STORAGE DAM EVAPORATION CONTROL

CRC Irrigation Futures, National Program for Sustainable Irrigation

Economic Evaluation

Economics of evaporation control are dependant on local evaporation potential, product efficiency, capital and operating costs and the value of water saved

Significant amounts of water are lost though evaporation from storage dams. Evaporation can be in excess of 3m/yr in the central and northern regions of Australia, down to less than 1m/yr in Tasmania.

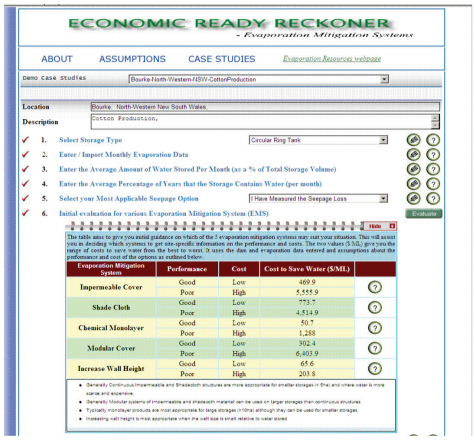
There are a range of methods available to reduce evaporation losses including deepening the storage dam, better water management as well as placing a cover on the storage. A wide range of evaporation covers are available commercially and a number of new systems are being developed.

Water loss from storage dams can firstly be managed by increasing their depth and secondly by installing a good quality liner to prevent seepage. Thirdly, an extra investment can be made in placing a cover over the dam to reduce evaporation. The economics of whether it is worthwhile taking this extra step have to be carefully calculated. The amount of time that the storage holds water is an important factor.

Costs associated with covers include capital outlay, expected life of the product, operating, repair and maintenance costs. Structural systems (e.g. floating covers and shade structures require a high capital outlay ($5 to $15/m^2) but low ongoing cost.

Applying a chemical monolayer requires little capital outlay but significant ongoing application costs. Monolayers have the advantage that they need only be applied during periods of high evaporation or when the storage is full.

A simple Ready Reckoner has been developed to assist in economic calculations. The Ready Reckoner and user manual can be accessed at the following web site http://www.readyreckoner.ncea.biz/. The user can extract local evaporation data from the SILO web site by inputting local latitude and longitude information.



The value of water can be related to a range of factors including the opportunity cost of water lost (in terms of production and profit forgone), the revenue earned from a water sale or the cost of a water purchase.

Assessing the cost benefit of investing in evaporation mitigation is very dependent on local conditions. Evaporation mitigation technologies have been shown to be potentially economically viable to reduce evaporation and save water.

	Evaporation mitigation performance (with annual evaporation of 2000mm)		
	High	**Medium**	**Low**
Floating Cover	$300/ML	$320/ML	$340/ML
Shade Cloth	$300/ML	$340/ML	$400/ML
Monolayer	$130/ML	$400/ML	$1100/ML

The decision to install a system will depend on the value of water to the landowner in terms of increased crop production, cost of water and potential to trade water surplus.

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