

Twin Laterals with Opposite Flow Directions on the Hydraulic Gradient Compensation for Emission Uniformity for Okra

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Effective utilization of every drop of water through adoption of appropriate technology is imperative for improving crop productivity to sustain agricultural production and to achieve desirable improvements in the living standards of all categories of farmer. The area increase naturally the length of laterals and sub mains will also increase. The head loss due to friction also increase proposanally resulting in a high degree of variation in the operating pressure heads and the corresponding emitter discharges from head to tail end of the field. The Hydraulic gradient compensation is a viable solution towards stabilizing uniform operating pressure heads, uniform emitter discharges and highest possible water distribution efficiency. The present investigation furnishes the impact of a mirror image superposition of the same hydraulic gradients along the primary lateral in an opposite direction through an equivalent secondary lateral. It was observed that in the process of stabilizing uniform discharge pressures, the individual emitter discharges got escalated warranting a proportionate reduction in the operating times. The hydraulic gradient compensated drip lateral layout registered high order of water distribution uniformity in the range of 94.2 % and 97.8 % for 4 lph and 2 lph emitter arrangements. In case of single laterals without hydraulic gradient compensation the water distribution uniformity was found to be for below the values obtain under compensated conditions. The hydraulic gradient compensation needs to be achieve by some viable mechanism so that the inequality in pressure heads and discharges can be eliminated or minimized.

Key words: Pressure head, Emitter, Uniformity distribution, Okra, Discharge