

Silvopasture Science at Kantaka Station

Jamie and Sigrid Peters and their two boys Zander and Gus run Kantaka Station near Gin Gin. On their 3394 hectare property, they focus on breeding and selling weaners. At present, they run around 400 breeders of mainly Brahman, Red Brangus and Charolais cattle plus 250 heifers using a rotational grazing system. With the use of regenerative grazing principles and grazing charts, they know exactly when to move cattle to different paddocks to make the best use of their pasture and to rest their country for long term pasture health.



The family has always had an interest in combining the management of timber on the property with the cattle business, as the two activities complement each other and provide a range of opportunities for farm outputs. Kantaka Station is ideal for timber production as it has naturally occurring spotted gum (*Corymbia citriodora* subsp. *variegata*) and ironbark (*Eucalyptus crebra*) native forest, which are valuable commercial timber species.



Jamie Peters at Kantaka Station

Silvopastural Trials

Silvopasture (from Latin *silva* 'forest, wood') is the practice of integrating trees, pasture and stock in a mutually beneficial way. A recent Producer Demonstration Site project initiated by Meat and Livestock Australia (MLA) and the Queensland Department of Agriculture and

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Fisheries (DAF) aimed to measure the impact of managing tree density on beef and timber productivity, and to showcase the opportunities of integrating pasture and sustainably managed native forests. The benefit of forest density management (thinning) is to allow the better trees in any given area to access the available light, water and nutrients to grow faster. In addition, pasture cover is typically increased as shading is reduced.

The Peters family was keen to become involved in the silvopastoral trials to learn new techniques for improving the management of their land and stock. They had previously completed 'Grazing for Profit' and other cattle-related courses and anticipated that their involvement in the silvopastoral trials would assist them in better managing their timber resource. They also wanted to share the results of the trials to demonstration to others how timber and cattle can be managed together.

At Kantaka Station, plots were established with two different forest treatments: thinned and unthinned. In the thinned areas, the trees with the highest potential to produce timber products (commercial species, straight, with minimal damage or branching) were selected and retained, and other trees were removed. In remnant vegetation (Category B) areas, habitat trees and recruitment habitat trees were retained according to state legislation. In the unthinned areas, no trees were removed. The average initial stand density without thinning was 350 stems/ha, with some plots containing over 600 stems/ha. After thinning, this was reduced to around 75 stems/ha.



Thinned plot, with commercial trees retained.

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The pasture in the demonstration plots also had two treatments: native and improved pasture. The native pasture consisted mainly of black spear grass (*Heteropogon contortus*), red natal (*Melinis repens*), golden beard grass (*Chrysopogon fallax*), wiregrass (*Aristida latifolia*) and various herbaceous plants and weed species. The improved pasture was planted with a mixture of pasture grasses and legumes: signal grass (*Urochloa decumbens*), Rhodes grass (*Chloris gayana*), shrubby stylo (*Stylosanthes scabra*), siratro (*Macroptilium tropurpureum*), Caribbean stylo (*Stylosanthes hamata*) and fine stem stylo (*Stylosanthes guianensis* var. *intermedia*).

