

## IMPROVED HARVESTING METHODS

## EQUIPMENT SURVEY NOTES

TRANSPORTATION AND HANDLING OF WHOLE TREES

Logging practices have progressed from the handling and transportation of short logs to long logs and, more recently, tree-length logs. There is considerable interest now in whole-tree logging practices. Although a few experimental operations have been conducted in the United States, this practice is not yet accepted as it is in Russia. Information and experience from these operations may be useful in judging their adaptability to other areas where softwoods occur.

The Kakmozh forest enterprise<sup>1</sup> changed over to a whole-tree logging operation and reduced its workforce by 18 to 20 laborers from 5 places in the woods. This means a saving of about 4 men per woods crew. After the changeover is completed for all crews, the reduction in woods labor is expected to be from 50 to 60 men.

Loading of the trees reportedly differs little from loading of logs. Selection of bunk logs is less of a problem, since the limbs help to bind and secure the logs. After the trees are loaded, protruding branches are cut and put on top of the load. The average trailer load of logs before changing over was 15.5 cubic meters (547 cubic feet or 2,737 board feet).<sup>2</sup> With whole-tree logging, the loads average 15.2 cubic meters (537 cubic feet, or 2,684 board-feet).<sup>2</sup> This does not include the volume in branches and tops, so that in reality the wood volume is greater.

In changing over to whole-tree logging, it was necessary to change the arrangement of the landing at the delivery point. Unloaded trees are pulled on to a platform by a cable and winch. One operator is used for unloading and winching in the trees. After 2 or 3 trees are trimmed, the limbs are gathered and placed on a pallet suspended from rollers on a cable above the trimming platform. Loads of limbs are then moved along the cable to a chipper. Available information does not indicate

<sup>1</sup>—Pervuhin, V. and Loshmanov, I. Lesnaya Promyshlennost (Forest Industry) No. 11, p. 15, 1957.

<sup>2</sup>—U. S. Dept. Agr. Converting Factors and Tables of Equivalents Used in Forestry. Misc. Pub. 225, 1949.

whether the cable is circuitous and continuous or whether a single pallet is pushed over and back. In the absence of a chipper, the same system can be used with a burner or dump.

Chips are conveyed to railroad cars and shipped to a factory, where they are used as gas-generator fuel. The cost of shipping chips in a railroad car is about 32 rubles or approximately \$8 per cubic meter (35.3 cubic feet). Market value is about 27 percent above production cost.

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