CASE STUDY

BACKGROUND

Max McFarlane has a sugarcane farm located near Bloomsbury on the O'Connell River. He has a marginal area of land which is not viable for growing sugarcane, approximately 0.5 Ha in size and adjacent to the O'Connell. Recent soil tests have indicated that the soil type of this land is a sandy, stony, multi-layered, recent alluvial soil that has formed on the active levee of the O'Connell River. Max has established a Farm Forestry trial to investigate the potential to grow hardwood timber species on this land type. Prior to the establishment of this trial, Max managed the area by regularly slashing the grass cover. Immediately beside the trial site, Max has completed a Systems Repair project (funded by the Australian Government) on the O'Connell River with riparian re-vegetation to assist in stream bank stabilisation.

FOCUS ON

- Returning marginal areas of land to a productive use
- Increase in biodiversity outcomes
- Potential alternative income stream
- Improved on-farm aesthetics.

KEY POINTS

- Max has previously been involved in a Systems Repair project along the O'Connell River, which was supported with funding from the Australian Government.
- A Forestry field day was hosted at Max's property in 2016, providing a valuable platform for our region's landholders to discuss and learn more about farm forestry.
- Areas of marginal sugarcane land are often unproductive for cane due to soil type or high rock content. These areas regularly produce lower yields compared to the rest of the farm and also cause damage to harvesting equipment, which can be a huge cost. Farm forestry may be a viable option to utilise these areas. Max's farm forestry trial is proving to be a valuable learning tool for other prospective foresters in the region.

"The land the trial is set up on was not suitable for growing cane as it was rocky and wasn't the right soil type. I still had to maintain it by slashing to reduce weeds and grass growing and getting out of hand. I saw the trial as an opportunity so I jumped on board and planted the trees and so far it has been going very well."

OUTCOMES TO DATE

Initial monitoring requirements looked at species survival (and then with time), monitoring of growth rates, including height and diameter. Other parameters monitored include form and susceptibilities (insect damage and pathogen attack) that can impact on timber quality and future harvesting. Surveys and assessments of the trial plots have been conducted by a qualified and experienced local silviculturist.

The first survival count was completed on 28 May 2016. The results showed that there was a 93% survival rate for the first 12 months after establishment, which was a positive outcome.

The second survey of the site was carried out on 18 April 2017. This survey reassessed survival rates and also noted form and growth rates. Inspection of the forestry plot found that there was an 83% survival rate from establishment, which is a decline from the previous year. Many trees have poor form and slow to average growth rates. The Corymbia citriodora ssp. variegate, Corymbia citriodora ssp. citriodora and some of the Eucalyptus raveretiana have sustained heavy insect damage from both leaf eating caterpillars and borers and many of these trees appear to be struggling to survive. The Eucalyptus cloeziana (Northern and Southern provenances) appeared to be doing the best in the plantation, having good form and growth rates and good canopy cover. However, Cyclone Debbie has impacted many of these trees with damage to the plantation including wind burn and trees leaning or completely blown over.

The plantation has very little protection because the majority of the guard trees that were planted have died. The trial utilised a surplus supply of Eucalyptus raveretiana, Corymbia citriodora ssp. variegate, and Corymbia citriodora ssp. citriodora as guard trees and they were planted in the same rows and spacing as the trial plots. It has been suggested that the wrong species were planted for the guard trees and the dead trees should now be removed and replaced with more suitable species that are also fast growing. The guard trees should also be planted closer together to almost form a thick vegetative belt to protect the plantation from the prevailing winds.

Weeds such as siratro (Macroptilium atropurpureum) have been an issue in the last 12 months, growing up and smothering some of the trees. Glyphosate was used in December 2016 to control the siratro and other weeds growing in the inter-rows and around the trees. Spray drift from this activity may have contributed to the death of some of the trees in the plantation if it was not applied in accordance to best practices. Glyphosate can be used in forestry plots as long as it is used as per the label and under the right climatic conditions, i.e. not on a windy day. Protecting the trees with a shroud when spraying will also help prevent tree fatalities from drift spray. This is particularly important when using glyphosate around young, smaller trees.

This site is proving to be a valuable demonstration of the challenges in establishing a farm forestry plot in the Mackay Whitsunday Isaac region. While some trial species are proving to be more successful than others, the results are still preliminary and it is too early to predict how the selected species will persist in the long term.

WHAT'S HAPPENING?

Max McFarlanes forestry trial aims to demonstrate new innovations for forestry management and production in the Mackay, Whitsunday and Isaac Regions. This particular trial - investigates the potential to grow hardwood timber species on areas of marginal sugarcane land where the soil type is not viable for either growing sugarcane or harvesting, due to high rock content. The trial compares six hardwood timber species sourced from northern areas. The selected species have been chosen for their wind tolerance and suitability to the trial location. The trial also compares new forestry timbers that have not been previously grown in this region.

The timber species selected for this trial include Eucalyptus raveretiana, Eucalyptus longistrata, Corymbia citriodora ssp. variegate, Corymbia citriodora ssp. citriodora, Eucalyptus cloeziana (Northern and Southern provenances).

The trial design is a randomised block design of the six species with two replications. There are 12 plots in total with 15 trees per plot. Within each plot there are three rip lines, approximately 5m apart, with five trees planted 2.5m apart along each rip line. Site preparations, which included slashing, ripping and spraying, were carried out by the landholder. The 270 trees (including 180 timber trees and 90 guard trees) were planted by Reef Catchment Officers on the 22 April 2015. Ongoing maintenance has been carried out by Max and included irrigation in the first few months to help establish the trees, slashing the inter-rows and some weed management. Pioneer Catchment Landcare and the Regional Forestry Working Group have been involved with the trial since its commencement and continue to provide ongoing support and advice.

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Support for this project is provided by Reef Catchments, through funding from Australian Government Reef Programme water quality grants and the Queensland Government.