Irrigation Scheduling Based on Pan Evaporation Values for Cucumber (*cucumis sativus* L.) Grown Under Field Conditions

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**Abstract**

This study was conducted to determine the most suitable irrigation frequency and quantity in cucumber grown under field conditions. The amount of water used was based on pan evaporation from a screened Class-A pan. Irrigation treatments consisted of two irrigation intervals (*I*1: 4 and *I*2: 8 day), and three plant-pan coefficients (*K*<sub>cp</sub>1: 0.50; *K*<sub>cp</sub>2: 0.75 and *K*<sub>cp</sub>3: 1.00). Plants were first watered at the transplanting date and scheduled irrigations were initiated after 4- and 8-day intervals.

Irrigation quantities applied to the treatments varied from 320 to 509 mm; seasonal plant water consumption or evapotranspiration of irrigation treatments varied from 391 to 597 mm; and the cucumber yield varied from 17.99 to 45.20 ton ha<sup>-1</sup>. The highest total yield was obtained from *I*2*K*<sub>cp</sub>3 treatment. Moreover, *K*<sub>cp</sub>3 treatments had the highest early yield. *E*<sub>i</sub>/ *E*<sub>pan</sub> ratio according to treatments ranged from 0.29 to 1.25. Irrigation treatments had significant effects (*P* < 0.01) on yield and there were significant positive linear relations (*P* < 0.01) between the fruit number and irrigation water and between the plant water consumption and the yield.

In conclusion, *K*<sub>cp</sub>3 treatment with 8-day-irrigation interval is recommended for cucumber grown under field conditions in order to get higher cucumber yield and to save time and labor. Furthermore, the *E*<sub>i</sub>/ *E*<sub>pan</sub> equation of the best irrigation treatment (*I*2*K*<sub>cp</sub>3) of this study (*E*<sub>i</sub> = 1.05 *E*<sub>pan</sub> + 96.72) should, therefore, be used in the scheduling irrigation programs in similar conditions.

**Keywords:** Irrigation; Cucumber; Pan evaporation; Irrigation scheduling