

**RUN OFF AND EROSION RATES AT  
MULTIPLE CROPPING PINE, RICE, AND CASSAVA  
IN KPH BANYUMAS TIMUR**

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**ABSTRACT**

Forestry development in Indonesia must accommodate all people's needs and make sustainable forest yied. Multiple cropping is one off the effective alternative to make timber estate in Java. The objectives of this research are to study the the effect of rainfall characteristics on run off and erosion rates and to study the effect of run off on erosion in multiple cropping pine, rice and cassava.

This research consisted of library, field study and laboratory researches. The field research was carried out in January until February 2000. Two small plots of 22 x 4 m was established in the field. Both plots consisted of pine & rice with same spacing. First plot consisted of cassava with 1 x 1,5 m spacing and second plot consisted of cassava with 1 x 1 m spacing. The data taken from the field were rainfall depth ( $x_1$ ), rainfall duration ( $x_2$ ), run off ( $Y_1$ ) and erosion ( $Y_2$ ).

Research result showed that rainfall depth effected on run off and erosion rates for both plots. Rainfall duration effected on run off and erosion rates only in plot II (cassava with 1 x 1 m spacing). The regression analysis resulted:  $Y_{1.1} = -9.489,87 + 3.287,16x_1$  (cassava with 1 x 1,5 m spacing);  $Y_{1.2} = -2.955,62 + 3.600,12x_1 - 80,96x_2$  (cassava with 1 x 1m spacing);  $Y_{2.1} = -1.683,92 + 434,69x_1$  (cassava with 1 x 1,5 m spacing);  $Y_{2.2} = -111,7 + 141,15x_1 - 4,26x_2$  (cassava with 1 x 1m spacing);  $Y_{2.1} = -725,05 + 0,151Y_{1.1}$  (cassava with 1 x 1,5 m spacing); &  $Y_{2.2} = -132,88 + 0,04Y_{1.2}$  (cassava with 1 x 1m spacing). All of the regression analysis resulted in this research only used in small until normal rainfall intensity. The t test analysis between run off and erosion rates at Plot I (cassava with 1 x 1,5 m spacing) and Plot II (cassava with 1 x 1m spacing) showed that there was non significant.

