

**Research Article**

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# Infiltration characteristics and water distribution studies of border irrigation and furrow irrigation influenced by depth

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**Summary**

The infiltration characteristics and water distribution pattern were estimated with different depth of furrow and border irrigation system at research farm of Indira Gandhi Agricultural University, Raipur (C.G.). The treatment included were four main treatments of method of raised bed furrow irrigation  $M_1$  (15 cm furrow depth),  $M_2$  (20 cm furrow depth),  $M_3$  (25 cm furrow depth) and  $M_4$  [border irrigation system (control)] under the three sub-treatments of maximum allowable depletion (MAD)  $T_1$  (Irrigation at 40% MAD),  $T_2$  (Irrigation at 50% MAD) and  $T_3$  (Irrigation at 60% MAD) in four row crop. The double ring infiltrometer method was used for measurement of infiltration rate. The study aimed to determine infiltration rate and water distribution pattern in different depth of furrow. The basic infiltration rate of soil varied from 0.58 to 0.66 cm/hr. Kostiakov infiltration equation ( $I=Kt^\alpha$ ) parameters ( $K$  and  $\alpha$ ) ranged from 1.531 to 1.606 and 0.212 to 0.231, respectively and soil moisture distribution was found minimum in 15 cm furrow depth. This moisture distribution pattern indicated that the lateral movement of water increases with increases depth of furrow.

**Key words :** Furrow, Border, MAD, Kostiakov – Lewis parameters, Infiltration, Infiltration rate

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