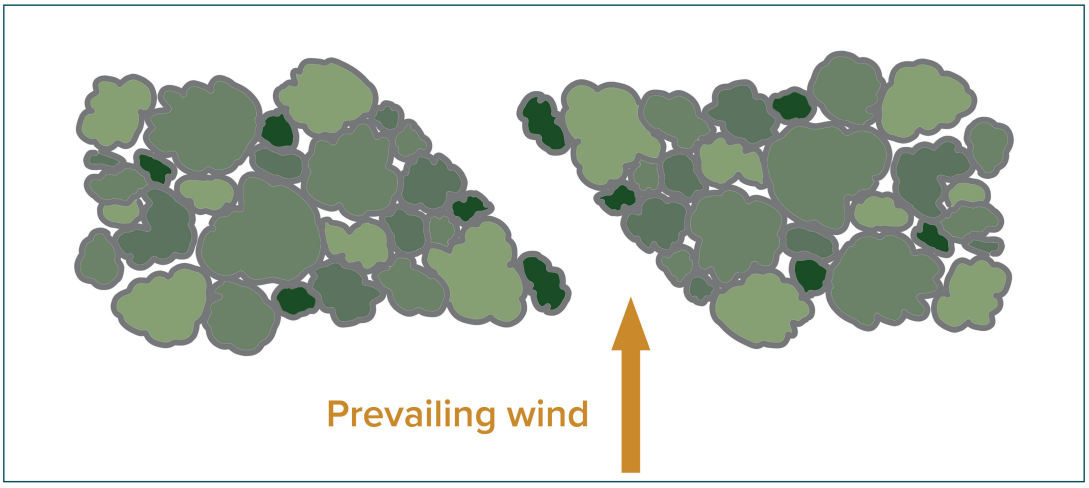

Figure 2. Plant shelterbelts at a 45 degree angle around gaps from gates and tracks to prevent wind funnelling.

7. Choose local native species

Native plants are adapted to Kangaroo Island's soils and climate, reducing maintenance once established. They provide habitat for pollinators and beneficial insects. The Kangaroo Island Native Plant Nursery can advise on species selection suited to your soil and location.

8. Source and plant seedlings correctly

Order seedlings early from the Kangaroo Island Native Plant Nursery, which supplies plants grown from local seed. Plant in autumn or early winter. Use guards to protect young plants and mulch to retain moisture.

9. Maintain and manage your shelterbelt

Weed control during the first two years is essential. Maintain fencing to exclude stock. Replace missing plants promptly and prune to encourage dense, even shelter. Regular maintenance keeps belts effective and healthy for decades.

10. Paddock trees are valuable too

Paddock trees provide shade for livestock, habitat for native wildlife and insects, including pollinators, and can enhance soil health. Protecting existing and planting new paddock trees is important too.

More information

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