ABSTRACT

IRRIGATION SYSTEM DESIGN BULK (SPRINKLER) TYPE CHALLANGGER

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The research objective of irrigation system design bulk (sprinkler) Challanger type is to analyze the hydraulics and pipeline network , determining the maximum length of the lateral pipelines and pipeline manifold . Determination of the number of nozzles and the maximum distance between the nozzle and the evaluation of pipeline network calculation with field data Results calculated water tank volume of 1.8 m^3 required by 198.798 watts and pump for watering the land area of 448m^2 for 1 hour watering. Lateral pipelines used diameter of 13 mm (0.5 inches) , used pipe manifold pipe diameter of 19 mm (0.75 inches). Nozzles are used with discharge nozzle type Challanger 0.03 l / sec , range outpouring of 4 meters. Research results outpouring range at 1 bar pressure is equal to 2,69 meters farthest. Outpouring of research results at a pressure range of 1 bar furthest in the amount of 2.69 meters , a low of 2.20 meters so far. Jangakauan drink at a pressure of 1.5 bar farthest that is equal to 3.19 meters and 2.44 meters of the lowest so far. Outpouring discharge at a pressure of 1 bar high of 0,016 liters / sec. And the outpouring of the lowest discharge is equal to 0.012 liters / . At a pressure of 1.5 bar discharge largest outpouring ie 0,021 liters / sec , while the lowest is equal 0,014liter / sec. Suggestions from this study for irrigation Challanger to produce an outpouring of the maximum distance between the lateral 6 meters , and the. distance between the sprinkler 3 meters. Uniformity coefficient at a pressure of 1 bar was 82.9 % . As for the pressure of 1.5 bar are able to produce uniformity coefficient is equal to 93.7 % .

Keywords : irrigation bulk , bulk irrigation system , irrigation discharge range and bulk