

Field Evaluation of Drip Emitter Clogging Under Different Fertigation Levels

U.M. Khodke¹, A.P. Guldagad and V.V. Dahiphale

AICRP on Water Management, Marathwada Agricultural University
Parbhani - 431 402, Maharashtra, INDIA
E-mail: ¹umkhodke@rediffmail.com

ABSTRACT

For uniform and efficient application of water and fertilizer, the drip system should have high efficiency and better performance. The major problem associated with the system is the emitter clogging which increases the operational and maintenance cost and adversely affects the system performance. In this regard the irrigation water quality and management of system operation plays important role. Because of high cost and unavailability of water-soluble fertilizers in the market, farmers usually use straight water-soluble fertilizers for fertigation which are not 100 per cent soluble in water. Hence the experiment was planned to evaluate the effect of fertigation with straight water soluble fertilizers (urea, N and muriate of potash, K₂O) on emitter clogging under three different levels of fertigation viz. 75(F₁), 100(F₂) and 125 (F₃) per cent of recommended dose of fertilizers. Similarly chemical treatment with acid was used for reclamation of clogging at regular intervals as a farmers' practice. The results indicated that there is continuous reduction in the system performance indices like the average flow rate of emitters from 3.95 to 3.63 lh⁻¹; field Emission Uniformity (*EUf*) from 89.79 to 78.88 per cent at the end of observation period; and the absolute Emission Uniformity (*EUa*) from 91.3 to decrease 83.15 per cent at the end. The value of coefficient of uniformity (*CU*) was 94.55 per cent at the start and decreased to 89 per cent at the end of observation period. Acid treatment at 3-4 months interval is not sufficient to reclaim clogging of the emitters and to improve the system performance. Also, there is no significant effect of fertigation levels on performance indices of drip irrigation system.