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Effect of using different mulching materials on bulb yield of big onion in dry zone of Sri Lanka

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Abstract

Big onion (*Allium cepa L*) is utilized as a main condiment in Sri Lankan dishes, where it is considered as an important cash crop grown in dry zone of Sri Lanka. Success of onion cultivation is largely depending on the optimum cultural and management practices such as application of organic manure and chemical fertilizers, optimum irrigation schedule, proper weed management and time of planting. Mulching is a smart management practice, in which has been reported to be influence on soil moisture conservation, control of soil erosion and compaction and regulating soil temperature. Since application of mulching has not been extensively studied in big onion cultivation under Sri Lankan conditions; a study was carried out to find out a suitable mulching material which can increase the bulb yield. An experiment was conducted at the Agriculture Research Station, Weerawila, which belongs to DL_5 agro ecological zone and the experiment was laid out in randomized complete block design (RCBD) with three replications in three consecutive seasons (2015 *Yala*, 2017 *Yala*, 2018 *Yala*). Treatments were comprised of seven mulching materials (black polythene, White polythene, paddy straw, saw dust, paddy husk, wood creeper and partially burned paddy husk (PBPH). Results indicated that the bulb yield has shown significant difference (P=0.05) between each mulching treatment, in which the PBPH has shown 25% increase in bulb yield in comparison to the control. In addition, all the mulching materials have shown yield advantage during the tested seasons. Further, soil temperature with the application of artificial and natural mulching materials have shown a variation although not statistically tested. Interestingly, paddy husk mulch has recorded the lowest soil temperature while the highest was recorded in the white polythene mulch. Analysis of the economic returns of the mulching suggests that the partially burn paddy husk and black polythene mulching is superior and thus dominant over other mulching materials. Considering the availability of paddy husk in Hambantota district and considering the environment issues, the partially burned paddy husk can be recommended for the big onion cultivation.

Keywords: Big onion, Bulb yield, Mulch, Partially Burn Paddy Husk (PBPH)