

Composing of Irrigation Program by Sub-Surface Drip Irrigation Systems for Cotton and Corn

Research Area	Soil and Water Resources
Research Program	Irrigation Water Quality and Effective Use of Water
Executive Institute	International Agricultural Research and Training Center (IARTC)
Supporting Institute/s	Ege University, Agricultural Faculty, Agricultural Structure & Irrigation Department
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Research Period	2011-2015
<p>Project Summary: This study was conducted to determine irrigation water requirement, plant water use, water use efficiency, effects of irrigation on yield and quality and to form irrigation program for subsurface drip irrigated cotton and maize in International Agricultural Research and Training Center between 2011-2014.</p> <p>The study was conducted with three repetition within trial pattern in randomized blocks, its main subject is irrigation period every 3 days and every 6 days (D1:3, and D2:6 days) while subtopic is Class A Pan Coefficients (K_{pc}: 0.90, 0.60, 0.30, and 0). Irrigation water amounts were calculated for the first two years (2011 – 2012) maximum vegetation cover percentage taken as 50% and for the last two years (2013 – 2014) as 70%. Laterals were placed laterally to two plant rows 140 cm away from each other and at 30 cm depth.</p> <p>In cotton trial statistical analysis on irrigation subjects and yield showed difference on 0.01 level between different subjects. Highest yields were as respectively S1, S2, S3 ve S4 during all three years. Subject S2 with %33 less irrigation than Subject S1 (Subject S1 was irrigated according to Class A pan total evapotranspiration multiplied with 0.9 pan coefficient) had 3% less yield in 2011, 8% less yield in 2013 and 11% less yield in 2014 and the average was 7% less yield. Subject S3 with 66% less irrigation had 13% less yield in 2011, 18% less yield in 2013 and 34% less yield in 2014 and the average was 22%. According to statistical analysis irrigating every 3 days or 6 days has no effect on yield.</p> <p>In maize trial statistical analysis on irrigation subjects and yield showed difference on 0.01 level between different subjects. Highest yields were as respectively S1, S2, S3 and S4 during all three years. Subject S2 with 33% less irrigation had 5%less yield than S1 in 2011, 10% less yield in 2012, 10%less yield in 2013 and 33% less yield in 2014. Subject S3 with 66% less irrigation had 11%less yield than S1 in 2011, 19% less yield in 2012, 20% less yield in 2013 and 32% less yield in 2014. According to statistical analysis irrigating every 3 days or 6 days has no effect on yield.</p> <p>Key words: Cotton, maize, subsurface drip irrigation, water use, yield, quality</p>	