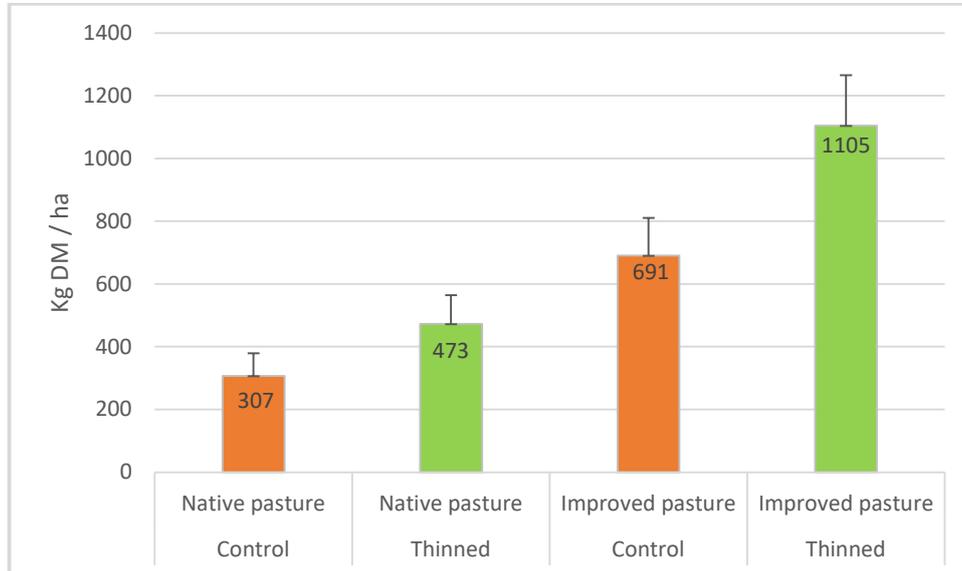
Table 1: Improved pasture mix

Pasture species	Cultivar	Seed type	% of mixture	Seed rate adjusted (kg/ha)	\$ / kg	\$ / ha
Signal grass	Basilisk	Uncoated	25%	1.4	14.5	20
Rhodes grass	Katambora	Coated	25%	5.8	10	58
Shrubby Stylo	Siran	Scarified	25%	1.3	19.5	25
Fine Stem Stylo		Raw	5%	0.5	20	10
Siratro	Aztec-atro	Uncoated	10%	1.3	30	38
Caribbean Stylo	Verano	Coated	10%	3.0	16.5	50
				13.2		200

Pasture assessments

In July 2022, 10 months after the trial began, there was three to four times more pasture in thinned areas with improved pasture compared to the control plots with native pasture under unthinned forest. The effect of managing tree density by thinning increased the native pasture dry matter by 54% and the improved pasture by 60%. Sowing improved pasture species as expected improved the mass of dry matter and from observation, the establishment of improved pasture was much easier in the plots that were thinned and where the ground had been disturbed more.

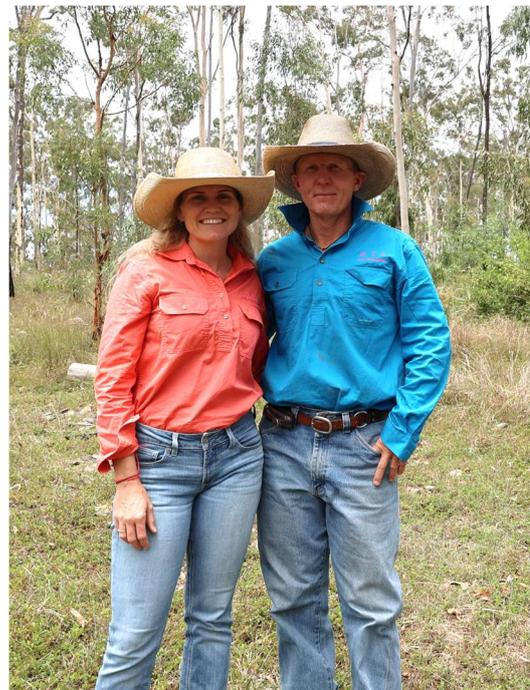
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Mass of pasture (kilos of dry matter per hectare) in four treatments: thinned and unthinned (control) forest and native and improved pasture species.

Jamie and Sigrid are very pleased with the results of the trial, which clearly demonstrated that managing the density of native forest and pasture species can have benefits for pasture production as well as timber production. In addition, the growth rate of the remaining trees would have increased in areas that had been thinned, although this is difficult to measure over the short period of the trial. Providing more space for the commercially valuable tree species with the best form increases the potential for timber income in future, while also improving the genetic base for future tree crops.

This aligns well with the Peters family’s goals, as long term thinking is part of their DNA. As Jamie says, “we want to see our kids and grandkids grow up here. We’re not just in it for the money - we want to look after and protect our land”.



Sigrid and Jamie Peters

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Cattle grazing under the trees in the silvopastoral system at Kantaka Station.