

# Water Matters...

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## On-farm water storage: Minimising evaporation and seepage loss



(Image: Peter Verwey)

**O**N-FARM water storages are the largest source of water loss for most irrigation businesses. In a striking example, if you live in the Moree district in north west NSW and held water in your farm storage for 12 months, you could lose as much as two metres of water through evaporation.

In a 20 hectare storage, that could result in a 400 megalitre loss over a year. In fact keeping water in this size storage for just the month of January (when the water level can drop by as much as 300 mm) could result in a loss of up to 60 megalitres.

But simple management practices can help minimise evaporation and seepage losses by reducing the surface area subject to evaporation, and the wetted area of the storage exposed to seepage.

Practical tips and advice for dealing with this problem have been compiled in a new video and fact sheet now available online.

“While flexibility may be limited by the characteristics of your individual farm, options include combining water from multiple storages into a single storage, moving water from a partly full large storage into a smaller storage, or applying water to fields in preparation for the next season’s crop,” said well known

consultant, Jim Purcell, who features in the You Tube video ([www.youtube.com/watch?v=uOWO4T7iLXI](http://www.youtube.com/watch?v=uOWO4T7iLXI)).

“Simple management is the easiest fruit – if you’ve got two storages and they’re both half full, you’re losing twice the evaporation.

“It costs about \$1.10 per meg to lift pump from one to the other. For every megalitre that you save, you’re looking at \$250–350 profit, so it’s worth the effort.”

Jim is a keen advocate of using storage metres to obtain an accurate calculation of evaporation and seepage. He recommends collecting data for approximately 20 days during a period when there is no water flowing in or out of the storage.

“The meter will measure the depth, volume and surface area, creating a pattern that will demonstrate a slope of loss. The idea is to get a continuous set of records which you can then analyse.”

Research undertaken in a Cotton Storages Project conducted by the Cotton Catchment Communities Cooperative Research Centre gathered data from 136 farm water storages which were evaluated for seepage and evaporation.

Most storages (88 per cent or 120 of 136 storages) in the study recorded seepage of less than four mm per day, a rate

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An Aquatech meter. (PHOTO: Peter Verwey)

which is considered low, with the majority recording less than two mm per day.

“Even a good dam with heavy clay will usually lose up to a millimetre per day through seepage, while a dam that is silty or sandy will normally lose two to five mm daily,” said Jim.

“Once you get over five mm per day in seepage alone, you’ve got a problem that probably needs remediation,” said Jim.

Accompanying the You Tube video, the new ‘On farm water storage: minimising evaporation and seepage loss’ fact sheet can be downloaded from the CottonInfo website at: [www.cottoninfo.com.au/publications/water-minimising-storage-evaporation-and-seepage](http://www.cottoninfo.com.au/publications/water-minimising-storage-evaporation-and-seepage)

The ‘minimising evaporation and seepage losses’ video and

### TABLE 1: Rates of storage seepage and triggers for intervention

<1 mm/day	Excellent
<2 mm/day	Good
2–5 mm/day	Acceptable, not worth fixing
5–10 mm/day	Probably worth investigating with a view to repairing
>10 mm/day	Start remediation investigation ASAP

Source: Aquatech Consulting.

fact sheet have been produced by the North West NSW Irrigation Australia Limited (NWIAL) Regional Committee in collaboration with Sustaining the Basin Irrigated Farm Modernisation (STBIFM), CottonInfo, and North West Local Land Services.

The STBIFM program has worked with 42 on-farm projects across the Northern Basin to fund water saving improvements to storage infrastructure.

It is expected the modifications (including deepening storages and creating new storage cells) will save a combined annual total of more than 12,000 megalitres of stored water that would previously have been lost to evaporation and seepage.

The Australian Government is providing more than \$13 billion for implementation of the Murray-Darling Basin Plan and associated activities, with the vast majority (more than \$8 billion) being made available for modernising infrastructure and water efficiency improvements. The Sustaining the Basin: Irrigated Farm Modernisation Program is funded from this initiative.

Article compiled by Meg Strang for Sustaining the Basin Irrigated Farm Modernisation (STBIFM) NSW Department of Primary Industries.



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