To flow velocity increases significantly as the inlet

To understand the causal conditions andprocesses of negative pressure in the throat of Venturi injector? by measuring pressures at the inlet? outlet and throat for Venturi injectorrespectively? the energy conversion relationsof water flow at different feature sections were studied? The results show that the inlet pressureenergy is translated into the throat kinetic energy when water flows throughthe Venturi injector? As theinlet pressure energy and the discharge increase? the kinetic energy in the throat increases? when the kinetic energy in the throatreaches a certain value? thepressure energy at the throat disappears completely and the negative pressureoccurs? When the negative pressurereaches the minimum value and remains stable? the flow velocity increases significantly as the inlet pressureincreases? The kinetic energy and head lossin the throat also increases very quickly as the flow rate increases? At the same flow rate? the differences between actual andtheoretical flow velocity could indicate the size of throat vacuum space? Compared with free outflow conditions? under non·flee outflow conditions? the starting pressure causing the negativepressure in the throat increases? and the flow Volume is relatively great? To obtain the same negative pressure? the inlet pressures and flow rate undernon-free outflow conditions are significantly greater than those under freeoutflow conditions?(Fan Xingkelet al., 2013).

Optimum and efficient use of fertilizers isone of the major advantages of drip irrigation systems. Success of microirrigation system lies in precise application of fertilizers. The investigationwas carried out to study the performance of venturi injector manufactured byJain Irrigation Systems Ltd. under normal field conditions, near Talsandevillage of the Kolhapur district of

Maharashtra state. The different pressurecombinations were maintained at upstream and downstream side of the venturiinjector.

The different inlet pressures of 1. 0, 1. 2, 1. 4, 1.

6, 1. 8 and 2. 0kg/cm2 were selected with different outlet pressure combinations of 0. 1, 0.

3and 0. 5 at the outlet of the venturi injector. Injection rate and injectionefficiency were calculated for different varying inlet and outlet pressurecombinations using relationship suggested by manufacturer of the venturiinjector.

The maximum injection rate in case of venturi (74 lps) was achievedat inlet pressure of 1. 8 kg/cm2 and outlet pressure of 0. 1 kg/cm2 with pressuredifferential of 1. 7 kg/cm2. Injection efficiency of venturi was observedmaximum at 95 per cent at 2 kg/cm2 inlet pressure and 0.

1 kg/cm2 outletpressure fallowed by 94. 4 per cent at 1. 8 kg/cm2 inlet pressure and 0. 1 kg/cm2outlet pressure and 94 per cent at 1. 6 kg/cm2 inlet pressure and 0. 1 kg/cm2outlet pressure. (S. C.

BHANGARE et al., 2015).