

## **Determination of water requirement in a paddy field at Seberang Perak rice cultivation area**

### **ABSTRACT**

Malaysia experiences water shortages as a result of a combination of drought, urbanisation and pollution. [1]. There are regions of water stress mainly due to low water resources supply, high demands, large agriculture area with consumes a large portion of available water, rapid industrialisation and increasing population and peak irrigation demand during the dry season. The distribution of the rainfall in time and space has resulted in limited availability of water of acceptable quantity for water supplies in some parts of the country [2]. More than 80% of the freshwater resources developed in Asia, are used for irrigation. Of this, more than 90% of the total irrigation water is used for rice production [3]. Water requirement is important in cultivation practices of rice involve water being supplied to the paddy fields before the planting activities begin. This study was carried out to determine the total water requirement needed for 1.82 hectares of paddy field in Seberang Perak rice cultivation area. Water is supply continuously until about 10 days before harvesting. Water is required to bring the fields to saturation, and to establish a layer of water in the fields to facilitate land preparation. There-after water is required to supplement natural losses from the fields and to satisfy the consumptive use by the plant. These two distinct phases of water requirement are termed as pre-saturation and normal growth period. Saturation of water, effective rainfall, evapotranspiration and seepage percolation will be calculated for determination of crop water requirement during the pre-saturation and normal growth periods. Pre-saturation and normal growth period involve 14 days and 105 days respectively. For the establishing of the water layer, an average of 10 cm had been used for the whole growing period. Saturation of water and seepage percolation had been calculated by using the data collected from the study area. Meteorological data from the nearby station had been used for calculation of evapotranspiration and effective rainfall. In this study, the result showed that the total of 775 mm of water needed to be irrigated in 1.82 hectares of paddy plot area. This total water requirement of the paddy field had been calculated for one season of paddy plantation.

**Keyword:** Normal growth period; Paddy field; Pre-saturation period; Water requirement