SOME NOTES ON PINE BIN LOADS

By A. Kesners

The volume of short length pine logs obtained from first or second thinnings for use in departmental sawmills or for sale to private mills as a rule is not obtained by measuring all logs individually as set out in the provisions of the Forests Act and Regulations governing the procedure and method of measuring logs. A lot of time and money would be spent if each log had to be measured, numbered and recorded separately. Therefore, for the purpose of calculating -

Piecework fallers' pays

The intake of departmental pine mills

Revenue of pine log sales to private mills, etc.,

the volume of these logs is assessed by the "bin load" over bark.

There is no legislation covering the procedure and method of measuring and recording the dimensions and volume of such logs in this State and, to my knowledge, no detailed departmental instructions have been issued with a view to standardising this procedure. No doubt, the particular circumstances, species, available trucks and loading methods etc., would vary from plantation to plantation, and these factors would have to be taken into consideration to suit the requirements in each case when establishing bin measures. The following notes refer to P. radiata logs from Grimwade plantation carting 7 ft. logs with a minimum 4" crown diameter for the local departmental pine mill and to a private mill near Balingup.

One of the factors which had to be considered before fixing permanent bin loads was to decide on the most suitable type of vehicle to be used. The 5 ton truck was found to be suited best for this purpose being low enough for manual loading, short enough to manoeuvre between rows of pine trees, and with a maximum holding capacity for a quantity of logs which a pair of fallers can fall, load and deliver in approximately half a day.

Four different 5 ton trucks have been used at Grimwade to cart pine logs in bin loads, and the aim in each case was to fix a bin which would contain the maximum permissible weight (and most economical pay load) of the vehicle, i.e. 5 tons at approximately 25 cwt. per load = 4 loads in the round. Depending on the lengths of the loading space of the four different vehicles, which varies from 13'1" to 14' 10", the height of the bins was fixed at between 2'8" and 3' 0" for 7 ft. logs. These figures were established in a series of experiments by measuring all logs individually.

As a result of these measurements, it was found that on the average the "gross volume" (G.V.) in relation to the "nett volume" (N.V.) was found to be:

$$G.V. = \frac{138}{100} N.V.$$

OR

$$N.V. = \frac{72.5}{100} G.V.$$

For the purpose of these calculations all logs were measured by taking their O.B. centre girth. This, of course,

involved a fair amount of handling and measuring, and in order to find a method by which this work could be minimized, some "on the side" experiments were carried out by measuring the end of the same logs on a loaded vehicle with a rule. Since there is no uniformity in loading all butt ends on the one side and crown ends on the other, each side of the bin was measured separately. The results of these measurements showed considerable variation in the volume of the measured logs, the end measurements in each case resulting in a smaller volume. This method, therefore, was discarded as unreliable. A typical nett volume comparison between the centre girth (C.G.) and both ends (E_1 and E_2) measuring methods of the same bin load is:

C.G.	=	100%
E_1	=	96%
E_2	=	90%

It was further found that the nett volume of a bin load will vary with the number of logs in the bin, i.e. the size of logs. An increasing number of logs will cause the nett volume of the bin to decrease and vice versa. The upper and lower limits of this variation have been checked within approximately 10%. For practical purposes, however, it was considered unnecessarily complicatedto introduce a fixed formulae to relate the volume of the bin load to the number of logs it contains. For a basis in fixing the above-mentioned bin sizes a relatively average number (80 - 90) of logs in a bin was therefore used. In practice, when checking the level of a bin load containing a large number of small logs, we insist on a "full" measure, and will pass a "hungry" bin if it contains larger logs. Check measurements have proved this method to be quite sound, and with some experience an officer will soon find himself to be able to even estimate the volume of a bin load reasonably accurately at a glance.

The above notes apply only to millable P. radiata logs within the 4" - 12" diameter class where the contents are assessed by volume. Abnormally large logs from late second and subsequent thinnings not loaded to conform to a regular bin are measured individually in each case.

It would be interesting to compare this data from Grimwade with other plantations.

It also raises the question as to whether consideration should be given to amend existing legislation to provide for procedure covering the method of assessing and recording the volume of exotic species logs obtained from early thinnings. As the Forests Act stands (Regulation 60), each log - no matter how small - should be branded, numbered, measured (underbark) and recorded.

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