Prof Jim Cox
Principal Scientist
Water Resources, Viticulture & Irrigated Crops

SOUTH AUSTRALIAN RESEARCH & DEVELOPMENT INSTITUTE
PIRSA

Qualifications

BSc (Hons)	Flinders University
PhD	University Of Western Australia

Role

Prof Jim Cox is Principal Scientist, Water Resources, Viticulture and Irrigated Crops (WRVIC) within SARDI's Sustainable Systems Division. Jim is Science Leader of WRVIC research and holds Adjunct Professor status at Adelaide University.

Research focus

Jim's has worked in SARDI since 2008. His research spans several key areas related to hydrology: soil-plant and catchment water balances; soil physical properties that affect water uptake by plants and trees, solute transport in agricultural catchments; and soil-water-drainage theory under dryland and irrigated crops.

Major projects

Jim manages research projects and staff working on a range of state and industry priorities focussing on water resources and irrigation. These projects have included:

- Use of recycled water for growing grapes and almonds
- Water allocation planning for the Mount Lofty Ranges
- Water requirements of industries and the environment along the River Murray
- Sustainable diversion limits for the River Murray
- Indicators of health of the Lake Eyre Basin
- Development of a water quantity and quality model for South Australia
- Peer review of the Murray Darling Basin Plan
- Minimising environmental footprints from irrigated almonds by using new methods and tools
- Citrus drought survival and recovery trial
- Screening the vitis genus for tolerance to boron
- Evaluation of water movement and nitrate dynamics under citrus
- Determining evaporation rates (water usage) of almond trees
- Evaluation of soil plant system response to pulsed drip irrigation of an almond tree under stress
- Modelling soil water and salt dynamics under pulsed and continuous surface drip irrigation of almond and implications of system design
- Off-site transport of nutrient and pesticides from horticultural land-uses
- River Murray Decision Support System: Prototype
- Review of the assessment of reliabilities for licences in the Tindall Limestone and Oolloo Dolostone Aquifers based on potential impacts on Daly River streamflows.

Key publications

Phogat,V, Skewes, MA, Cox, JW, Sanderson, G, Alam, J and Simunek, J (2014) Seasonal simulation of water, salinity and nitrate dynamics under drip irrigated mandarin (Citrus reticulate) and assessing management options for drainage and nitrate leaching. *Journal of Hydrology* 513: 504-516.

Pech, J, Stevens, R, Grigson, G, Cox, J and Schrale, G (2013). Screening the vitis genus for tolerance to boron with and without salinity. *Australian Journal of Grape and Wine Research* 19: 446-456.

Phogat,V, Skewes, MA, Cox, JW, Alam., J, Grigson, G and Simunek, J (2013) Evaluation of water movement and nitrate dynamics in a lysimeter planted with an orange tree. *Agricultural Water Management* 127: 74-84.

Phogat, V, Skewes, M, Mahadevan, M, and Cox, JW (2013). Evaluation of soil plant system response to pulsed drip irrigation of an almond tree under sustained stress conditions. *Agriculture Water Management* 118: 1-11.

Mavi, MS, Sanderman, J, Chittleborough, DJ, Cox, JW and Marschner, P (2012) Sorption of dissolved organic matter in salt-affected soils: Effect of salinity, sodicity and texture. *Science of the Total Environment* 436: 337–344.

Phogat, V, Mahadevan, M, Skewes, M and Cox, JW (2012) Modelling soil water and salt dynamics under pulsed and continuous surface drip irrigation of almond and implications of system design. *Irrigation Science* 30: 315-333.

Boards/Committees

Goyder Institute for Water Research Advisory Committee

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