

## Phase One – Common Sprinkler Test

Central Otago residents asked Council for more education and information around water use and making better use of water

With this in mind sprinkler trials were recently carried out by Shaun Monaghan, a Canterbury University engineering student, as part of his summer placement with CODC.

Shaun assessed a range of commonly available garden sprinklers to find which one gives the best water coverage and uses water most efficiently. A number of performance measures were tested. These included:

- The water flow rate (a high flow rate can lead to water wastage)
- Water pressure (high operating pressures can cause sprinklers to leak or malfunction)
- Water application rate (what sort of rate and what would be good)
- The height the water reached above ground (too high means water may not go where desired)
- What area was covered by water and how even the coverage was

Shaun's work also took into consideration the effect of weather conditions, such as wind.

Based on the information collected, Shaun **recommends the simple, full circle sprinklers**. These can be bought for around \$10 at local garden suppliers. These sprinklers apply water the most evenly, have the lowest water height, operate at an acceptable pressure and flow and cover a reasonable area.

**The worst performing sprinklers were the soaker hose and the pulsating sprinklers.** These both give very uneven coverage. The pulsating sprinkler applied water very unevenly and operated at a high running pressure, which can lead to leaking and malfunction. The soaker hose also gave an uneven coverage over a very small area and had a very high flow rate, using close to 1500L/hour - enough water to meet the needs of a family of six for a day.

## Phase Two – Full Circle Sprinkler Test

The second phase of this test was to narrow down which of the full circle sprinklers performs the best.

The method underwent some minor changes in order to increase the accuracy of the results. Otherwise the same criteria were monitored as in the first round of tests: water height, running pressure, flow rate, coverage and how even the coverage was.

How evenly water was distributed was the biggest difference between the four sprinklers tested. Based on the results of these tests **the best performing sprinkler was the 'Pope Handy Sprinkler'**. Overall, the Pope Handy Sprinkler provided the most even water coverage and covered the largest area of the full circle sprinklers tested. The sprinkler maintained a moderate water height and low running pressure, which helped maximise efficiency and minimise the risk of sprinkler failure. As an added bonus this was the cheapest of the sprinklers tested, retailing at \$7.50. As the water flow from this sprinkler was quite high it would be most effective when used for periods of less than 30 minutes.

The main reason for the other full circle sprinklers failure was due to the uneven distribution of water within a small coverage area.