

Impacts of fertigation via surface and subsurface drip irrigation on growth rate of rockmelon

ABSTRACT

Fertigation is one of the most important application of irrigation that are being used in commercial farming. This application help farmers to timely supply the water through drip irrigation coupled with accurate amount of water, rate of fertilizer application, and at the same time improving the nutrient uptake and water use efficiency (WUE) by the plant. The water supply through surface and subsurface drip irrigation system is the most efficient irrigation practice compared to others. Water supply from subsurface drip irrigation system is directly into the root zone, while for surface drip irrigation, water is supplied above the root zone. However, the use of surface drip irrigation system can cause the irrigation water easily evaporate to environment and reduce the WUE by plant. Rockmelon (*cucumis melo*) was selected as plant material in this study. Rockmelon is one of the plant that contain sweet and juicy along with other nutritional value. It also has commercial interest in a number of countries, including Europe, the United States, Mediterranean and Asia. The objectives of the study were to observe the different growth rate of rockmelon between surface and subsurface drip irrigation as well as to observe the efficiency of irrigation. This study was conducted under the rain shelter at Unit Fertigasi Projek Keusahawanan Ladang 10, Universiti Putra Malaysia (UPM). There were two treatments of irrigation tested, surface drip irrigation and subsurface drip irrigation. Data collection include leaf diameter, leaf length and fruit circumferences. The effect of irrigation on growth performance of rockmelon were observe during week one and week six and was analyzed with Statistically Analysis System (SAS). The result of this study showed that, the growth for surface drip irrigation is higher compared to subsurface drip irrigation and both of the treatments achieved 25% of irrigation application efficiency.

Keyword: Rockmelon; Fertigation; Surface irrigation; Subsurface irrigation; Cocopeat