

ชื่อเรื่อง

Establishing Vetiver Hedges to Alleviate Soil Erosion in the Rubber-Replanting Area of Southern Thailand

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Abstract

A rapid increase in rubber plantation in southern Thailand, has lead to the movement of plantation area on marginal land, often steep land where the damage of soil erosion is great during heavy rainfall. To alleviate this impact, an experiment was established in a farmer's rubber-replanting area under traditional intercropping in Songkhla Province. Rubber seedlings are grown (spacing 3x7 m) on a highly erodible sandy loam soil on land with slope of 12%. A randomized block design was used with 5 treatments (1. sole cropping of rubbers or control, 2. establishing vetiver hedges between rows of rubbers (R+V), 3. rubbers intercropped with upland-rice (R+R), 4. establishing vetiver hedges between rows of rubbers intercropped with upland-rice (R+V+R) and 5. establishing vetiver hedges between rows of rubbers intercropped with *Pueraria phaseoloides* (R+V+P) in 3 replications. Total plots were 15, each plot (5x12 m) consisted of 4 rubber seedlings. During the experimental period (October-December 1993), there was heavy rainfall of 1061 mm. In the control treatment, amount of runoff (649.88 lit/m²) and eroded soil (3.40 t/ha) were highest, and they was a significant difference from the remaining treatments. There were no significant differences among the treatments of R+V, R+R, R+V+R and R+V+P. The highest percentage of the reduction of runoff and eroded soil occurred in the treatment of R+V+P, and they were 40% and 52%, respectively. Analysis of nitrogen (N), phosphorus (P) and potassium (K) in eroded soil, results showed that the removal of N and K were significantly highest in the control treatment. The results of the tests suggested that the occurrence of surface runoff during the rainy season should be counteracted by establishing vetiver hedges and adequate plant cover.