



# IMPROVING THE EFFICIENCY OF FARM DAMS

Annual rainfall in Katanning is approximately 400 mm per year. Annual evaporation is approximately 1500-1600 mm per year (1) - four times more than rainfall.

## DAM COVERS

### What is a Dam Cover?

Dam covers are physical barriers to evaporation which cover the surface of the water. There are a range of types available including floating mats, hexagonal disks, floating balls and fixed membranes.

Katanning Landcare trialled floating dam mats over the summers of 2022-23 (Year 1) and 2023-24 (Year 2), on two typical farm paddock dams each year.

**Dam covers may be a useful tool in improving dam efficiency by protecting standing water in dams from evaporative loss.**



### Trial Dam Cover Specifications

- Purchased from Daisy Dam Covers ([daisypoolcovers.com.au](http://daisypoolcovers.com.au))
- Modular sections, available in a range of sizes, allowing different configurations.
- Covers used at Richardson's and Sullivan's sites were 4 units each 5.2m x 15m, which cost a total of \$3790 (inc GST), or \$12.70 per m<sup>2</sup> of coverage.
- Covers at Crossley's were 3 units each 5.2m x 20m. 4 units were purchased in 2018 for around \$7000 delivered.
- Made of a heavy plastic "bubble wrap" fabric, white on surface and black underneath, with black mesh edgings containing weighted rope and joining eyelets.
- Modules joined with loops and clips and corners tethered with rope to star pickets on dam bank.



(1) [www.bom.gov.au](http://www.bom.gov.au)

### Meet the Host Farmers

**Names:** Eric Crossley (Yrs 1 & 2), Tony Richardson (Yr 1) and Mark Sullivan (Yr 2)

**Locations:** Woodanilling, Badgebup & Katanning, WA

**Enterprises:** Cropping and livestock (Crossley & Sullivan - sheep, Richardson - pigs)

### Installation

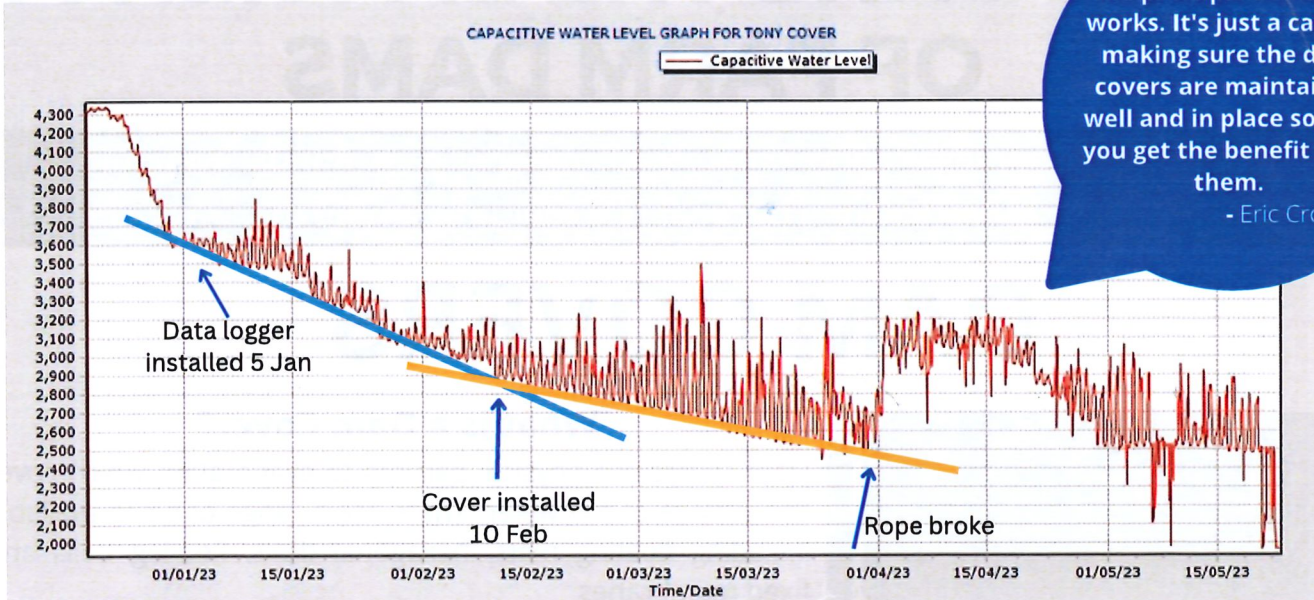
- Float modules onto the dam surface one at a time, using ropes attached to the corners, and walking slowly along the dam banks dragging the cover.
- Laying on a surfboard, kayak, etc, join the sections together like doing up a zip – starting at one end and working down the join. Have one or two people on the bank with a rope to hold the panels in position.
- Ensure the covers do not reach the edge of the waterline, to prevent damage from livestock stepping on them, or from inhibiting light and oxygen for aquatic life in the dam.



