

# **Calculation of the Value which Forest Land and Immature Stands Possess for Forestry under the generalized Faustmann formula**

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As timberland investors seek higher returns on their investments and turn over their forest holdings more frequently, the bare land value of timberland at the beginning and the end of a rotation often could be dramatically different. The generalized Faustmann formula was developed to accommodate such situations and determine the value of the bare land at the beginning of a rotation. In this paper, the formula for determining the value of the land any time between the beginning and the end of a rotation is developed. In addition, the forest value formula under the generalized Faustmann formula is developed. It is further shown that the income approach and the cost approach arrive at exactly the same forest value both mathematically and numerically. Numerical example shows that the value of the land is increasing at a progressively higher rate from the beginning to the end of the rotation, contrary to the common practice of using a constant rate of appreciation to approximate the value of the land. The approximation method will cause an over-valuation of the land value and thus an under-valuation of the standing timber. As a result of this under-valuation, when the timber is harvested, tax over-payment will occur.

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