

Saltwater solution to save crops

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Technology under development at the University of New South Wales could offer new hope to farmers in drought-affected and marginal areas by enabling crops to grow using salty groundwater.

Associate Professor Greg Leslie, a chemical engineer at UNSW's UNESCO Centre for Membrane Science and Technology, is working with the University of Sydney on technology which uses reverse-osmosis membranes to turn previously useless, brackish groundwater into a valuable agricultural resource.

"We are looking at ways to grow plants on very salty water without damaging soil," Professor Leslie said.

"We're incorporating a reverse osmosis membrane into a sub-surface drip irrigation system."

The irrigation system relies on the roots of the plant drawing salty groundwater through the membrane – in doing so removing the salt which would otherwise degrade the soil and make continued cropping unsustainable.

Desalination such as this requires a pressure gradient to draw clean water through the membrane. Professor Leslie has demonstrated that, by running irrigation lines under the ground beneath the plants, the root systems of the plants provide enough of a pressure gradient to draw up water without the high energy consumption usually required for desalination.

"We're going to provide agriculture with a tool to grow crops in drought years when there is limited access to run-off and surface water," he said.

The membrane technology, developed by Professor Leslie and the University of Sydney's Professor Bruce Sutton, has been patented by UNSW's commercial arm, NewSouth Innovations.

Source: University of New South Wales

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