



IMPROVING THE EFFICIENCY OF FARM DAMS

Water quality can be just as significant as water quantity for livestock drinking water, spray water and other agricultural uses. The ecosystem services provided by more than 1.76 million dams in Australia can benefit agriculture as well as the environment, and enhance the security of quality water supplies.

ENHANCED DAMS



Works Undertaken at Both Local Trial Sites

- Fencing to exclude livestock
- Installation of a pump to move water from the dam to a stock watering trough outside the fence
- Revegetation around the back and sides (outside the dam bank) with shrubs and trees
- Revegetation with sedges around the waterline within the dam
- Revegetation of the water entry slope above the dam with groundcovers and low shrubs.
- Costs of pumps and troughs varied based on farmers choice, plants cost around \$1 each and standard 7 line fencing was used.



What is an Enhanced Dam?

The term “enhanced dam” has been adopted from the Australian National University's Sustainable Farms Program, and refers to a method of managing a farm dam like a wetland ecosystem to improve both environmental and agricultural outcomes.

Enhanced dams are typically fenced to exclude livestock (or controlled hard access point built), revegetated both around and inside the dam, water points for livestock are located off-dam and water inflows are managed to restrict nutrient and sediment entry.

Katanning Landcare has trialled the established of two Enhanced Dams 2022 - 2024. As the full impact of the system won't be visible for a number of years while vegetation establishes, baseline information has been gathered.

Meet the Farmers

Name: Bev Kowald and Kristen Prest

Locations: Carrolup & Daping Creek, Katanning, WA

Enterprises: Kowald - cropping & sheep; Prest - lifestyle, goats and horses

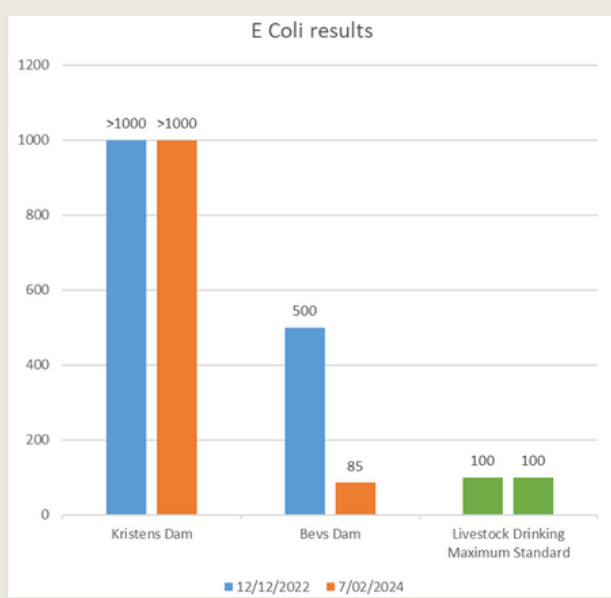
How do enhanced dams improve water security?

- Vegetation surrounding the dam reduces evaporation through shading (lowering water temperatures) and reducing wind exposure on the waters surface, improving retention of water volume.
- Eliminating livestock pugging, and reducing the inflow of sediment improves water clarity, thus reducing temperatures and improving its usability through pumps eg spraying.
- Reducing nutrient and bacteria loads in the water body lengthens its season of use for livestock watering.

RESULTS TO DATE

Temperature, surface area, secchi depth (turbidity), electrical conductivity and pH have been measured at both enhanced dam trial sites, and also a control dam where no enhancement works are taking place.

It is expected that no difference in water quantity or quality results will be observed for a few more years while the vegetation establishes.



E Coli

- E Coli is a bacteria that can be found in water contaminated with faecal matter. As well as impacting human health, it can cause reductions in livestock weight gain.
- ANU studies showed that E Coli reductions could be achieved within 6 months of enhanced dam system establishment.
- Our local testing of E Coli also showed significant improvements at Bev's site, following fencing and planting.
- Kristen's dam E Coli levels were above the measurable limit both times, so we cannot ascertain if there was a change.

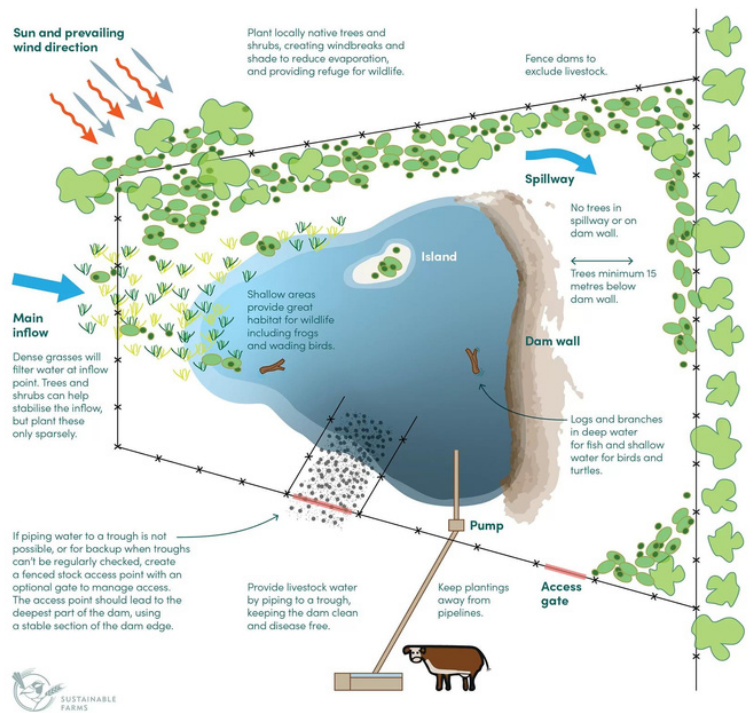
The climate is drying, we have to be improving our water security, but I want to be able to do it in a way that also helps our environment. The enhanced dam system does that.

- Bev Kowald

Revegetation around the trial dams



Ideal enhanced dam layout, with all features.



Credit: ANU Sustainable Farms