

# Serendipity serves up soil science honour

An absent-minded moment by one of Australia's leading scientists led to a world-first finding about a fundamental of soil chemistry, and recently scored soil science fame.

Dr Pichu Rengasamy's discovery about the reaction of glucose with soil-borne iron was among the research that recently earned him the highest honour in Australian soil science.

Raised in a tiny Indian village Renga, as other soil scientists call him, was awarded the J.A. Prescott Medal in March 2008.

The medal is awarded annually by the Australian Society of Soil Science to 'a person who has made an outstanding contribution to soil science'.

Renga achieved research renown when he left a soil/glucose mixture on his lab bench for a week before returning to discover that glucose had induced flocculation (which prevents soils collapsing when wet) via the formation of iron in the soil that had now become reduced.

He has been known to do soil experiments in his back yard. One of these helped soil scientists understand how dif-

ferent bonds between atoms in soils affected the soil properties when he watched what happened when soil was sprinkled using diesel instead of rain.

Renga has devoted his life to the problem of sodicity, which is an excess of sodium in soils. Sodicity causes poor water infiltration, surface crusting, erosion and waterlogging.

## Unused water

He explained the importance of this work: "The improvement of sodic soils could have major impacts on farming water use efficiency. Australia-wide, the amount of water left unused by rain fed crops due to sodicity and related issues is six times more than all the water used domestically and industrially.

"Household water restrictions are negligible compared with what could be saved by improving the water use efficiency of sodic soils," he said.

Renga has studied using gypsum on soils and discovered that when a soil was both sodic and saline – gypsum was useless. Saline soil increases the energy required by

the plant to access soil moisture. Gypsum might help to flocculate the soil, but the plants are unable to access soil moisture due to the salinity.

Reporting on the award, the J.A. Prescott Medal committee stated: "Dr Rengasamy's career shows that he has contributed significantly to applications and basic soil science in particular in the area of soil physical chemistry of sodic soils. Not only did he contribute as an academic to soil science but has also shown commitment to the advances in soils science within an applied context as well as extension. His publication list is evidence of his achievements.

"In an age of often-instant experts, he is a real expert, with decades of experience in his field. He has always made his expertise available to all, whether they are students, farmers or scientists, including those in other fields besides soil science.

"Renga has had a truly illustrious career, and although serendipity may have played a role in some of his findings, it is Renga's keen intellect that enabled him to take these accidental findings to the next level." ■



From backyard experiments through to world class laboratory research, Dr Pichu Rengasamy's work has had enormous benefits for farmers Australia-wide.