RESPONSE OF DRIP IRRIGATED MUSKMELON (Cucumis melo) UNDER DIFFERENT PLASTIC MULCH AND IRRIGATION LEVEL

ABSTRACT

Key words: Irrigation, mulch, muskmelon

A field experiment was conducted to study the effects of mulch and irrigation level on muskmelon during summer season (February-May, 2017). Split plot design was adapted with three irrigation levels (1.0, 0.8, and 0.6 ETc) and two mulching materials (silver black plastic mulch and black plastic mulch) along with control (no mulch – raised bed with drip irrigation) in the present study to carry out experiment. Irrigation levels and mulching techniques were taken as a main and sub factor respectively. The effect of these factors on yield, growth parameters, soil moisture, soil temperature and weed intensity, dry weight of weed per m$^2$, days to germinate, germination percentage, days to 50 % flowering, days to 50 % fruiting, main vine length periodically, no. of nodes per vine at harvest, no. of branches per main vine at harvest, no. of fruits per plant, yield per hectare (t/ha) and water use efficiency were analyzed with techno economical feasibility.

Result revealed that irrigation levels and mulching significantly affected weed intensity, dry weight of weed, vine length, fruits per plant, yield per plant and yield per hectare but it was found that non-significant effect on days of germination, germination percentage, no. of nodes and no. of branches. Higher soil temperature and soil moisture was observed in 0.6 ETc with black plastic mulch and 1.0 ETc with silver black plastic mulch respectively. Minimum weed intensity and dry weight of weed was recorded in 0.6 ETc with black plastic mulch. No. of nodes, no. of branches and vine length was counted grater in 1.0 ETc with silver black plastic mulch. Maximum values of no. of fruits per plant (2.27), yield per hectare (36.14 t), water use efficiency (105.35 kg/ha-mm) and benefit cost ratio (9.65) was reported in 0.8 ETc with silver black plastic mulch. Fruit weight, diameter and thickness was measured higher in 1.0 ETc with silver black plastic mulch. Silver black plastic mulch with 0.8 ETc irrigation level was found superior for improving water use efficiency, increase muskmelon yield and net return.