



CASE STUDY



BACKGROUND

Di Williams owns and operates a cattle property called 'Wanemya' located in Eungella. The property is 194 Ha of hilly country with steep slopes and an elevation of 800m. It has two permanent creeks which run into Broken River and backs onto parts of the Eungella National Park. A wildlife corridor also runs through the property. The soil type of the property is described as shallow and degraded clay/loam, with a pH of 5.7. Laboratory tests show that the soils are low in calcium, nitrogen, phosphorus, sulphur and molybdenum and high in magnesium, potassium, copper, manganese and boron.

Di has an interest in Forestry Practices and is passionate about growing trees. She was a Pruned Stand Certification Auditor through Australian Forest Growers (AFG) for a number of years. Di was also the secretary for the Mackay Whitsunday AFG branch for almost five years.

FOCUS ON



- ▶ Forestry is a long term investment with many unknown variables which can greatly impact on the success and commercial viability of a forestry plantation.

KEY POINTS



- ▶ 194 hectare property
- ▶ Known genetics and province are important factors when selecting seed stock.
- ▶ The risks and impacts from cyclone events are difficult to predict and manage.
- ▶ Of the 800 trees planted at the beginning of the project, 152 stems currently remain with only 54 of those thought to be potentially viable.

OTHER

- ▶ Di was a Pruned Stand Certification Auditor through Australian Forest Growers (AFG) for a number of years.
- ▶ Di is a member of the Forestry Regional Working Group.
- ▶ A Forestry field day will be hosted on Di's property in April 2017, providing a valuable platform for learning and discussion amongst the region's landholders.
- ▶ Demonstrating an established forestry plantation can provide valuable information and advice to Forestry growers, which is only available in later growth stages of a plantation.

OUTCOMES TO DATE



A number of assessments have been carried out on the forestry trial since its establishment in 2003. Records from 2007 show that the overall survival rate of the plantation was 86%. Only 2 species out of the 18 species planted either did not survive or had extremely poor survival rates and these were *Acacia melanoxylon* and *Flindersia brayleyana*. Other species such as *Melia azedarach*, *Eucalyptus tereticornis*, and *Eucalyptus robusta* were showing poor form throughout. *Melia azedarach* also had active tip moth and borer damage.

Although *Acacia melanoxylon* is native to the Eungella region, and there were many examples growing around the trial site, the ones planted in the trial were sourced from Tasmania. The Tasmanian *Acacia melanoxylon* looked very different to the local Eungella species and results show that they did not survive in the local conditions. It is also thought that the *Melia azedarach*, *Eucalyptus tereticornis*, and *Eucalyptus robusta* seed stock were also not from local species, which resulted in their poor form and growth. *Melia azedarach* endemic to Eungella have developed a resistance to active tip moth whereas the trees planted in the trial were extremely prone to active tip moth damage. This supports the theory that forestry growers need to source seed stock with known genetics and province. Seed stock needs to be sourced from trees which have already adapted and evolved to growing within the chosen location.

On 21 March 2010 Cyclone Ului (Cat 3) caused extensive damage to the forestry plot and surrounding environment. Many trees were uprooted, many more snapped off at 1-2 metre height; it has been postulated that the cleared stems with large canopy mass caused the tops to 'screw-off' the bases. Some trees had large splits in the bark and succumbed subsequently or when Cyclone Yasi (Cat 4-5) struck on 3rd February 2011. The losses from Cyclone Yasi in 2011 are more reflective of the damage caused in 2010 by Cyclone Ului rather than new damage, as Cyclone Yasi was significantly less destructive on the property than Cyclone Ului. A survival rate assessment after Cyclone Ului showed that only 351 stems remained out of the initial 800 that were planted in 2003. Out of the remaining 351 trees

only 123 were seen as viable. Due to the damage and associated costs resulting from the cyclones, little to no further work was done on the trial site.

A survival viability count was conducted on the 16 April 2016 to see how well the plantation had coped since the 2010 and 2011 cyclone events. The survey found that there were 152 remaining stems and only 54 of those were potentially viable.

The risks and impacts from cyclone events are difficult to predict and manage. North of the Tropic of Capricornia it is highly unlikely that you can guarantee 25-30 years of cyclone free seasons to enable a cabinet or construction timber forestry plot to reach its full potential. These factors need to be considered when looking into establishing a forestry plot.

WHAT'S HAPPENING?

In 2003, Di participated in a forestry trial and forestry plots were established on her Eungella property. The purpose of the trial was to investigate the following:

- if local native species could be grown as commercially viable timber species;
- if non local native species which were known timber species could be grown at Eungella; and
- if exotic species could be grown at Eungella and if so then assess their commercial viability.

The trial design is a box plot design consisting of 47 plots. Species planted were categorised as optional species, meaning that they weren't native to the Eungella region, and core species, meaning that they were endemic to the area. The plot is surrounded on three sides by two rows of perimeter trees. The fourth side of the trial site, which is located against the wildlife corridor, is surrounded by one row of perimeter trees. Perimeter tree species included *Eucalyptus grandis* (Rose gum), *Eucalyptus resinifera*, (Red Mahogany) and *Grevillea robusta* (Silky Oak). These trees have not been included in the plot data as their role was designed to limit the impact of the surrounding environment on growth and survival rates of the plantation species. In total there were 266 perimeter trees, 440 core species trees and 360 optional species trees planted.

The trial site is approximately 1Ha in size. Factors which influenced the location of the trial site included soil quality, slope and protection from surrounding vegetation. However, the site is exposed to the prevailing South-Easterly winds. Prior to planting the site was ripped several times to a very fine tilth.



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