

EFFECT OF DRIP IRRIGATION AND TRAY SEEDLINGS ON FCV TOBACCO

Complete Details of Technology:

FCV tobacco under irrigated alfisols conditions is cultivated by giving 12-13 furrow irrigations to the field crop amounting to 350 ha-mm. Irrigating the field crop with furrow irrigation will lead to leaching of nutrients from plant available root zone to unavailable deeper soil layers. The furrow irrigation will not provide optimum soil moisture all the time. Immediately after irrigation the soil may be having excess soil moisture above field capacity and just before irrigation, the field may have less available soil moisture. Both excess moisture and less available soil moisture will have deleterious effect on crop growth. Moreover, giving furrow irrigation is a labour intensive field operation and the labour supply is scarce now-a-days.

Giving irrigation through drip system will provide almost uniform soil moisture throughout the crop growing season and improves water use efficiency (WUE). Planting of poly tray seedlings in the field will promote advance crop by 10-15 days with very meager percentage of gaps and also lead to uniform crop growth and uniform maturity. Hence this study was taken up with aim of improving productivity and WUE. The experiment consisted of 9 treatments replicated five times in RBD with different combinations of drip irrigation, Furrow irrigation, tray seedlings, normal seedlings, drip fertigation and soil application of fertilizers at 3rd, 25-30, 40-45 days after planting or at 10, 25-30, 40-45 days after planting (DAP). The experiment was grown with a fertilizer dose of 120 kg N, 60 kg P₂O₅ and 120 kg K₂O/ha.

The experiment was planted in 2nd fort night of 2013 and 25th October, 2014 for two seasons as per the treatments. Drip irrigation+tray seedlings +drip fertigation at 3rd, 20-25 and 40-45 DAP followed by drip irrigation+tray seedlings +drip fertigation at 10, 25-30 and 40-45 DAP recorded higher green leaf yield, cured leaf yield, grade index, green leaf/cured leaf yield and grade index/ cured leaf when compared to other treatments. The treatment consisting of drip irrigation+tray seedlings+ drip fertigation at 3rd, 20-25 and 40-45 DAP increased green leaf yield by 3,556 kg (23.87%), cured leaf yield by 415 kg (16.67%) and grade index by 450 kg (23.44%) when compared with furrow irrigation+ normal seedlings+soil application of fertilizers at 10, 25-30 and 40-45 DAP . The treatment drip irrigation+trayseedlings+dripfertigation at 3rd, 20-25 and 40-45 DAP showed an increase of 0.38 (6.4%) in green leaf/ cured leaf ratio and 4.5 (5.89%) in grade index/cured leaf (%). Among all the treatments furrow irrigation, normal seedlings and soil application of fertilizers recorded the lower yields.

Brief Description of Technology Including Salient Features:

Drip irrigation+tray seedlings +drip fertigation at 3rd, 20-25 and 40-45 DAP followed by drip irrigation+tray seedlings +drip fertigation at 10, 25-30 and 40-45 DAP recorded higher green leaf yield, cured leaf yield, grade index, green leaf/cured leaf yield and grade index/ cured leaf when compared to other treatments. The treatment consisting of drip irrigation+tray seedlings+ drip fertigation at 3rd, 20-25 and 40-45 DAP increased green leaf yield by 3,556 kg (23.87%), cured leaf yield by 415 kg (16.67%) and grade index by 450 kg (23.44%) when compared with furrow irrigation+ normal seedlings+soil application of fertilizers at 10, 25-30 and 40-45 DAP .

The treatment drip irrigation+trayseedlings+dripfertigation at 3rd, 20-25 and 40-45 DAP showed an increase of 0.38 (6.4%) in green leaf/ cured leaf ratio and 4.5 (5.89%) in grade index/cured leaf (%). Among all the treatments furrow irrigation, normal seedlings and soil application of fertilizers recorded the lower yields. Inference:The tray seedlings with drip fertigation plot recorded increased cured leaf yield by 415 kg (16.47%) and grade index by 425 kg (23.5%) when compared with normal seedlings and furrow irrigation in bulk trial. The additional profit accrued due to tray seedlings, drip fertigation plot is Rs 25,285/- per ha with a B:C ratio of 1.823 and with 57.2% of total furrow irrigation water requirement thus showing 42.8% saving in irrigation requirement.

Benefits/Utility

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