B-60 Irrigation water requirements of Big onion (*Allium cepa* L.) in *Rhodustalfs* in the dry zone

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Big onion is the second most popular cash crop grown in the dry zone and it is cultivated mainly during the drier months of the year. Hence irrigation is vital.

Farmers in the region prefer to irrigate big onion daily. However, according to the earlier findings it is adequate to replenish the soil moisture in the root zone at 0.5 of the Available Water Capacity (AWC), which is comparable for irrigation at 5 to 7 day intervals. In view of the contradictory opinion, a trial was conducted at FCRDI, Maha Illuppallama to determine the irrigation requirements of big onion grown in *Rhodustalfs*.

Drainage type lysimeters were used in the study. Ten days after the initial crop establishment, soil moisture of the root zone was allowed to deplete up to 0.2, 0.4, 0.5 and 0.7 of AWC and then irrigated to the field capacity. Twelve lysimeters were arranged to accommodate the 4 treatments in randomized complete block design with 3 replicates.

Bulb yield was measured and field water balance components were determined to estimate evapotranspiration.

Results showed that crop yield steadily increased with decreasing depletion levels, but no significant increment was observed between 0.2 and 0.4 levels ($p = 0.05$). Both crop water use and irrigation water use efficiencies were highest at 0.4 depletion level. At this level, the risk of drainage problems was also low compared to that at 0.2 level.

Thus, irrigation at 0.4 depletion of AWC is more suitable and it is reached within a day after irrigation at the initial stages, for shallow root zone and

extends up to 2 to 3 days during the later stages under dry zone conditions during the period March - June.