

Catch can distribution

in pressurised irrigation systems

A 'catch can trial' is a simple, yet effective, way to check the distribution pattern of water applied using overhead irrigation systems.

Trial requirements

- **30 to 40 catch cans** – the catch cans must be watertight, identical in size and shape, and at least twice as high as the average depth of water typically applied. A 825 g food tin or container with a 100 mm opening is ideal.
- **Stakes to hold each catch can upright** and slightly above the crop canopy – wooden garden stakes are ideal, provided the sugarcane is not too tall. Attach a stake to the side of each catch can, ensuring the top of the stake is below the open end of the can.
- **A ruler or measuring container.**

Method

1. **Position the cans in a straight line at 90° to the direction of machine travel**, ensuring extra cans are located beyond potential throw. The line of cans should be at least one wetted diameter (about 100 m) from the end of the irrigated field. The cans should be evenly spaced and no more than 3 m apart.
2. **Place the cans in the field prior to an irrigation event**
3. **Once the irrigator run has finished, measure and record the depth or volume of water in each can.**
Ensure the cans close to the tow path don't get run over by the cart.

Calculate distribution uniformity:

Distribution Uniformity (DU) = Average of the lowest 25% of can readings ÷ Average of all can readings

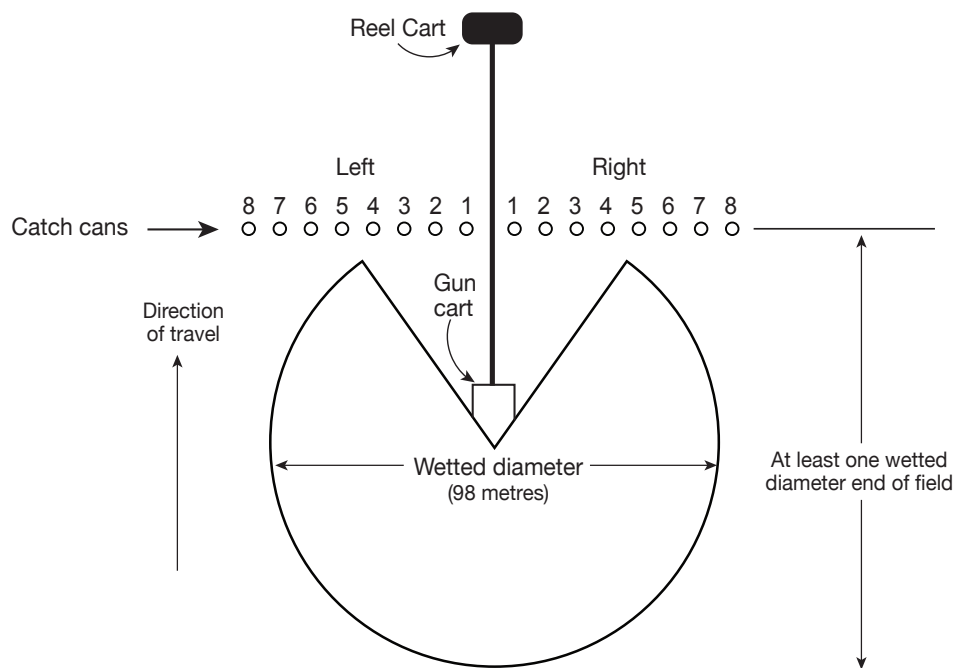


Figure 1 Travelling gun - catch can layout

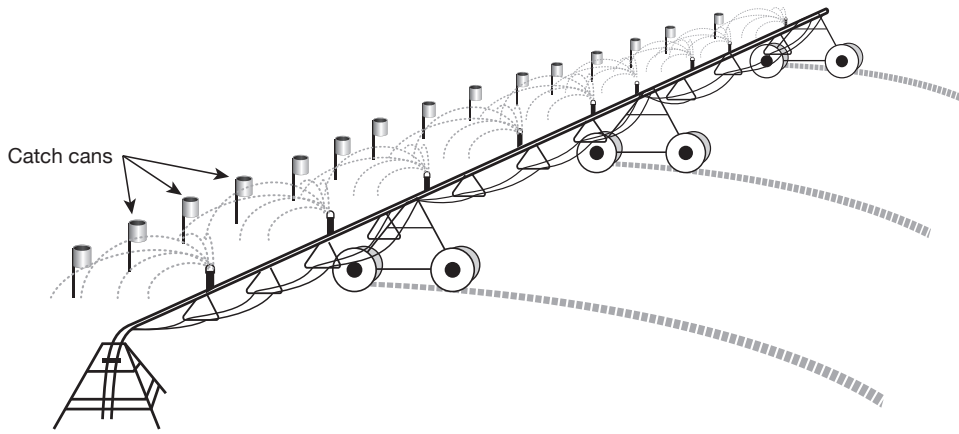


Figure 1 Travelling gun - catch can layout

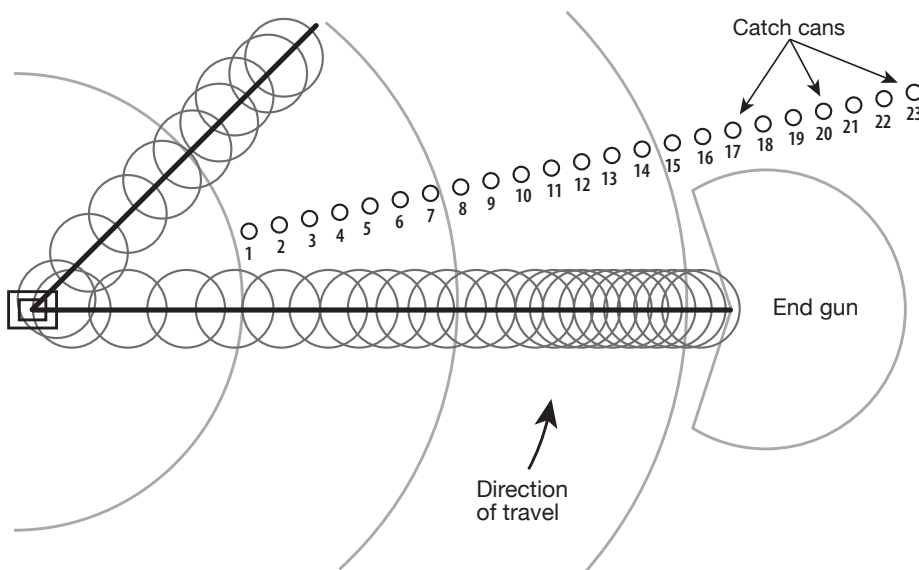


Figure 2 Centre pivot - catch can layout



Next Steps

If the results of the trial indicate that the system is not evenly distributing water, seek advice from an irrigation specialist.

Factors that can affect distribution uniformity for low pressure systems (centre pivots and linear moves) include:

- nozzle wear
- sprinkler pressures
- pressure regulators.

Operators can use the correct rotation angle and take wind conditions into account to significantly improve the distribution uniformity of high pressure travelling gun irrigators.

Resources

'Adjusting travelling guns for even distribution' Fact Sheet

Centre pivot catch can trials – <https://www.hort360.com.au/wordpress/wp-content/uploads/2019/11/Centre-pivot-catch-can-trials.pdf>