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論文名稱：臺灣中部地區紅壤土壤可蝕性因子之研究

英文論文名稱：A Study on Soil Erodibility of Red Earth from Central Taiwan

【中文摘要】

本研究採用台灣中部地區幾個具有代表性的紅壤來作人工模擬降雨試

驗，實際去測出其土壤可蝕性因子，同時並與目前通用的線解圖解法以及

幾何平均粒徑迴歸公式來做比較。實驗結果顯示： 1.線解圖解法與實

際實驗結果，有較高之相關性，明顯優於幾何平均粒徑解法。實際實驗得到 $K_{obs}=0.922K_{nom}$, $r=0.8505$ 2.幾何平均粒徑法僅就土壤質地

來考量，因此在過程上較不嚴謹。忽略了土壤本身的有機質含量、結構和滲透等因子。實際實驗得到 $K_{obs}=-0.7638K_{geo}+0.4778$,

$r=0.6326$ 3.運用人工模擬降雨設施來進行土壤可蝕性因子之研究，為一個有效之方式，若能根據歷年記錄在降雨強度以及降雨延時

上多方考量，當可得到更理想的結果。

【英文摘要】

The purpose of this experiment is using a rainfall simulator to predict the soil erodibility of several kinds of red earth from the central Taiwan. Nomograph and geometric mean particle diameter were also applied to estimate the soil erodibility. The results of the experiments are summarized as the following:

1. The soil erodibility (K_{nom}) estimated by the nomograph has highly correlated with the experimental result (K_{obs}). The relation between these two values is $K_{obs} = 0.922K_{nom}$, $r = 0.8505$.
2. Geometric mean particle diameter method only considers the soil texture. It doesn't concern the organic matter content, soil structure and profile permeability. The soil erodibility (K_{geo}) predicted by this method is not so reliable between experimental and predicted values is $K_{obs} = -0.7638K_{geo} + 0.4778$, $r = 0.6326$.
3. It's effective to predict soil erodibility by rainfall simulator. If we can collect more information to determine the rainfall intensity and the duration in the experiment, we would get a better result.