# the use of pan-evaporation for irrigation scheduling of potato crop under different conditions of k-fertilization

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Field experiments were conducted during the two successive seasons of 2002 and 2003 to investigate the effects of soil moisture (manifested as irrigation scheduling) and K fertilizer on growth, yield, NPK nutrients in plant, tuber quality and water use. The crop was grown on an alluvial clay loam soil in El-Qanater Horticulture Research Station, Qalyubia, Governorate, Egypt.Irrigation treatments were expressed as evaporation pan coefficient (EF) values were as follows: G1 = EF 0.8, G2 = EF 1.0, and G3 = EF 1.2. In terms of moisture status of soil, G3 is considered the most moist, and G1 is considered the least moist. In terms of irrigation scheduling, G1 is of the longest intervals between irrigations. Fertilizer K treatments were: K1, K2 and K3 applied either in 2 equal splits (M2) or as one dose (M1). Application rates of K (kg K/f) were as follows: K1 = 100, K2 = 133 and K3 = 1661- Plant height:Plant height (in cm) increased with increased moisture giving heights of 69.2, 61.88, and 53.86 cm for G1, G2, and G3 respectively. The K3 gave the highest plant height (64.89) andK1 gave the lowest (57.94). The K effect was manifested whenK2 and K3 gave plants greater height over K1. Splitting gave plants of more height than the one—dose application.136Summary and Conclusions2- Weight of fresh matter (2/plant), of 90-day growth:Fresh weight plant (g/plant) was as follovvis: G3 (280) >G2 (268) > G1 (158). where potassium was at the medium K2 rate, G2 resembled G3 fertilizer treatments. The on- fertilized plants were lower in weight than the fertilized s nes. Average values for the fertilized showed K3 ( 256 ) > K2 ( 245 ) > K3( 231). The superiority of G3 was most effective w ere K was at its highest rate and added in one dose. Under GI .11 K1, K2, and K3 were rather similar in effect.3- Tuber dry weight (g/plant):Mean values showed G3 (134) > G2 (129 > GI (120). Under conditions of K1, the two irrigation sched les of G2 andG3 were similar, but under K2 or K3 the G3 t eatment was superior reflecting a necessity of presence of a h gh K rate forthe high moisture to be efficient. The highest to er dry weight among the fertilizer treatments was given by 1(3 then by K2; thepattern was: K3 (135) > K2 (131) > Ki ( 120). The M2 was superior to M1.4 -Total tubers yield per Fadden (Mg/f ” mega grams per Fadden ”.