

Tree belts for shade and shelter on an irrigated dairy farm

Mick Farrant, Gunbower, northern Victoria

This Case Study has been developed as part of the *Profitable Dairying in a Carbon Constrained Future* project.

It is one in a series of resources developed to profile practices that profitably reduce greenhouse gas emissions from dairy farm systems, embedded in the context of every-day farm management decisions.

The Australian dairy industry has committed to reducing greenhouse gas emissions intensity.

Shelterbelts can enhance productivity on farm by keeping cows comfortable and allowing them to put their energy into milk production. They also provide opportunity for sequestration of carbon on farm and consequently contribute to the efforts of reducing emissions on dairy farms.

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History of Gunbower

Mick Farrant's 150 hectare irrigated dairy farm at Gunbower in northern Victoria has been planted out with around 14,000 trees, covering 3% of the farm's total area. Tree belts were planted progressively by Mick and family members over six years, the first planting were done in 2005.

Mick recalls the property in the nineteen eighties saying, "You could stand on the back porch of the house and see stock wherever they were on the farm. In summer it was like an oven. I love the fact that you now have to go into a paddock to see the stock. It's like living in the bush."

"With the tree belts, the farm is much cooler in summer and also warmer in winter because we don't get the cold winds. The cattle are that much happier, and because the paddocks are not wind swept, we are getting better pasture growth."

Tree belt design

Width, Spacing and Fencing

Mick believes that four metres is the ideal width for tree belts on his farm. This allows for three rows of vegetation. Seedlings are planted 2 metres apart, and all shelterbelts are

protected with a four wire fence – two powered and two plain.

Mick says "Economics rule on a dairy farm. You don't want to use up too much land with tree belts. Four metres is enough. You don't need any more. Plant the trees close. If one dies, that's fine. But it will never get the opportunity to die or grow if it's not in the ground!"



Photo: Aerial view of farm showing tree belts between irrigated paddocks



Photo: Mick Farrant at a tree belt that is now 8 year old. Note the three layers of vegetation offering a dense shelterbelt and basic fencing.



Plant species

Mick prefers to plant three storeys of plants in each tree belt – tall trees, smaller trees and shrubs.

- > For the overstorey of tall trees, Mick prefers Red Gum (*Eucalyptus camaldulensis*) and Black Box (*Eucalyptus largiflorens*) which are both indigenous to the area, and Swamp Yate (*Eucalyptus occidentalis*) which is native to WA but widely planted in the drier areas of Victoria, SA and central southern NSW. In dryland areas, Mick prefers to plant more black box and fewer gums
- > For the dense understorey of smaller trees, Mick likes long-lived wattles and melaleucas, and also bottle-brushes to add colour and attract more small birds
- > For shrubs, Mick prefers Gold Dust Wattle (*Acacia acinacea*), Nitre Goosefoot (*Chenopodium nitraticeum*), Old Man Saltbush (*Atriplex nummularia*) and other salt bush varieties.

“Putting trees in is as important as applying fertilizer.”

Planting method

Special attention is given to how the ground is prepared and to planting technique.

“Most seedlings that die do so within the first couple of days after planting because air has got to their roots”, he said.

The Farrants have achieved good survival rates by:

- > Breaking the soil up into fine particles - deep ripping, discing and a rotary hoe are used
- > Checking to ensure that seedlings have healthy, straight roots
- > Using cartons as tree guards to

- protect the plant in the early days
- > Pushing soil up around the base of each milk carton to close over any cracks
- > Watering seedlings in well, in irrigated paddocks, banks are formed along either side of the tree bay
- > Controlling hares - the pests that do the most damage to young trees on the Farrant's farm.

Mick finds that autumn and spring are too busy to fit in tree planting so planting is done in November and December.

Productivity benefits of shelterbelts

Boosting the farm's productivity, and making it a better place for his stock and those who work on the farm is Mick's primary motivation for planting trees.

“I don't care about the grass growth I lose just next to the tree belt because the pasture further out in the paddock is twice as good as it would be without it. My paddocks are much more comfortable places for stock to be in summer and in winter. That's the gain.”

Having now planted over 40,000 trees on his three dairy properties near Gunbower and Cohuna, Mick has seen that productive farming and greening the landscape go very much hand in hand.

“It's a win-win”, he said. Mick is also pleased to hear from real estate agents that tree belts add to the capital value of farms and make them easier to sell.

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Mick's management tips

Getting started is the toughest part. It is best to start small on some unused land. He suggests that farmers get started on an unused or unproductive part of the farm.

“If it would look better with trees in it, have a go and whack some in. You're going to make mistakes, but that's OK”.

The best time to set up shelter belts on a flood irrigation farm is when paddocks are being re-lasered, a pipe and riser system is being installed or the farm layout altered.

Put tree planting in your annual budget.

“I've seen enough of the benefits now to say that it's that important that we must budget for it, even when times are tough. Putting trees in is as important as applying fertilizer.”



Photo: Mick has planted narrow tree belts along many of his laneways to provide shade and shelter to stock.

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