

Optimum tree-stem bucking of Brutian Pine (*Pinus brutia*) Trees in Antalya, Turkey

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In producing forest products, it is essential to buck trees into high quality logs with maximum value. Performing bucking in an optimum way is an important factor to increase value in timber production. Computer-assisted methods using modern optimization techniques (i.e. network analysis, dynamic programming, and heuristic techniques) can provide the forest engineers with an optimum solution for bucking problems by quickly evaluating large number of bucking combinations for a single tree. In this study, stem-level optimum bucking algorithm was developed and implemented during a selective cutting of Brutian Pine (*Pinus brutia*) stands in the city of Antalya in Mediterranean region of Turkey. Dynamic programming (DP) method was used to develop the algorithm written with Microsoft Visual Basic (VB) Version 6.3 programming language. The results from the application indicated that using optimum bucking method increased the potential gross value and volume of the harvested trees by 10-15% and 5-9%, respectively, comparing with the traditional bucking method.

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