DIFFERENTIAL STAINING OF JARRAH GROWTH RINGS

by G.L. Airey

Most observers will agree that Jarrah growth rings in freshly cut or dried specimens, often lack clarity. This is due to the general sameness of colour in dense and light wood, and often to the narrowness of growth rings. Some minor features such as the orientation of pores, are of assistance in identifying growth rings, but these are usually examined with a hand lens. This is a time consuming and altogether unsatisfactory process, particularly where large numbers of rings have to be identified and measured in stem snalysis.

Why should one wish to identify individual growth rings? Use of ring analysis as an aid to management has been recognised for many years, but to date, general use has not been made of ring analysis in gaining data on Jarrah growth rates. One good reason for not having done so is the lack of a satisfactory technique.

A suitable technique,will, no doubt, be evolved given time, but meanwhile, some use of ring analysis has recently been made in determination of response to pole stand thinning. The particular method used in this study was to compare the growth rates of 0.1 acre plots on adjacent thinned and unthinned stands. All stems were fallen and rings analysed at breast height. It was during this study the differential staining of growth rings was achieved by complete accident.

As a precaution against drying checks, the cut samples were stored in tanks of water prior to ring analysis. The period of storage varied up to six weeks, the samples being removed from the tank as required for reading at roughly weekly intervals. All samples were dried and sanded to a fine surface, and without exception, it was found that differential staining of light and dense wood had taken place. This meant that each growth ring could be relatively easily recognised. The dense wood was far darker than that on untreated specimens, but the light wood appeared to have remained relatively unaltered by the staining.

It is thought that the staining mechanism derives from dissolved iron in the Dwellingup water, which reacts with tannins in the wood. The colouration resulting is blue black, similar to the dyeing effect seen when an axe is sunk into a Jarrah stem. The reason for staining being darker in the dense wood could be bound up with tannin distribution or could be due to the lack of pores. Pores are more numerous in the light wood and would break up the surface so much that the light wood must appear less affected by the stain. In the meantime, detailed investigations are being made to determine whether dissolved iron is the cause of staining and, if it is, to find less haphazard methods of achieving the effect.

A little speculation before closing this item. The problem which applies to ring analysis in Jarrah also applies to many other Eucalypts. Already it has been observed that Mrri, (E. calophylla) responds to the same treatment, and it may be that this stain can be applied to other Eucalypts and, perhaps, to other species.

Finally, what good will such a staining technique achieve if it can be readily duplicated? It may help in producing a ring analysis technique which Management and Working Plans personnel could use. They could obtain growth rate information in a fraction of the time normally required for our slow growing Hardwood species.

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