

The Cotton Catchment Communities CRC, the CRC for Irrigation Futures and the CRC for Polymers have agreed to combine their joint skills to try and find cost effective solutions for control of evaporation losses from storage dams.

It is well known that one of the opportunities to improve water management would be to reduce evaporation from water storages on cotton farms.

A number of possible solutions have been proposed such as floating covers, shade cloth and liquid monolayers that float on the water. All these have various technical problems such as life of the polymer, application techniques and the prohibitive costs, Guy Roth Chief Executive Officer Cotton CRC said.

Mr Erik Schmidt, CRC Irrigation Futures said: "It is estimated that there are 22,000 enterprises with on farm storages in Australia with a surface area of around 278,000 hectares, holding some 12,500,000ML. Annual evaporation losses from these on-farm storages can potentially exceed 40 per cent of the storage volume."

A recent review and analysis of evaporation mitigation technologies conducted by the NCEA has demonstrated good performance from commercially available "structural" evaporation control products (e.g. suspended shade cloth and floating plastic covers) for storages less than 5ha in area.

For storages exceeding 10ha, options are more limited. Chemical monolayers have been trialed, but have exhibited wide variability in evaporation reduction (0%-40%). New monolayer products synthesised with polymers are expected to raise this performance to 20-40%.

Reasons for variable performance of monolayers are not well understood. Reasons could include break down by ultraviolet light, consumption by algae or bacteria, or poor distribution across the water due to application methodology, water quality, physical barriers, wind or wave action.

Technologies to pump the monolayer onto large storages have been developed at NCEA and recently by commercial suppliers and show potential but require optimisation and testing.

Monolayers offer huge potential if performance can be improved since capital costs are negligible and costs of effecting water savings with monolayers can be less than \$150/ML, substantially lower than other structural options (\$300-\$400/ML).

Erik Schmidt indicated that the CRC Irrigation Futures is looking to undertake research to improve the management of monolayer products. These could include:

- Development of improved sensor, monitoring, application and control systems as well as best management guidelines for evaporation control products
- Better ways to install and apply the technologies.

Ian Dagley, CEO of the Polymers CRC, highlighted the opportunities to improve the performance of current monolayers by development of new formulations that enhance the resistance of the monolayer to wind stress, reduce frequency (and cost) of application, and substantially improve evaporation saving potential. The next step is to gain further industry support and funding for the research and development.

For more information: Erik Schmidt Irrigation Futures CRC 07 4631 1347, Guy Roth Cotton CR02 6799 1509, Ian Dagley Polymers CRC 03 9518 0400



Pictured: Back row: Graham George (QUT), Geoff Barnes (UQ retired), Ian Dagley, CEO CRC Polymers, David Solomon (Melb Uni), Graham Harris, QDPI&F/Cotton CRC **Front row:** Erik Schmidt, Director NCEA and Program Leader Irrigation Futures CRC, Guy Roth CEO Cotton CRC