

Pulse Watering

By John Menzel of Winkie, South Australia

<http://www.winkiedahlias.com/watering>



From this before 2008

← (Left)

To this in 2014

(Right) →



Both pictures taken mid-afternoon

Pulse Watering reduces the stress of the heat during the hotter parts of the day

My experience in the growing of Dahlias for the last 30+ years has been by using a number of methods of irrigating/watering the plants. The affects of the big drought in Australia saw the introduction of water restrictions which instigated the concept and investigation of "Pulse Watering". Traditional requirements for Dahlias in old publications advocated that a plant needs up to 2 gallons of water per plant =Nine Litres. This has now been shown to be misleading.

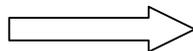
Various Conventional Watering Systems

- Furrow/Flood Watering
- Overhead sprays
- Low level sprays
- Drippers
- Hand held hose

So what were the options?

At Winkie in 2008, there were 18 days over 104F And 25 days over 95F. This included three days in a row over 120F recorded in the patch. It was even worse in 2014.

Even though we had record hot months in December and January we had the best Dahlias for many years after adopting "Pulse Watering". This picture was taken mid-March (Peak of Season)

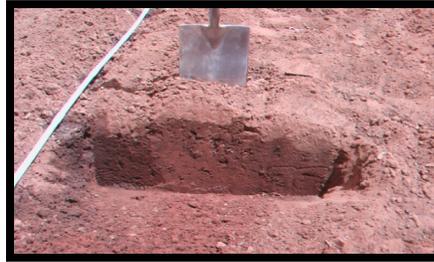


What is Pulse Watering?

Pulse watering is the application of water little and often. Water is applied up to four times a day. The thought of this was horrifying but it had been applied in other crops in the Riverland. It was adopted because water savings were obvious. The Solenoid Controller is programmed to come on four times a day for two minutes at a time. There are a number of battery operated controllers available that are more than suitable.

- Each dripper delivers two litres of water/hour from the pressure compensated hose. Being on four times/day for 5 minutes at a time, each dripper delivered approx. 500ml of water per day.
- There was a plant at each dripper.
- Spacing's on the dripper hose is 300mm and each dripper delivers 2Lt/Hour

- Pressure Compensated Dripper Hose delivers water equally across the irrigated area
- The pulsing of the water four times a day is replicating a mini wetting & drying process.
- The wetting & drying actually works like a wick and draws the water horizontally-not vertically like a tear drop pattern when the dripper is left on for long periods.
- The distribution of water was right across the row, Right in the Root Zone.
- The Rows are 4' apart & the water meets in the middle of the row



Lateral movement of water

The *Pulse Watering* assisted in the development of a good root system that was responsible for the improved resilience of the plants. This helped the plants recover much quicker than with conventional watering methods by providing “Critical Available Water” improving their resilience.

Critical Available Water is providing the plant with water before the plants show signs of wilting.

Just like us - “When we are hot we Drink”. When the plants are hot why not give them a Drink? It reduces wilting considerably which reduces the stress of the plant, encouraging it to continue growing. The *Pulse Watering* resulted in us having a great season of excellent blooms under very trying conditions. The other big benefit of *Pulse Watering* saved up to 80% of water that we would have used with conventional methods of watering.

The water is delivered only into the root zone of the Dahlia. This reduced the level of nutrients being leached into the lower soil profile well away from the Dahlia’s root zone.



Pulse Applications are extremely effective because it:

- Applies water to the right place
- Water soaks into the Root Zone
- Provides Critical Available Water
- No water lost to the lower profile
- No leaching of fertilizers
- Huge Savings!!!!!!!

In 2008 when the *Pulse Watering* was first adopted the number of watering times were six. Now that I have become more familiar with the plant requirements the number of application has now been reduced to four times. My watering times are now 8:00am. – 12 noon – 3:00pm. – 5:00pm.

I am now enjoying the Dahlias without having to be concerned about the weather!