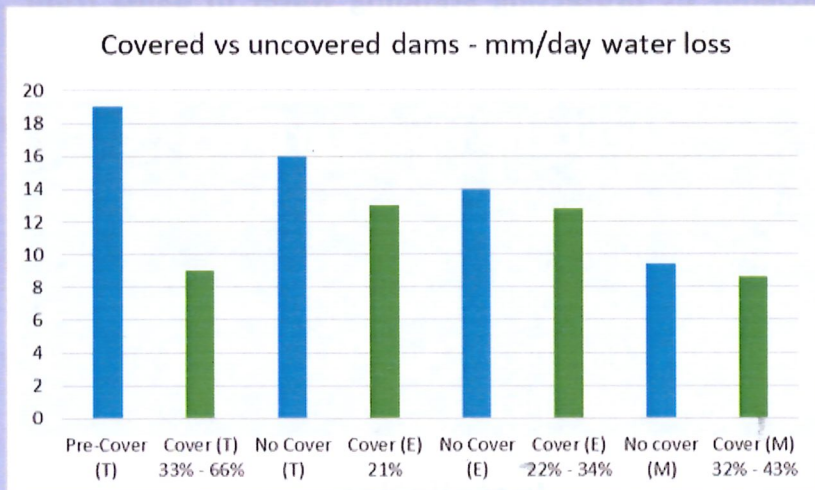
# RESULTS - DAM COVER TRIALS

The principle definitely works. It's just a case of making sure the dam covers are maintained well and in place so that you get the benefit from them.

- Eric Crossley



Odyssey Capacitive Water Loggers were installed in each covered dam, and its nearby control dam, to measure water level changes. This graph from the Richardson dam clearly shows the slowing of water loss from the dam upon installation of the cover, which initially covered 33% of the surface area of the dam water.

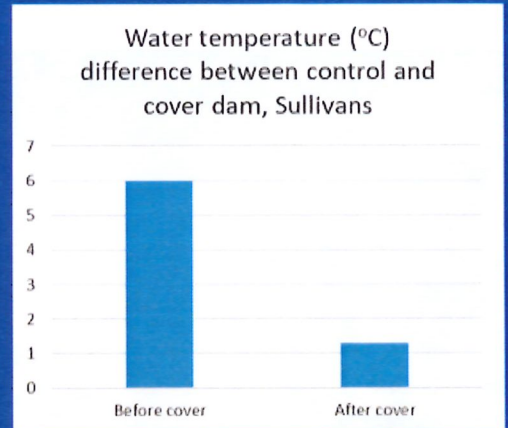


Covered dams (green) in the trial consistently showed less daily water loss than their paired control dam (blue). Percentage coverage of surface water changed as water level dropped, ranges for the study period are indicated below each bar.



Data loggers measured water depth over the two summers in each set of trial and control dams

Dams with covers were regularly observed to have lower temperatures than the uncovered control dam, or where the covered dam was normally warmer, the temperature difference was reduced. Cooler temperatures reduce evaporation and are better for livestock drinking water.



The covers, as trialed, were not yet sufficiently robust in construction for use in a "set & forget" manner. The seams on the edging join tore on some panels. Three times the covers bunched up after strong winds, all due to either tether ropes breaking (stronger rope needed) or eyelets pulling out. Feedback



to the manufacturer has been provided. We believe these changes can be easily made for the future. The main "bubble wrap" material itself had no noted problems.