

EFFECT OF SALINE GROUND WATER ON ECONOMICS OF BITTER-GOURD *(MOMORDICA CHARANTIA L)* CULTIVATION AND SOIL CHARACTERISTICS IN SEMI ARID REGION

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Abstract

Due to the declining fresh water availability to agriculture in many areas, the utilization of saline irrigation requires more consideration. For this purpose the effects of saline irrigation on economics of crop yield and soil salinity should be understood. A two year field experiment was carried out during 2017-18 with three replications to investigate the effect of saline ground water on the economics of bitter gourd production and soil salinity status after harvesting the crop. Two irrigation treatments i.e fresh quality irrigation water (IT_1 EC 0.56 $dS.m^{-1}$ (control) and other is saline ground water (IT_2 EC 2.56 $dS.m^{-1}$) were used under drip system of irrigation. The crop yield of bitter-gourd found under IT_1 was 11,337.3 whereas the yield under IT_2 was was7764.4 in season 1. The crop yield under IT_2 somewhat reduced in both seasons comparison with IT_1. The salts under IT_1 (fresh quality water) and IT_2 (saline ground water) did not accumulate at wetted zone. However, the salts were observed deposited at wetted periphery under both the treatments after the crop end at all the three sampling depths under drip system of irrigation. Moreover the costs and benefits associated with different irrigation treatments for two consecutive seasons for bitter-gourd cultivation were also investigated and it was found that the average gross returns per hectare in season 1 were USD 5008.22 and 4454.78 under irrigation treatment IT_1 and IT_2 respectively. Whereas in season 2 the average gross returns per hectare were 3713.47 and 3140.51 under IT_1 and IT_2 respectively.

Key words: ground-water, soil salinity, drip irrigation, wetted periphery and cost benefit analysis.

Biography

Mr. Kamran is a PhD Scholar at Monash University since 2015 and has 12 years of experience in agricultural water management. Before joining Monash he worked as a Senior Engineer (Water) at Institute of Plant Introduction of PARC, Karachi. He has been a Borlaug fellow on irrigation and water management at Colorado State University, USA in 2013 and Australian Award Alumni on irrigation and water Resource management, University of Western Australia, Perth in 2014.His research has been published in national and international journal and he has participated and presented his work in various international conferences and workshops including Australia, China, Thailand, Sri Lanka and Malaysia.

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