



# Storage maintenance

## prevention is better than a cure

Storage maintenance and monitoring will help maximise efficiency and minimise the long term costs associated with on-farm storages.

A simple maintenance program should be set in place to make sure storages maintain their original shape and function.

### Visual inspection:

Regular assessments ensure the impact of natural processes such as erosion, wave action and weather conditions don't compromise the storage shape and structure (wall height, width or batter shape), potentially leading to failure.

### Maintenance of the crest:

Crest level generally decreases in height by approximately 25 mm per year. Most often this is caused by erosion, but grading the crest is a contributing factor, as well as slumping of the crest into soil cracks. Decreasing crest levels result in reduction of available freeboard, leading to less storage capacity.

For stable crest levels, the following maintenance activities are recommended:

- Crest survey every 5 years
- Grader work to correct minor damage and even out uneven surfaces
- Flatten wheel ruts to avoid scouring and further erosion
- Banks constructed with dispersive soils are prone to erosion and regular cultivation will break down the early stages of tunnelling. Ensure a smooth finish by using harrows.

### Maintenance of outside batter:

Regularly check the outside batter for erosion and vegetation. Grade and spray for weeds when required.

### Maintenance of inside batter:

If wave action erosion has occurred, add moist clay and compact it. Bond the clay into place by grading and rolling.

### Maintenance of floor and interval borrow pits:

Remove silt plumes/trails that are restricting water entry and extraction from the storage. To ensure thorough drainage, maintain the storage floor and borrow pits so that no 'dead water' or ineffective storage space is available.



Clean batter (photo: P. Taylor)



**Vegetation:**

Vegetation allowed to grow on the floor of empty storages will dry the profile and require additional water to fill. Up to 3 ML/ha of storage area can be lost this way.

Irrigation engineers suggest managing a dry storage the same way as managing a dryland field. Trees, weeds or deep rooted vegetation seeking out moisture in the embankment will result in cracking when the storage is dry.

No type of vegetation should be growing on storage banks, as their root system will disrupt soil compaction and provide a path for water seepage. The heavy vegetative cover also makes it difficult to detect holes, cracks, and erosion, and the problem not detected until too late!

While vegetation can reduce wave action on inside batters, grassing has been a contributing factor in some storage failures. Roots penetrate the embankment, drying it out and initiating cracking.

Any grassing on the inside batter should be regularly monitored, slashed and sprayed with non-residual herbicides.

Best practice is NO Vegetation.

If you choose to periodically crop the inside of your storage, remember that it can cause significant drying and cracking in both the embankment and the floor and subsequent loss of valuable irrigation water.

**Further information:**

- CottonInfo irrigation technical specialist & NSW DPI research & development officer irrigation: Ali McCarthy, 0439 326 601, [ali.mccarthy@dpi.nsw.gov.au](mailto:ali.mccarthy@dpi.nsw.gov.au)
- Barrett, H. ed., 2007, 'Guidelines for Ring Tank Storages', Irrigation Australia 2nd edition [www.irrigationaustralia.com.au/products/books/guidelines-for-ring-tank-storages](http://www.irrigationaustralia.com.au/products/books/guidelines-for-ring-tank-storages).
- CottonInfo video 'On-farm storages: benefits of a maintenance program' [www.youtube.com/watch?v=kGbReMG51\\_Y](http://www.youtube.com/watch?v=kGbReMG51_Y)



Dry storage, dead water, vegetation (photo: P. Taylor)



Failed storage (photo: STBIFM)

Thanks to Jim Purcell, Aquatech Consulting, Narrabri and Peter Taylor, SMK Consultants, Moree/Goondiwindi for providing information for this article. Header image: P. Verwey.

