

ABSTRACT

The amount of runoff is influenced by the slope of the soil, rainfall, and vegetation. The low runoff flow due to the flow of water through the vegetated surface, compared to open ground, the runoff flow is higher. This is because vegetated soils have better soil structure and more stable aggregates. Rivers are the main providers of clean water that rely on runoff. If the river bank erodes, it will have an impact on aspects of human life, namely the crisis of water resources and the possibility of flooding. So it is necessary to do conservation by using vegetation or ground cover plants. The formulation of the problem in this research is how the napier grass vegetation reduces surface runoff after varying the napier grass planting system on the riverbanks. This study aims to analyze how much surface runoff flow using the napier grass vegetation planting system and the effect of the napier grass vegetation planting system on surface runoff by varying the slope of the riverbanks. This research is an experimental type of research by modeling on a rainfall simulator and using several variations of the slope (10° , 20° and 30°) as well as the napier grass planting system, namely straight planting and zig-zag planting systems. The results of this study at each intensity and slope showed that there was a decrease in the runoff flow rate. On land without vegetation = 56,333 mm/second, straight cropping system = 54,000 mm/second, and zig-zag planting system = 52,833 mm/second. The final result of this study shows that the runoff flow rate in a zigzag cropping system is smaller than a straight cropping system. The effect of the napier grass vegetation planting system in reducing surface runoff that occurs, the density and planting layout will affect the length of the runoff path.

Keywords: runoff, slope, vegetation, napier grass.