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Effects of Different Water and Nitrogen Levels on the Yield and Periodicity of Pistachio (*Pistacia vera* L.)

Mustafa ÜNLÜ, Rıza KANBER

University of Çukurova, Faculty of Agriculture, Department of Agricultural Structures and Irrigation, Adana - TURKEY

Pasquale STEDUTO

Mediterranean Agronomic Institute, CIHEAM-IAM, Bari - ITALY

Yusuf AYDIN,

University of Çukurova, Faculty of Agriculture, Department of Agricultural Structures and Irrigation, Adana - TURKEY

Kenan DİKER

USDA-ARS Water Management Unit, 2150 Centre Ave, Building D, Suite 320, Fort Collins, CO, 80526 - USA

Abstract: The effects of 2 irrigation intervals (I_{f1} : 7 days and I_{f2} : 14 days), 4 nitrogen doses (N_g , N_0 , N_1 , N_2 and N_3) and 2 crop coefficients (K_{pc1} : 0.60 and K_{pc2} : 0.90) on pistachio nut fertigation were studied to establish suitable irrigation and fertigation scheduling. The nitrogen levels were 0, 10, 15 and 20 mg L⁻¹. In the traditional treatment, N_g , each tree received 500/600/400 g of NPK fertilizer at the beginning of February. Other fertilizer doses were applied in the irrigation water through a drip system. Irrigation water amount was calculated based on Class A-Pan evaporation. Wetted percentage in each irrigation was 30%. Irrigation treatments were watered 15 (I_1) and 8 (I_2) times in both years based on the irrigation intervals. Irrigation depths ranged from 324 to 907 mm for the wetted area in 2001 and from 311 to 837 mm in 2002. Evapotranspiration for the corresponding areas ranged from 586 mm to 1133 mm and 721 mm to 1212 mm for the 2001 and 2002 growing season, respectively. The maximum nitrogen amount (18.1 g m⁻² in 2001 and 15.9 g m⁻² in 2002) was applied to the treatment with high nitrogen and high water ($I_{f1}N_3K_{pc2}$). In 2001, all pistachio trees received 4.9 and 3.2 g m⁻² phosphorous and potassium while in 2002 these values decreased to 4.2 and 2.8 g m⁻². The maximum yields were harvested from $I_{f2}N_3$ with an average of 11.7 kg per tree in 2001 and from $I_{f1}N_0$ with an average of 11.6 kg per tree in 2002.

Key Words: Fertigation, Drip Irrigation, Pistachio, Evapotranspiration, Yield

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