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Sediment Delivery from Hillslope Cultivation in Northwest Vietnam

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Abstract : Cultivating on hillslopes in Northwest Vietnam induced soil erosion that reduce overall soil fertility, capacity of water bodies and drainage ditches or channels, and enhance the risk of flooding, even obstruct traffics and create 'mud flooding or landslide'. This study aimed at assessing the magnitude of erosion under maize monocropping and perennial teak plantation on a rainstorm basic over two years 2010-2011 using double sediment fences installed at convergent point of catchments (slope inclination of 27-74%). Mean annual soil erosion under maize cultivation was 4.39 $kg.m^{-2}$, being far greater than that under teak plantation 1.65 $kg.m^{-2}$. Intensive tillage in maize monocropping and clearance of land before sowing was most probably the causes induced such effect as no tillage was performed in teak plantation during monitored period. Larger sediment generated across two land use types in year 2010 (4.11 $kg.m^{-2}$) compared to year 2011 (1.87 $kg.m^{-2}$) was attributed to higher amount and intensity of precipitation in the first year (1448 mm) as compared to the latter year (1299 mm). Reducing tillage and establishing good cover for maize monocropping on steep slopes, therefore, are necessary to reduce soil erosion and control sediment delivery to downstream.

Keywords : maize monocropping, teak plantation, tillage, sediment fence, sediment delivery, soil erosion
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