

## ABSTRACT

Coffee is one of the plantation commodities with high economic value among other plantation crops and play an important role as a source of foreign exchange for the country. Infiltration rate data can be used to estimate the presence of surface run off. It appears when a plant gets a certain amount of water through rainfall on the ground surface. A problem that often occurs in coffee plantations is the presence of surface run off which causes erosion from rainwater falling on the ground surface. This research was conducted on community-owned coffee plantation in permata District, Bener Meriah Regency from January to February 2024. The method used in this study is a survey method consisting of four stages, namely preparation, pre-survey, survey, data analysis, and presentation of results. Measurement of infiltration rates in the field was carried out using a double-ring infiltrometer. The results of measurements and data analysis at 12 points or 3 plant ages and 4 slopes that the infiltration rate ranges from 1,9-12 cm/hour. The highest infiltration rate was found in coffee plants that were 5 years old with a slope of 0-8%, 12 cm/hour. The lowest infiltration rate was found in 10 years old plant with a slope of 16-25%, which was 1,9 cm/hour, soil permeability 1,43-2,53 cm/hour, porosity 49,23-50,77%, bulk density 1,28-1,32 g/cm<sup>3</sup>. actions can be done to increase the infiltration rate in 5, 10, 15, year old plants, and slopes of 0-8%, 9-15%, 16-25%, 26-40% by implementing vegetative conservation methods and making bench terraces. The reason is that vegetative conservation is the use of plant, plant parts, or plant remains to reduce the impact of rainwater, reduce the amount and speed of surface flow, and improve soil infiltration capacity, one of which is by arranging plating patterns and adding appropriate vegetation to improve land conditions.

**Keywords:** Infiltration Rate, Coffee Plantations, Survey Methods.