

Irrigation Performance

i. Measuring the performance of Overhead Irrigators

(P01-1001)

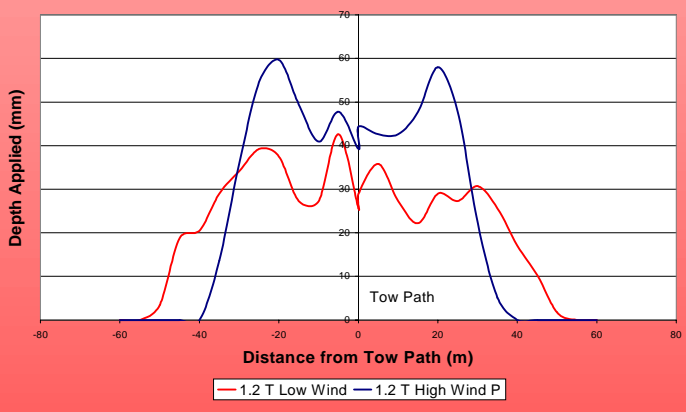
For an overhead irrigator to be efficient, there are a number of factors that must be taken into account when evaluating its performance:

Wind Effects:

Wind reduces the effectiveness of overhead irrigations because it increases evaporation and affects the wetting pattern.

Winds speeds of greater than 14 kilometres per hour can severely affect the wetting pattern by elongating the pattern of the spray downwind from the irrigator and shortening the pattern upwind of the irrigator.

The Effect of Wind (in the row direction) on Spray Pattern



To overcome the impacts of wind, it is recommended that growers:

- irrigate at night when wind speed is often reduced
- use tapered nozzles which have the ability to throw further during windy conditions to maintain overlap and uniformity.

Nozzle Wear:

Periodic maintenance of equipment is vital in maintaining uniformity. The effect of nozzle wear and blockages can impact on the effectiveness of an irrigation.

Nozzle wear and blockages can result in:

- uneven application of water
- under- or over-watering of crop
- reduced wetted diameter of spray

Application Rates:

Walking speed and nozzle size will determine the application rate of the irrigator. If the application rate exceeds the infiltration rate of the soil, runoff will occur.

To determine the application rate of the system, catch cans (or rain gauges) can be placed under the irrigator. It is important that more than one catch can is used as the wetting pattern will vary depending on where the can is placed.

Catch cans spread at regular intervals to determine the application rate of an overhead irrigator



For more information, please ring your local Rural Water Use Efficiency Officer.
 The Rural Water Use Efficiency Initiative is a joint venture between BSES, CANEGROWERS and the Queensland Government through the Department of Natural Resources and Mines.