Gympie Messmate how does it shape up at 27 years old?

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Gympie Messmate (E. cloeziana) is one of the major hardwood plantation species being planted on wetter, well drained sites of south east Queensland. It generally performs well in plantation, maintaining good form and growth rates with potential to produce a range of products from poles and sawlogs through to fencing material. Messmate is not Lyctid susceptible, has a strength group rating of S2 and is of durability 1 classification. It also has high machining and finishing properties.

Gympie Messmate occurs naturally in relatively scattered locations up the east coast of Queensland from Cooroy to Gympie in the south; east of Tambo to Mundubbera and west of Rockampton in central Queensland and west and north of Townsville to inland from Cooktown in the north. Although it has a fairly wide distribution there is reasonable evidence that planted off site, (particularly lower rainfall sites) growth rates and form will be adversely effected with the propensity to form defect such as pipe and doze over time, rising exponentially as the site quality diminishes.

Figure 1. Overgrown branch with ingrown bark resulting in a major structural defect

I have recently harvested and milled (Lucas Mobile Mill) a number of messmate planted on my property 27 year ago, these trees were not in a plantation as such, but were in patches in a number of locations on the property. Generally the trees had achieved an average growth increment of 2cm+ diameter (dbh) per year and a height of 25-30 metres. The trees were never pruned but had generally occluded (grown over) branches from 6-12 metres above the ground depending on stocking (trees/ha) competition. As is typical of messmate there were dead branch stubs present, some of which had obviously grown over and were present as bumps.

The logs generally cut well but with varying degrees of tension. Tension is the growth stress that is present within a log. The growth stresses were unpredictable as there were no obvious indicators such as location or tree form. Trees from protected sites sometimes had a much higher degree of tension than exposed trees. Conversely, the same could be said for trees from a high stocking area compared to a low stocked area. This unpredictability always created a headache deciding on the sawing pattern in an attempt to reduce bow and spring considering the cutting limitations of a mobile mill.

Once the logs were opened up, a number of other problems sometimes presented themselves. Old branches were the worst defect with associated enclosed bark causing major structural defects. F14 structural timbers must be sawn without containing enclosed bark as the bark results in a fracture point which may result in service failure.

Exposed dead stubs were also a problem, often being associated with doze (soft rot) as the stub began to breakdown. In a number of cases this had begun to spread into the centre of the tree. This demonstrated the absolute requirement for pruning in a messmate plantation when the stem is less then 100mm in
diameter. It also demonstrates the potential downgrade (loss of up to 50% of the merchantable sawlog volume) that may be associated with any log not pruned above the six metre mark. In the process of sawing these logs, the level of downgrade confirmed the necessity to prune the messmate in my 5 year old plantation. Pruning for optimal product recovery to a minimum of 10 metres in height may be necessary in order to achieve a potential 15.5m poles (If this product is your primary product goal). Poles will fail the Australian pole standards if a defect of this magnitude is present.

Figure 2. Branch stub with associated ingrown bark, this sometimes resulted in the development of doze that would travel into the centre of the log

Holes from the larvae of the **Giant Wood Moth** *Endoxyla cinereus* also caused significant defect. Some trees were definitely more susceptible then others with multiple holes causing structural downgrading of the sawn timber and further dropping in sawn recovery rate (the percentage of docked and graded sawn timber recovered from a log, generally between 30 - 45 %).

There were many positives, the heartwood was generally very straight and confined and resulted in minimum loss from associated heart encroachment. The sawn wood was clean and did not developed cell collapse or cracks as a consequence to drying. The timber worked well in accepting framing nails without splitting.

Figure 3. Some of the sawn timber in a car port still at the framing stage

The purpose of the sawing project was three fold.

· Remove trees that appeared to be developing defect
· To generate timber to enable me to build a carport and other projects.
· Test the limitations of mobile milling with unpredictable log stress levels.

In this context, the objective was well achieved with some significant learning's along the way, such as the confirmation of the need for pruning to above the currently recommended height of 6 m. In addition, the removal of trees which are developing defect and declining in quality at a rapid rate which was surprising given the trees were only 27 years old.