

Soil Water Laboratory

The Soil-Water Laboratory has been set up with a \$45,000 grant from the Cotton Research and Development Corporation (CRDC) and funding from the University's own Sesqui major equipment grant program. It was opened by Ralph Schulze, executive director of the CRDC on 8th November 2002, with welcoming address from Prof. Don Napper, the Pro Vice Chancellor of the University of Sydney.

Some of the latest instruments for determining the hydraulic properties of soil have been made available in the laboratory to Professor Alex McBratney and his research group in the Faculty of Agriculture, Food & Natural Resources.

While the Faculty of Agriculture, Food and Natural Resources has traditionally focused on production, the new equipment fits hand in glove with the new emphasis on natural resources management, and is expected to yield a host of useful data, applicable to a growing number of collaborative projects.

"In the current climate of drought, water sharing and increased environmental pressures, the CRDC and the University recognise that increased water-use efficiency is the key to the survival of Australian agriculture in general and cotton production in particular," said Dr Willem Vervoort, the McCaughey Lecturer in Hydrology and Catchment Management, one of the researchers working with Professor McBratney.

This can only be achieved through better knowledge of hydraulic properties. Progress in the assessment and management of salinity is also dependent on better hydraulic information.

Equipment provided by the grant includes a state-of-the-art, computerised evaporation instrument, the only one of its kind in Australia, that measure the water retention and unsaturated hydraulic conductivity up to 10 samples at a time. The lab. permeameter instrument measures the soil saturated hydraulic conductivity of up to 25 soil samples at a time.

Understanding the movement of water through soil has advantages for cotton and other crops, for better understanding how removal of vegetation affects dryland salinity, and for minimising contamination after chemical spills. In addition, the water-holding properties of the wide variety of soil types in NSW have yet to be measured in detail.

The equipment has been used recently for determining the physical soil quality of various cotton growing soils in the project conducted by Dr. Damien J. Field.