

Centre Pivot Irrigation – Pressure Regulators

Introduction

Pressure regulators are used to maintain a desired sprinkler pressure and hence sprinkler output despite change in supply pressure.

Need for Pressure Regulators

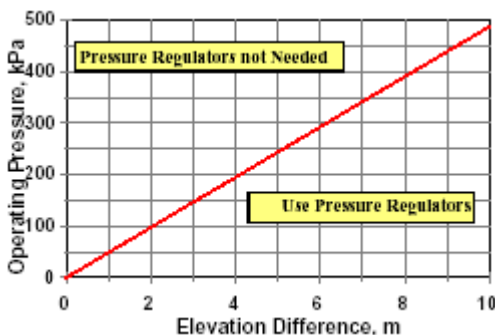
Pressure regulators are required when:

- Elevation change is present between sprinklers;
- Required flow rate varies due to end gun or corner operation;
- Small sprinklers are supplied with excessive pressure, especially the first few spans on a centre pivot where required output is low, but pipe pressure is relative high; and
- A pump supplies more than one set of sprinklers that require a constant pressure, particularly with movable pivots and multiple pads.

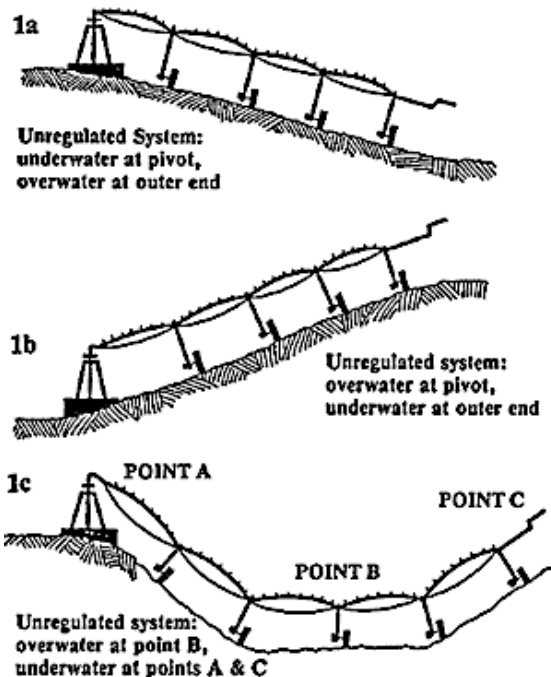
Generally, pressure regulators are required when sprinkler output variation exceeds 10 percent. Pressure variation on non-regulated systems will experience poor water distribution uniformity.

Undulating Terrain

The need for pressure regulator on undulating terrain depends on the degree of elevation difference, the sprinkler operating pressure.



For non-regulated systems, sprinkler output will vary depending elevation difference from pivot centre.



Considerations

- High value crops may warrant pressure regulators when only small areas are affected by poor uniformity.
- Pressure regulators require 28 - 35 kPa greater supply pressure than the pressure rating to work. Regulators use energy to operate and increase pumping costs.
- The design pressure for a system should account for the greatest elevation difference, pipeline friction loss, pressure regulator rating and extra pressure to operate regulators.