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Determination of the Mechanization Level For Forestry Operations by Linear Programming

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Abstract: Forestry operations take place under various variables and partly uncontrolled factors. The lack of mechanization level and its application cause quantity and quality losses during production. In this study, seven different production methods were used for felling, logging and barking to determine the best of production method for the Kale region. Seven different models were set up and solved by linear programming for this purpose. Each of these solutions were used with different production methods. Model 1 had the lowest production cost (290779.5) in the other models and production method 6 was chosen in this model. Thus, felling, logging and barking costs per m³ were found to be 3.75. Furthermore, 1 forest worker, 2 operators concerned with 1 chain saw, 1 processor and 1 rotary ring barker were found to be necessary for the production operations in the region. Machine and human power resources were supplied more rationally by the use of linear programming for minimization of felling, logging and barking costs. By this way, place and time, level of mechanization are determined. However, partial mechanization plans were made.

Key Words: Level of Mechanization, Linear Programming, Forestry Production Operations, Kale Region.

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