

ชื่อเรื่อง

**Hydraulic Characteristics of Vetiver Hedges: An Engineering Design
Approach to Flood Mitigation on a Cropped Flood Plain**

ชื่อผู้วิจัย

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Abstract

Although the Vetiver system has been used worldwide, few studies described the hydraulic characteristics of Vetiver hedges quantitatively. This paper describes the effectiveness of the Vetiver system in a quantitative hydraulic manner beyond the well documented anecdotal evidence.

The hydraulic characteristics of Vetiver hedges were first determined in a testing flume. From the data collected an empirical hydraulic relationship was developed between the depths and discharge. This relationship was used to calculate the maximum Vetiver grass hedge spacing required to control soil erosion on a flood plain.

From the model of flow through Vetiver hedges, design hedge spacings were selected for a field site in Queensland. The various catchment and farm characteristics were considered before a hedge spacing of 91.5 m was selected for the site. Six rows of Vetiver totalling over 3,000 m were planted on the contour at this spacing.

Flood discharges and depths and sediment movement are being monitored at this site to validate the above theory and quantification of Vetiver on the flood plain and to monitor the effectiveness of the hedges. Early results from a small flow over the site show that the hedges reduce significantly the depth and therefore energy of flow through the hedges. At a low depression, 7.25 tonnes of sediment was trapped.