

Irrigation Frequency and Amount Affect Yield Components of Summer Squash (*Cucurbita pepo* L.)

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Abstract

The aim of this study carried out in Van, Turkey was to determine the most suitable irrigation frequencies and quantities in summer squash (*Cucurbita pepo* L. cv. Sakız) grown under field conditions. Irrigation quantities were based on pan evaporation (E_{pan}) from a screened class-A pan. Irrigation treatments consisted of two irrigation intervals (I_1 : 5 days; I_2 : 10 days), and three pan coefficients (K_{cp1} : 0.45; K_{cp2} : 0.65 and K_{cp3} : 0.85). Plants were adequately watered from seed sowing to first fruit emergence, then, scheduled irrigations were initiated at 5- and 10-day intervals. Irrigation quantities applied to the treatments varied from 279 to 475 mm; seasonal plant water consumption or evapotranspiration (E_t) of irrigation treatments varied from 336 to 539 mm; and the summer squash yield varied from 22.4 to 44.7 t ha⁻¹. The highest total yield was obtained from I_1K_{cp3} treatment. However, K_{cp2} treatments had the earliest yield. Treatments irrigated with higher amount of water generally gave lower irrigation water use efficiency (IWUE) values than others. E_t/E_{pan} ratios of treatments ranged from 0.12 to 1.16. Moreover, irrigation treatments had significant effects ($P<0.01$) on yield and there were significant positive linear relations among irrigation water, plant water consumption, fruit traits and yield.

In conclusion, K_{cp3} treatment with 5-day irrigation interval is recommended for summer squash grown under field conditions in order to get higher summer squash yield. However, if the irrigation water is scarce, it will be suitable to irrigate summer squash frequently using K_{cp1} values.

Author Keywords: Irrigation; Summer squash; Free surface evaporation; Irrigation scheduling